0 2007 0497689 9
California State Library
RY.
Accession No. 179298
Call No. fc 630.5 Pi v.89 1915

Vol. LXXXIX—No. 1 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

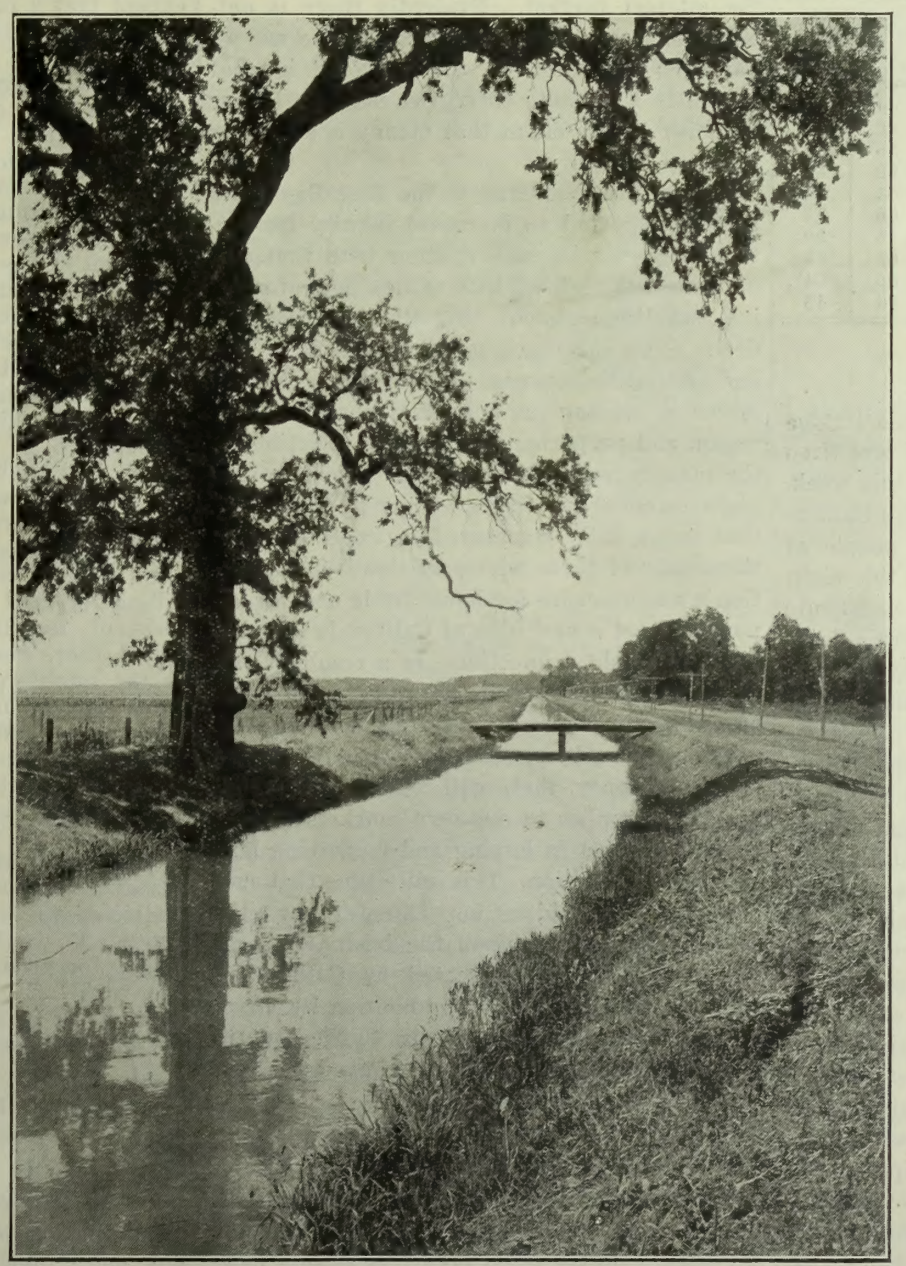
SAN FRANCISCO Saturday, January 2, 1915 LOS ANGELES

State Library 7-1-16

Agricultural Review of the Year.

[Written for PACIFIC RURAL PRESS.]

Easily the overshadowing influence on California agriculture for the past year has been the European war, because we raise so much more than we can eat that it is necessary to find foreign markets. And these failed us at the critical moment, viz., the harvest time of bounteous crops, brought forth by the heavy winter rains. No serious frosts had given semblance of failure to the crops, a touch of hot spring weather had reduced the setting of myriads of fruit blossoms to a sub-normal crop of prunes, but peaches outdid all records per acre, apples had fewer pests and cleaner, bigger crops than usual, pears gave a healthy crop, apricots did well, plums were good and the citrus crop, whose marketing was recently finished, came near the record for quantity and quality. Grapes mildewed badly all over the State, but even at that, there were about as many for all purposes as the vines could mature normally.



Irrigation Is One of the Big Factors in Agricultural Achievement.

Fruit Prices—The prices of fresh fruits generally have been satisfactory, especially so for grapes, considering the whole season. Peaches and apples were low because they grow so well in so many parts of America and the world, and there happened to be bumper crops most everywhere. Prune prices were up awhile on account of the prospects for a light California crop. They dropped when the prunes of France were offered in London and New York at any old price they could get, but those deliveries could not be made because of the embargo laid by the French government. Those prunes of France do not amount to nearly so much as the coarser, sourer Bosnian-Servian variety, but the latter, too, was unavailable for world consumption. Germany, having been one of the largest importers of our dried peaches, and having been shut off from importations, has kept that crop at a rather ruinous price, in spite of the hopes of growers before the war opened. Citrus prices have been disturbed more by the reduced tariff than by the large production, which could have been easily cared for under conditions as they have developed in past years. Lemons especially have had to compete with cheap cargoes from abroad. And this may continue while the war lasts, since it is probable that the nations at war will curtail citrus consumption to supply more vital needs. This will throw an increasing amount of European citrus fruits on American markets unless a tariff wall is raised.

The British, French, and Russian consuls in San Francisco diplomatically protest the ability of their countries to supply all the food they will need for years. The Russians even waxed a bit haughty at the suggestion that they might import food from America. "Why," was the remark, "Russia is one and a half times as large as all North America. She has nearly twice the population of the United States, and there are many districts that do not know Russia is at war. The use of the standing army of 5,000,000 men at war does not withdraw any from agricultural production, which is scarcely disturbed."

The English consul thinks that the war has made no particular difference in the buying power of his people, that they will continue to buy the more luxurious foodstuffs, though the reduction in their market for manufactured goods may curtail their buying of raw materials, such as wool, cotton, lumber, etc. Canned fruit is no longer considered a luxury, and the portable, lasting dried fruit is a necessity. He figures that the only effect of the war will be to increase English imports of the same things they have been buying.

The French consul was still more diplomatically meaningless in telling what France might need in the way of California products next year.

According to the San Francisco Chamber of Commerce, San Francisco alone exported, by sea only, to Russia during the year 1913, $10,000 worth of prunes, nearly $7,000 worth of dried apples, $3,400 worth of dried apricots, and $6,000 worth of other fruits. England took $3,200,000 worth of canned fruit, $3,000 worth of dried apricots and peaches, and $6,500 worth of prunes from San Francisco. France took $132,000 worth of dried apricots, $12,000 worth of dried peaches, and $671,000 worth of prunes. Since the allies have command of the seas, these figures are likely to be materially raised in 1915.

On the other hand, Germany took $80,000 worth of apricot kernels, $95,000 worth of canned fruit, $27,000 worth of dried apples, $317,000 of dried apricots, $62,000 of dried peaches, $100,000 worth of other fruit, besides $1,000 of raisins and $1,200,000

(Continued on page 9.)

179298

ENV. 1916

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., December 30, 1914.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.29	15.37	16.37	60°	38°
Red Bluff..	.12	8.02	9.79	68	32
Sacramento.	.62	4.59	6.92	56	34
S. Francisco	.26	6.50	8.03	60	44
San Jose...	.20	5.56	6.03	64	34
Fresno	.00	2.28	3.41	60	32
Indep'nd'nce	.00	.52	3.37	48	20
S. L. Obispo.	.20	5.74	5.59	68	38
Los Angeles.	.00	4.21	5.00	66	44
San Diego...	.11	4.02	3.03	64	48

The Week.

The first gun in the great California Publicity and Prosperity Campaign of 1915 was fired at San Diego on Friday evening of this week. It was the signal of the opening of the California-Panama Exposition, which the people of San Diego, warmly supported by the eight counties south of Tehachapi, which constitute the region known as Southern California, have created, with great taste and liberality, as their special contribution to the development of the State under the uniquely favorable conditions which have been realized by national enterprise. One cannot say too much in praise of the San Diego masterpiece in the local exposition line. It is not claimed to be of the nation, for the Panama-Pacific in San Francisco discharges that official function, but it is for the nation and for the world. In this sense it is a local effort for the patriotic purpose of upbuilding California and it is safe to claim that it is the most unique, beautiful and significant of all the expositions of its class ever realized in the world. It surpasses all expositions of its class as the Panama-Pacific surpasses all undertakings of world-aim and participation. It should commend itself to the patriotic satisfaction of all Californians, because it shows what one of the main divisions of the State can do for itself, and particularly what San Diego has done to manifest the grace, force and competence of its citizens, and to demonstrate their confidence in the fact that their city has a call to be great. For the full round of a year this wonderfully beautiful and interesting exposition will exist in San Diego—a mimic city of charm, recreation and education within a real city of industry, enterprise and delightful living. The Exposition was formally opened on New Year's Eve by Secretary of the Treasury McAdoo, as the personal representative of President Wilson, bringing with him, as a token of that fact, Mrs. McAdoo, the President's youngest daughter, who only recently manifested her wifely foresight by marrying the man who has control of all the money in the country.

The Dawn of Prosperity.

There seems no longer any doubt that the glorious illumination over the Sierra's rim, which the early riser may now discern, is a token of the effulgence which will prevail through the new year 1915 in California. The rush of work in the fields following the rains is representative of the activity which prevails in all pursuits. Money is casting off its shackles, for it is apparently to be had outside for less than the five per cent required by the local Reserve bank. It is really a sort of a financial joke to have a bank with thirteen and a half million dollars on hand and only three-quarters of one million called for on loans. The Reserve bank looks like a bull in the interest market. Evidently there is outside money at 4½%, perhaps. All the use we have for that fact at the moment is that evidently legitimate enterprise need no longer languish on the claim that money is scarce or tight.

In San Francisco and in the East Bay cities there is reported an increased inquiry for factory sites and journals dealing with that sort of thing are making lists of new manufacturing establishments covering all lines of human desire from chewing gum to munitions of war and all that lie between. The Chamber of Commerce is making an industrial survey of the region and preparing to submit propositions to the management of enterprises which contemplate establishing factories in San Francisco. One seems fully warranted in expecting that thousands of those who participate in the nation's manufacture for home trade and for export will get a new idea of California's importance in world connections, as a result of side studies which they will naturally make while attending the Panama-Pacific Exposition. And, of course, as a by-product of this movement of men and money, there will arise new demands for food supplies in our own markets and increased interest in buying and improving land for their production. It is quite time that such a movement should set in. Thus far, our cities have grown chiefly upon the business engendered and the value created by California's rural industries. Now let our cities, by virtue of their manufacturing, return to the country some of the force of which they have been hitherto collectors and not creators.

The Rural-Credit Ruction.

The issue between the real-farmers and the near-farmers on the subject of what the country should do for rural credit, is arising more sharply. In our issue of December 19 we gave, with some detail, the onset which the members of the Grange and the Farmers' Union at the East are making against the declared attitude of the administration on the subject. The mails are bringing closer definition of the points at issue, but we must acknowledge they do not enable one to clearly see what is the exact ratio between politics and real patriotic interest in the impeachment of the administration's attitude as it now seems to be discernible. This is the reason why we are continually exhorting the farmers, through their organizations, to get at the situation and thresh something out of it. They ought not to leave the subject to the professional economists, bankers, politicians and agricultural editors, sitting, meanwhile, on the fence and watching their antics. If the farmers do not go to it collectively, it is surely likely to be settled without benefiting them over-much. For instance, what have the farmers to think or say about this arraignment of the administration, which we find in a Washington letter to the Philadelphia North American of December 12?

"The secretary of agriculture says that the problem to be solved is how to increase the production per acre. This production is far below the average of all European nations. In this connection he discusses better modes of farming, greater diversity of crops, scientific soil analysis and the use of fertilizers. But of the question of credit, the one necessity, without which it is virtually impossible to increase farm production in the United States, the secretary of agriculture has nothing to say except that a land mortgage bank system will give the farmer everything he can possibly need.

"The best agricultural credit system in the world is that of France. They lend money for productive purposes only, and they care not whether the producer owns the land he cultivates or whether it is mortgaged or free from incumbrances. These agriculture credit banks have placed the farmers of France upon the level of the merchants and other business men. If a French farmer wants to buy farm implements or cows or horses or anything else needed to make his farm productive and to increase the food supply of the French people, the banks provide him with the money. Such a personal credit system is the great need of agriculture in the United States, a system which will enable even tenant farmers to obtain upon reasonable rates the equipment needed for increased farm production.

"The president has never had any other plan of rural credit legislation than that providing for land mortgage bank system. He is insistent, too, that whatever system is established, there shall be no government aid given in the establishment. He has refused to approve the bill framed by the house committee on banking and currency because it provides that the government may be required to purchase some portion of the bonds which the bill contemplates shall be issued by the land mortgage banks. A land mortgage bank system is a matter of importance, but in the United States its operations for many years would be restricted to the refunding of existing mortgages. It would not produce any additional money for production until the mortgages had been paid off, and it would not increase production for many years."

The contention clearly is, that a farmer of good repute and of producing capability should have a loan when he needs it for specific improvement underlying production: that he should have it without pledging anything but his good name and his record, and should not be obliged to mortgage his lands any more than a reputable merchant has to chattel-mortgage his stock in trade. It is a shifty merchant who is reduced to that extremity because he has not a good name; the farmer is practically always put in that class, even though he has a good name—unless he happens to have built himself into the system in such a way that he is rated as a business man rather than as a farmer. And then, there is the rate of interest on loans for farm equipment and improvement. It is stated in a preceding paragraph that there is so much money, owned by people who have recovered from the scares of 1914, that commercial bor-

v.89 1915

rowers are getting it at 4½% on short time. A man might get it perhaps to start a "movie" in the town, but could he get it to start a cow in the country? Surely farmers ought to be talking about some of these things.

How a Farmer Can Finance Himself.

We get a note once in a while from some one who holds that helping farmers to borrow money to get a start or to improve their places is a pernicious doctrine—likely to get farmers into debt and break them up. We are aware of course that there is some force in the claim; that many men who are now watching the declining sun on farms, earned the farms by themselves and for themselves, without much financial help, but the answer to the proposition is that it was, on the whole, much easier to get a farm in the last generation than it is now. And yet, some seem to be able to do it now, and when they do all other blessings are showered upon them. The story is that a farm hand in Nevada county, named William Welch, has absolutely reached the limit by saving $280 out of seven months' wages at $40 a month. The fact was printed in the newspapers, and Welch has received many offers of marriage from young women looking for steady husbands. We should be afraid of such a saving genius—but no matter about that. The statement is that Welch actually saved sufficient capital out of his wages of less than one year to install himself on a forty-acre tract on his own account; built a small house, and lives alone in it. We have no doubt that Welch will pull out, even though he probably is paying twice as much interest as he ought to on his deferred payments, and in that way the public punishes him for the frugality which it affects to admire. The fact that a man can save money is no justification for robbing him of a part of it.

Who Pays the Freight?

We disagreed with an old friend the other day because he claimed that the rate of freight on California products to distant markets did not matter to the producer, because the consumer paid it. The news from Fresno this week shows pretty clearly that reductions in freight are of direct moment to producers, just as soon as they get themselves, by organization, into shape to enjoy what properly belongs to them. Prices on raisins are advanced ⅛ and ¼c this week by the Associated Raisin Company and the manager, Mr. Madison, says the increase in the price will not necessarily cause an increase in prices to the Eastern consumer. As the freight rates by sea through the canal are much less than the trans-continental rail rates, the Association is simply giving the grower part of the advantage of the canal freight rates to the East. Where would this money have gone if the growers had not been doing their own business?

Wonders of the War.

We find it impossible to say anything about the war without violating President Wilson's neutrality policy and proclamation, and yet we cannot let it entirely alone. What Americans think of the unpardonable crime of starting it may be inferred from the fact that Nebraska farmers have refused to sell any more war-horses. To a buyer for a belligerent, who said he was willing to pay top figures for animals suited for cavalry and artillery purposes in the European war, the farmers admitted they had some horses for sale, but said they were too much attached to the animals to have them sent to a far-off country, probably to be killed on the battlefields. If some European war fiends thought as much of their fellow-men as the Nebraskans do of their horses, this would be a better world.

And here is another war-note which is not so plaintive. A despairing manufacturer of paint brushes for water colors, reported to the Chicago Chamber of Commerce that he must close up shop because all of his brushes came from Germany, where they were made by a secret process from either camel's hair or rabbit's hair. Investigation of several weeks developed the fact that the hair inside a cow's ears makes brushes that equal the importations from Germany. And thus a stockyard's cow has rescued American art from war injuries and perhaps laid the foundation of a new industry.

Growing Wheat for Poultry.

A chicken grower of Marin county recently called us up, having been scarced by our prognostications of wheat scarcity. She wants to plant six acres of wheat for her poultry and let them thresh it next winter, because all she is doing already is to sign checks for feed.

Queries and Replies

Querists must give name and address.

Four Buds to a Tree.

To the Editor: Under separate cover I am sending you two sample trees of a lot of 400 planted in nursery rows last March, budded in September, to be planted in orchard form as soon as conditions are right, as dormant budded trees. The object is to get what I think will make an ideal head, because all trees will be uniform with the lower bud always facing same direction. I would like your opinion of the method through the Pacific Rural Press. The trees are almond seedlings budded to almond.—E. F. Grauel, Davis.

Mr. Grauel, who is of the horticultural staff at the University Farm, has done exactly what he says and has done it well. All the four buds in each stem have taken well. They are about four inches apart and placed around the stem, so that their growth will put out for a perfect balance of the top and occupation of equal space and sufficiently apart not to crowd each other. Mr. Grauel certainly has arranged for an ideal head. The obvious theoretical objections are the doubt whether he will succeed in getting all these buds to start; whether he will not be too busy sometimes to watch that no other shoot gets the start of them and whether such watchfulness on a large scale would not cost too much, etc. And there is, of course, the other question as to whether it is practicable for a propagator to put four buds in a stem when it is so easy to develop a whole tree from one bud low down, so that suckers need be looked for near the ground. However, Mr. Grauel has started a very interesting experiment, and his final comments will be watched for. Mr. Hodges of our staff will plant these two trees in his garden and observe their behavior. As for programme of Mr. Grauel, it occurs to us that if he had done June budding if the stock was strong enough, or if he had held these trees in nursery another year, so as to have the right growth started, he would avoid the difficulties besetting dormant buds in field-planting. It usually makes a man wild enough to watch and start one dormant bud to a tree and it must increase the trouble to watch four and to have it necessary for all to start in order to get the form of tree which is intended. But we are very glad it is being done.

Renewal of Peaches by Installments.

To the Editor: An important part of pruning peach trees is to maintain the top in good health. C. H. Smith at Selma cuts off one limb each year on a tree, saying that in four or five years his peach trees would have a new top. The sawed-off limbs do put forth splendid new growth. However, he has clings, and can afford to buy plenty of commercial fertilizers. With dried peaches at 3½c. the grower who has free-stone peaches cannot do much fertilizing. Kindly advise me whether it would be good practise to follow Mr. Smith's example in this matter.—A. W., Kingsburg.

We see no particular objection to Mr. Smith's plan. If he counts it easier for the tree, we fear it might be like the plan of the merciful man who cut back his dog's tail an inch at a time on the belief that it would not hurt him so much as to take it all off at once. If he would cut back properly each year he would not have to cut off limbs at all, or at least only once in a decade or more. But from what you say of Mr. Smith's advantage in selling, he evidently does not wish to lose the selling of a crop, and from that point of view his method is reasonable. By the same sign you would be justified in cutting yours all back at once, because you have now nothing to lose and you would get a whale of a crop when the price goes up, as it surely will. As for fertilizing: if the trees need it you had better do it, or else make firewood of the trees. Having weak trees will not help the price. Besides, why punish the trees for low prices and get them into such shape that they cannot make good peaches when there is a good price?

Tepary Beans.

To the Editor: Can the tepary bean be grown successfully in the San Joaquin Valley? When is the best time to plant them, and do they require much irrigation and cultivation? Is it possible to get more than one crop from the same vines in one season, or do they need to be replanted?—M. E. W., Orosi.

Undoubtedly they will do well where they can get the moderate moisture which satisfies them, but they cannot grow without that. They can stand heat better than common beans. Plant after frost danger is over and give good cultivation and irrigation, as necessary to keep the foliage good until the pods are filled. We do not know how far they will repeat if the beans are picked and the plant kept from drying up. We would like to hear from some valley reader who has grown this bean.

Precocious Citrus Trees.

To the Editor: What is the general opinion as to leaving fruit on young orange and lemon trees? My trees will be two years old next May. Some of the growers here pick off the blossoms and others pick off the fruit when set, and others leave it on. I let my trees do as they pleased; some dropped all, and others had from 1 to 10 oranges on and made good growth.—J. F. W., Orange Cove.

You did about as well as you could. If you wish to be encouraged by the sight of a little fruit, it does the tree no particular harm. It is not, however, desirable to allow young trees to carry much, but if you mean that the trees are now coming into their third year in the orchard, they can carry some fruit next year to advantage.

Twig Pruning to Renew Prunes.

[Written for PACIFIC RURAL PRESS.]

When an ordinary prune tree is twelve to fifteen years old, the wood-growth is choked off by all the buds becoming fruit bearers. All but those close to the ends of the twigs die, and after three to five seasons of bearing, they too die. Such a tree has a good chance to die. Its only salvation is in the suckers, which are a long time amounting to anything for fruit.

On a recent trip through the Santa Clara county prune orchards, we saw innumerable old trees on which limbs had been or would be cut back to stubs, three to six inches in diameter. So bad is the dying in many trees that the stump puller and dynamite are the only solutions.

To avoid such loss, S. L. Wattles, of Healdsburg, has adopted the policy of cutting back the tops severely every few years. Limbs an inch or so in diameter are cut back to a crotch if they haven't shown new wood growth. This "puts new trees in the tops of the old ones," so that as one looks down on the tops of some of his 22 year trees, they have the color and luxuriance of 6 year-olds. They are not cut back enough to lose all the crop, but a large part is lost for two or three years, besides leaving stubs exposed to decay, for many of them will never heal over. However, Mr. Wattles has noticed for several years, that his topping back has forced out new growth all through the trees, and that the green leaves hang much longer in the fall to the new wood than to the old. His crop has averaged about 50 per pound, dried, and three tons per acre, for several years.

But a different system has been tried out, with great success, by A. Taylor, who lives near Meridian, in Santa Clara county. "Every cut I make on a tree, I know what will follow and why I do it," says Mr. Taylor. He began his training with Rudolph Wiltz, of San Jose. He used to read all the literature on pruning, then test out the different ideas, tieing strings to the various cuts and keeping records of the results. He used to drive about the country too, observing the effects of the neighbors' pruning. Today, the scope of such investigation may be widened many miles by any farmer owner of an automobile, because it is so much easier to get around in that way.

Among the things Mr. Taylor observed was the fact that new wood and buds are made only in May and June, with sometimes a little growth in July if the trees are irrigated late in June. This new wood has single, pointed leaf buds about an inch apart along its entire length and few, if any, fruit buds. Next year the dormant fruit buds beside these leaf buds, will burst forth in May and June, two to five of them. They will be "round bellied" and plump. Mr. Taylor has watched the buds grow, using lenses to help see things plainly. He does not believe that any ordinary treatment enlarges the buds after June and that they ought not to increase in size after June. Only once has he observed such enlargement, as if they were about to begin opening. Next spring after that the bloom was weak and did not set enough fruit.

The year following the one in which the fruit buds appear, sees them blossom and bear fruit. For three to five years these spurs grow a little longer, develop more fruit buds each year, with leaves among them, and bear fruit. Then they die, leaving a scar which may be healed over smoothly in the years to come, but beside which are always dormant buds, ready to come to active life under proper stimulus.

Meanwhile, if the tree is in the vigor of life, under about fourteen years of age, it is sending out new wood by elongation of central and lateral twigs, and is bearing fruit on them. Thus the fruit-bearing spurs are pushed farther and farther from the trunk of the tree and from its roots. At about the age mentioned above, the circulation has become so feeble that practically no new wood is produced. We have seen large numbers of such trees. In three to five years these spurs at the ends of the limbs die, and since there is no new wood growth to support leaves, and since the old buds and spurs are dead, the whole limb dies back and perhaps water sprouts break out from some of the dormant buds down on the trunk, which were healed over in years gone by. Mr. Taylor maintains that with a proper leafage in a prune tree, there will be no water sprouts. Such a sprout bears a crop after three to five years more, and by judicious pruning may be induced partially to fill the gap where its dead forebear has been cut out. Large numbers of such stubs observed in various orchards are unprotected at all from decay, while in others, the white, painted stubs appear to the passer-by like a kaleidoscope.

Prune Twigs, Not Limbs.—But such severe cutting is not necessary, even on an old orchard, if pruned right before the limbs die, and there is no need of losing even a partial crop on account of the pruning.

The idea Mr. Taylor advances, having been worked out on the 25-year Evergreen orchard and partially worked out on his present ranch, is to clip off all but three or four buds on the twigs on the outside of the tree, not touching many twigs inside, except to thin them out where too thick. This is done October to March—none in summer, because he does not like the evaporation. The cut is made in the internode above

PLANT APRICOTS

Consider these facts—
Market—The entire world.
Demand—Steadily Increasing.
Supply—Grown commercially only in California.
Profit—From $175 to $300 an acre.

Weigh the evidence, and your own good judgment will tell you to plant

SILVA-BERGTHOLDT'S
Foot-Hill Grown
Apricot Trees

Prized for their thrift, hardiness, good root systems and freedom from disease.

Though we have an extra fine block of Blenheims, Royal, Newcastle Early, Moorpark, Routier's Peach, and Tilton on Apricot, Peach and Myrobolan Root, a shortage of good stock is expected this year, so order now and get choice trees.

WRITE US FIRST

The Silva-Bergtholdt Co.
P. O. Box E Newcastle, Cal.

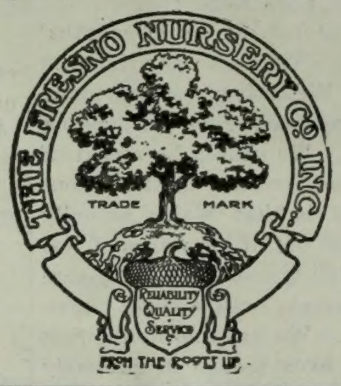
Wilson Trees Recognized the Standard

IF YOU WANT RELIABLE NURSERY STOCK

well grown and otherwise first class, write us.

Our New Catalog is the talk of the Pacific Coast. This Book gives descriptions of all commercial varieties of Nursery-stock, and in addition it contains valuable Planting Methods and other expert advice. Send for it. IT'S FREE FOR THE ASKING. Submit a list of your wants for quotations. Special prices named on large orders.

SPECIAL OFFER
All orders placed with us before Jan. 1st, 1915, calling for 500 Trees we donate a Family Orchard of 20 Assorted Fruit Trees.



SPECIALTIES:
Deciduous Fruit Trees, Citrus Trees, Olive Trees, Fig Trees, Grape Vines, Hardy Ornamentals.

Address us Box 615 M, Fresno, Cal.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

OUR SERVICES ARE FREE

We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.

We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.

OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.

Write for Booklet.

CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco

Martinez Nursery
Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

a bud or short fruit spur—not just above a little limb, except in special cases. It heals over all right and wouldn't be serious if it didn't. In the first year, some effect, but not extensive, will be seen in the new fruit spurs forced out from dormant buds farther back on the limbs. New wood growth several inches long will come from the two buds nearest the cut and also on the unclipped twigs farther down on the limb, which would not have put out wood growth otherwise.

So marked is this effect of the clipping, says Mr. Taylor, that on one forked limb, taken for example, which had been clipped at the end of one branch of the fork back to a leaf bud and at the end of the other branch back to a secondary branch, several inches of new growth had been forced out on each of six secondary twigs. This wood growth was made in May and June of this season, the cuts having been made last winter.

Some of the outside ones of the six new growths are clipped back this winter and this second year's cutting is what will be followed by marked increase of new fruit spurs on the main limbs in 1915. The cutting will be repeated on the outside twigs next winter. There will be more fruit spurs forced through the bark of the big limbs in May and June of 1916, following that third winter of cutting. In the same season there will be fruit on the new growth that was forced on the twigs in the summer of 1914.

Having clipped back the twigs for three years in succession, an ordinary tree will have as much new wood as may be desirable, and no pruning should be done in the next two years. As a rule each added year of clipping brings out double the length of new wood. Specially vigorous trees will have too much new wood. This should be thinned out by cutting entire twigs off at their junction with the next larger ones. None should be clipped, for that induces more wood. The thinning will not cause new wood growth for a year or two, but the dormant buds at the base of the thinned-out twigs may grow into fruit-bearing wood the following season if end twigs have been clipped. If too much is thinned out, so as to throw the root system markedly out of balance with the top, and if inspiration is not given for new fruit wood by the twig clipping, the sap sent up by the roots will force water sprouts.

When the twig is clipped back to a fruit spur, the spur will make new wood growth, its leaves will flourish and it will bear fruit. When cut back to a leaf bud, new wood, usually with leaf buds only, comes from the leaf buds, and this is more desirable; for fruit buds already established will get the nourishment and bear the crop this year.

The cut should not be made just above a little limb or twig unless that little limb or twig is clipped back to a lateral leaf bud. Otherwise, there will be no effect, except indirectly from the clipping of other twigs on the same branch.

This system of pruning, like any other, must be adapted to the individual needs of each tree. Some seem feeble and need heavier clipping, both of twigs and fruit spurs, and they need it every year until the invigorated tree sends out plenty of wood and vigorous, large leaves. This applies to soils that are poor in fertilizer, though of course, in time, the pruning would have no effect for lack of food materials.

On trees pruned by twig clipping from the time of setting out, annual clipping could be so regulated that it would force out just enough wood to keep the tree bearing its maximum fruit crop every year. The aim would be to get one-fourth as many new fruit buds every year as were on the tree the year before, with due additional allowance for the added size of the tree each year.

The job is a slow one, but every cut heals over—there are no rotting stubs, and it forces fruit growth inside the tree. Mr. Taylor clipped three months on the 7-acre Evergreen orchard. Everybody laughed at him, but in less than three years he sold the orchard, that was 25 years old when he got it, at an advance of $2,000, because the inside of the tree was filled with fruiting limbs and spurs, distinguished from the suckers by their oblique growing and the large number of close-together fruit buds on them.

COST OF APRICOT CROP.

The following figures on the various costs of raising an average apricot crop in the foothills of Santa Clara county are vouched for by G. E. Merrill as being substantially accurate on his 32-acre orchard of trees 8 to 11 years old, in the two years, 1913 and 1914. All the team work is done with two horses, though of course much help must be hired. The valuation placed on the land seems high, for he charges $30 interest per acre. There is no charge for fertilization, irrigation or spraying, which do not yet seem necessary. No frosts have yet made firepots necessary. The pruning at 15 cents per hour costs $2.75 per acre and is done according to Mr. Merrill's carefully conceived ideas. One plowing and six cultivations cost $9 per acre, charging the team 25 cents per hour and paying help 15 cents. Picking the fruit costs $3 per ton or $9 per acre, cutting (it is practically all dried) costs $4 per ton, being done by families who camp on the place, and by boys whom Mr. Merrill takes back and forth to an orphanage in San Jose, by automobile. Hauling from orchard to cutting shed, drying and placing in fruit house cost $3 per green ton or $9 per acre. Hauling eight miles down hill and on the level to San Jose costs $2 per dry ton, or $1.20 per acre. Thus the total average cost per acre of producing and hauling to town a crop of dried apricots in each of two seasons, one of which followed two dry winters, the other of which followed a wet one, is $73. The crop figured is six-tenths of a ton dried per acre, which at 8 cents per pound would sell for $96, a clear profit of $23 an acre for managerial ability, besides increase in value of land and whatever wages he might make by working himself.

"For every dollar you seem to save on the price of a poor implement, you actually lose dollars before the end of the first season's use," is the terse bit of logic which a Nebraska dealer has printed on a sign conspicuously hanging in his store.—Exchange.

Armstrong Nurseries
ESTABLISHED 1889

Read This:

An order for 20,000 Olive trees has just been placed with me by one of the best informed Olive men of California.

This gentleman, after thoroughly investigating all the principal Olive Nurseries of the State, pronounced the ARMSTRONG NURSERIES' Olive trees to be the best in California, and the most reasonably priced.

YOU CANNOT AFFORD TO PLACE YOUR ORDER FOR OLIVE TREES UNTIL YOU WRITE AND GET MY PRICES ON THE DIFFERENT VARIETIES.

Ask for my "BOOKLET," containing valuable information on the planting and culture of the Olive.

Also: I want to mail you a FREE copy of my 1915 TREE BOOK, PLANTERS GUIDE AND PRICE LIST of EVERYTHING TO PLANT.

Fruit Trees of all sorts and varieties, Nut trees, Shade and Ornamental trees, Roses, Shrubbery, etc.

PLAN YOUR PLANTING NOW

John S. Armstrong, Prop.
406 Euclid Avenue.
ONTARIO, CALIFORNIA

Orange and Lemon Trees
Big--Clean--Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
We Can Save You Money Write For Prices
McMillan-Graffen Nurseries
Established 1900 Spadra, Cal.

FREE Book on RHUBARB Culture
WRITE FOR IT TODAY —

Now is the Best Time to Plant
RHUBARB
BERRIES AND SMALL FRUIT.
If planted now, you should derive good results
J. B. WAGNER-Pasadena, Cal.
The Rhubarb-Berry & Cactus Specialist.

LIME FOR LAND
HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

ETTERSBURG STRAWBERRIES
These are the varieties bred largely from our native species and other wild species. They are new and different from the regular varieties, exceeding them in vigor, productiveness and HIGH QUALITY
They are wonderful berries here, and they will be for you, too. Write to ALBERT F. ETTER, Briceland, Calif., for catalog and price list.
DO IT NOW

Prospects Developed by the Year.

[Written for PACIFIC RURAL PRESS.]

In fruit and nuts, the great troubles of other years have been due to lack of marketing facilities to distribute them properly. The nut growers now have organizations that have proved their ability to move the crops at profitable prices in spite of the Asiatic nuts now seeking a market here. The citrus growers have two organizations which have shown almost marvelous ability to protect their interests and to sell a swiftly increasing crop. The past year, for the first time has made the demand so insistent for a standard of maturity for oranges that such an one has been promulgated by the government, much to the disgust of those who have heretofore skimmed a little cream from Eastern market, thus leaving blue, skim milk for the rest, only saved from a reddish tinge by the efficiency of the citrus marketing organization.

With the war taking away some of the best markets for European citrus products, they are flooding American markets almost to demoralization at times, and perhaps the war is a distinct disadvantage to our growers. The enforcement of standards of maturity more strictly than has been possible this season, and the budding of citrus trees to productive types, along with cultural practices, are likely to make citrus growing increasingly attractive to those with enough capital and initiative to stand among the progressives.

Standards for maturity of grapes were also enforced in certain sections this season for the first time, and the effect on the market has been to make profitable a tremendous shipment which was demoralized at only one short period. Packing in sawdust has also proved another hope of the future, and being so successful with Emperors, has been tried on Tokays too. Raisins are moving to an unexpected advantage for the growers, and there is every prospect that the corporation of growers now handling this business is equal to whatever is before it. A large factor in the disposition of citrus fruits, nuts and raisins is the extensive advertising, pretty largely inaugurated the past year.

Olive marketing has been as bad as the crop was good the past season, and it reminds us of Theo. Kearney's remark about the raisin growers when he said they weren't yet hard up enough to organize. In one case at least, the growers have put up their own pickling plant and thus solved the problem locally. A State association is being agitated and will eventually handle the marketing as well as the organizations mentioned for other fruits.

The pack of canned fruit has been 20 per cent heavier than in 1913, peaches being proportionally still heavier. The total pack is estimated at 5,500,000 cases. The marketing of this is largely in the hands of one company, but the growers are stirring themselves in a co-operative way. Whether such a movement is wise remains to be seen.

Dried fruits, except prunes, have been discouraging. Prunes being of staple quality and of medicinal value, and having been a light crop in California and a light harvest in Europe, have held good prices and will continue to be as safe a proposition as any dried fruit. The other fruits, on account of the war, showed poor prospects, and large amounts were poorly cured on this account. The California Cured Fruit Exchange, which has been organizing and growing rapidly for a year or two, has had too big a job and too little proportional membership of the total dried fruit growers. The war's curtailment of markets and the poor quality, besides the large number of growers outside the Exchange, has prohibited the control they might have exercised over market conditions, such as that exerted by the stronger co-operative organizations. The Exchange is, however, very much alive and is proceeding with organization, emphasizing the enlargement of existing locals, and with its own Eastern market corps, is likely to stabilize dried fruit prices within a very few seasons. Its new manager has been in the California fruit marketing business for 35 years.

Fresh Fruit.—While the marketing agencies for fresh fruit are all attempting to discourage further planting, yet, for reasons pointed out in previous articles, there is every prospect that they will make good as a general rule with whatever may be offered for shipment. Two main organizations control the fresh fruit shipping business in California, with the exception of apples. These are the California Fruit Distributors, an association of commercial shipping companies, and the California Fruit Exchange, which uses the marketing corps of the citrus growers' Exchange to sell the fruit of local co-operative growers' associations. For apples, there is a strong sentiment in Pajaro valley favoring a growers' marketing organization, which has been sorely needed this year. Perhaps they too, are not yet hard up enough. The Sonoma county apple and berry district has two selling organizations, which have demonstrated unequaled efficiency in the marketing of local crops. Their success may lead to action in the other apple districts, which may in turn lead to the organization of a State apple growers' organization.

Standardization.—There is now a strong movement to legalize a standard apple pack by State laws, with good prospects for success in the near future, either in that way or by national laws. For fresh fruits, other than apples, a bill will be presented for passage by the next Legislature to standardize the packing of all other fruits for shipment fresh to Eastern markets. This is the outgrowth largely of Placer county's standardization rules which have been such as to stabilize prices and markets to a markedly profitable degree. It is recognized by all fruit growers that if standards of maturity, grading and packing can be enforced, they will net much profit to California growers.

By-products Help Standardization.—An aid of first magnitude to the standardization of market fruits is the use of the low grades in profitable by-products. The University of California, the U. S. Dept. Agr., and private parties have been working on this problem, especially during the past year, and have developed profitable by-products of grapes, citrus fruits, apples, etc., that promise commercially to remove the temptation to ship second grade fruits East, paying first grade freight on them and demoralizing the first grade markets.

Financial Prospects.—The buying power of America is already showing distinct improvement, which is almost certain to increase rapidly as the war in Europe progresses. Times have been rather hard because European loans in the United States have had to be called in, causing a flow of money to the big centers and thence to Europe, with a consequent reduction of loan credits available for American use in productive industries. American loans in Europe have been, and will be for a short time yet, paid back to us in securities representing our debts to Europeans, so that actual money has not yet begun a steady flow to the United States. There is every prospect that such a flow will commence shortly, and then with easy credits based on it, will begin an era of increased production, consumption and prosperity.

Special means of placing some of those easy credits within reach of farmers for the production, harvesting and marketing of their crops are engaging Congress and agricultural leaders now, so that the financing of farm operations promises soon to be as easy as the financing of any other business.

Lime sulphur or crude oil, sprayed in winter, will clean off both moss and scales and the insect eggs that are laid in the bark, if the work is done thoroughly, so every spot is touched. As a rule, a hired farm hand can be depended on not to keep a hand spray pump up to 200 pounds pressure. A little gasoline engine is cheaper and more efficient.

Farming as a Business.

The farmer is learning to get the results from scientific demonstration by experts. He is finding out that under certain conditions the soil will produce more than under different circumstances.

For instance, animal fertilizers put back into the soil those things taken from it—nature's way.

Animal fertilizer releases in the soil those life germs which are absolutely necessary to the growth of crops.

GOLD BEAR is the brand name for the animal fertilizer made in our government-inspected plant, under the most favorable conditions.

GOLD BEAR fertilizer has proved its worth in the fields of California in the growing of more and better crops to the acre—it has been tried and tested and found to be the one great help needed by the farmer who conducts his farm as a business.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Send for the Gold Bear Booklet.

Western Meat Company

704 Townsend St., San Francisco

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.

DON'T BUY CHEAP FAKE STOCK.

We are selling,

GUARANTEED CITRUS TREES

at reasonable prices.

Substantiated by 20 Years in Business.

Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

Citrus Trees With Pedigrees

Guaranteed Stock—Grown by Americans.

LEMONS—GRAPE FRUIT—ORANGES.

Balled and on the cars, 40c.

Write for special prices on quantities.

C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

Principles of Fruit Pest Control.

In the multitude of various conditions, under which each line of California farming is carried on, lies the danger of following the advice of successful men. It is only when advice or even the experiences of successful men are followed with due regard to the conditions under which their success was made, that it is safe. This is especially true in fruit growing, where the same fruits are produced on so many types of soil, drainage, rainfall and irrigation, sunshine and frost, age of trees, distance apart, rootstocks, previous cultivation and fertilization, prevalence of certain pests, et cetera, ad infinitum.

But in order to adapt the methods of a successful man to one's own conditions, it is necessary not only to know the conditions on both places, but also the fundamental elementary principles of the operations.

A condensed summary of fruit pest control with formulas taken from the Monthly Bulletin of the State Commission of Horticulture, is published in the Farm Bureau Monthly, of Yolo county.

"When the orchardist realizes the basic principles of insect and fungus control he knows at once the necessary control measures. Fungus attack is due to the parasitic growth of low plant forms upon the host plant, examples of which are mildews and the shothole fungus. The control of such is through the application of fungicides, those in most common use, perhaps, being Bordeaux mixture, lime-sulphur, and flowers of sulphur. Fungicides should be used as preventives, application being before damage is done, when by poisoning the fungus plant, its attack is forestalled.

"Insect pest control is based on the two groups of (a) chewing or biting insects, as codling moth in apple or pear and leaf-eating caterpillars; and (b) sucking insects as plant lice, red spider and scale insects. The control of group (a) lies in stomach poisons, such as lead arsenate and paris green, sprayed upon the foliage or fruit where the pest will eat it. The control of group (b) lies in the use of contact sprays. Insects breathe through tiny holes in their sides, and contact sprays kill by stopping these breathing tubes, by asphyxiation and by corrosive action. Stomach poisons cannot affect sucking insects, since such insects penetrate the outer plant surface and suck the non-poisoned juices from beneath. The main contact sprays are nicotine solutions, oil emulsions and lime sulphur. Because of its oxidation in hot weather, flowers of sulphur is also a contact remedy for the delicate red spider mites.

"Winter Spraying.—Lime-sulphur (fungicide and contact insecticide.)

Quick lime .....33 lbs.
Sulphur .....66 lbs.
Water .....200 gal.

"Moisten sulphur in barrel with hot water until of mushy consistency. Slack the lime to same consistency with hot water, and wash through a sieve into cooking tank. Add the moistened sulphur at once and make up to 50 gallons with hot water. Boil 45 minutes to one hour; replace water that has evaporated and strain into 150 gallons of water in the spray tank.

"Commercial lime-sulphur, 1 part to 9 of water, may be used to good advantage, and is more convenient than is the home-made solution.

"The above solutions, thoroughly applied just as the buds begin to swell, successfully control the peach moth or peach worm, and serve as a second spraying for the shothole fungus on the peach, apricot and almond. The curl leaf on the peach and the brown mite on the almond are controlled by this spraying. Aphis eggs on the prune and moss and lichens on all trees may be killed by this application, while San Jose scale is controlled by the same solution.

"The more resistant scale insects are controlled by crude oil or distillate emulsions.

"Crude oil emulsions (for deciduous trees).

Water .....175 gal.
Liquid soap ..... 3 gal.
Crude oil ..... 25 gal.

"Fill the spray tank with 175 gallons of water, add the liquid soap, agitate thoroughly for one minute, and pour crude oil in slowly, continuing the agitation. If liquid soap cannot be had, use 20 lbs. whale oil soap, dissolved in 10 gallons of boiling water, to which 3 lbs. of lye has been added.

"Commercial crude oil emulsions from firms of good repute and used according to directions, are more convenient and more satisfactory. Thorough application is essential with either, 8-15 gallons being used to the tree.

"Distillate emulsion (for evergreen trees).

Distillate (28 degs. Baume) 20 gal.
Whale oil soap .....30 lbs.
Water to mix .....12 gal.

"Dissolve the whale oil soap in the water, heating it to the boiling point; add the distillate and agitate thoroughly while the solution is hot. For use add 20 gallons of water to each gallon of above mixture."

EARLY GRAPE VARIETIES

[By Prof. F. T. Bioletti.]

Very early varieties are as a rule not profitable in California because they are small and inconspicuous. The earliest grapes in most parts of California are later than the bulk of the varieties from Imperial county. Earliness is more a matter of locality here than variety.

The only very early grapes that are grown in commercial quantities outside of the Imperial and Coachella Valleys are Luglienga, often marketed under the incorrect name of Early Mandeline and the Chasselas dore, usually called Sweetwater.

Certain Persian varieties are very early and of more attractive appearance than either of these, but they have all failed to bear well in most localities. In the Imperial and Coachella Valleys several of them are very promising. The earliest is the Khalili, a rather poor variety, the next the No 21 and No. 23, both of excellent quality and of attractive size, color and shape. Several others, notably the Chavooshi, the Paykani and the Alhakahi, are also promising for this region. The Lady Finger, grown and shipped from Sacramento and San Joaquin counties, seems to be identical with the last.

TREES

Everything that grows for ORCHARD VINEYARD GARDEN

The Fancher Creek Nurseries are generally acknowledged to be the largest and to have the finest and most complete stock of fruit and ornamental trees on the Pacific Coast.

THIS season promises to be a very active one, and from the way inquiries and orders are coming in, we anticipate a very large demand. Therefore, it is advisable for you to make arrangements as early as possible for the stock that you expect to plant. If you have not entirely decided upon just what you wish to set out, we will be very glad to advise with you—absolutely free of charge—as to what is best suited to your locality and what will most likely prove to be the most profitable varieties at the time when they come into bearing.

Our more than thirty years of experience in growing nursery stock, not only for our customers, but for our own requirements, enables us to advise you intelligently, and we can conservatively say that the stock which we have for sale this year is in splendid shape and warrants your careful consideration.

Calimyrna FIGS

—the world-famous Smyrna fig of commerce.

This is the fig to plant for sure, profitable crops. A prolific bearer — always brings good prices.
We can also supply the leading varieties of Adriatics. Ask for special FIG BULLETIN—FREE.

APPLES
APRICOTS
PEACHES
OLIVES
PEARS
ORANGES
WALNUTS
LEMONS
PLUMS
ALMONDS
PECANS
PRUNES
CHESTNUTS
CHERRIES
GUAVAS
LOQUATS
AVOCADOS
POMELOS
QUINCES
NECTARINES
PERSIMMONS
GRAPES, BERRIES, etc., etc.

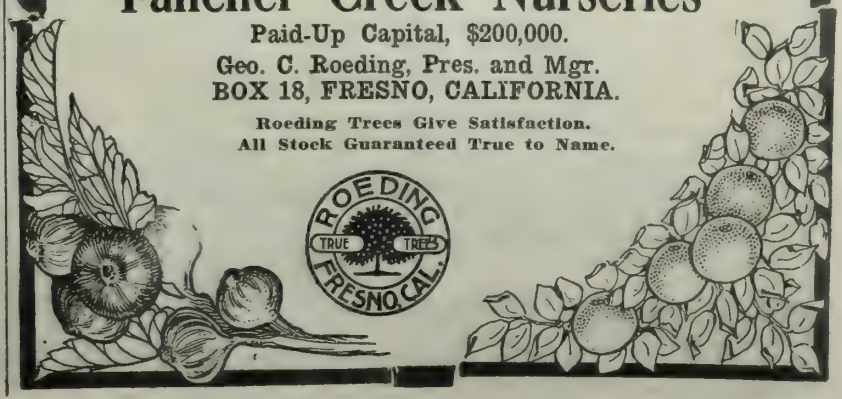
Write Us Today For Prices and Suggestions.

Don't put off getting in touch with us until you are ready to plant. No matter how large or small a quantity you may be figuring on setting out, it will pay you to get our prices and suggestions. Send us your list and let's talk it over

Our new 1914-1915 illustrated price catalogue will soon be off the press. If you wish a copy send us your name and address now, and we will send it to you as soon as available—free.

Fancher Creek Nurseries
Paid-Up Capital, $200,000.
Geo. C. Roeding, Pres. and Mgr.
BOX 18, FRESNO, CALIFORNIA.

Roeding Trees Give Satisfaction.
All Stock Guaranteed True to Name.



Farm Cold Storage of Apples.

[Written for PACIFIC RURAL PRESS.]

Cold storage of apples on the farm paid C. H. King, Sonoma county pretty big last year and this, for his crop from 8½ acres of Gravensteins, 7½ of Newtowns and 3 of Wagners, Spitzenbergs, Belleflowers, etc., from one to forty years old. The storage house looks, on the outside, almost like a barn, and there is no cooling equipment at all except ventilation. Here is what he says about the prices:

"The prices received by the Sebastopol Apple Growers last year for varieties I kept, netted them from $.50 to $.75 a box. By holding mine until late in spring I received an average of $1.50 a box net, as I sold them in lug boxes, with no expense for box, paper and outside labor. This year, I am at this time able to get double the price I could have gotten at time of picking."

Since the house is 40 by 60 feet, with a capacity of 7,500 boxes or more, its value to Mr. King at that rate, is several thousand dollars a year. His own crop, aside from the Gravensteins, does not fill the house, so his neighbor, Mr. Nelson, uses part of the space. Early in December Mr. King had 3,000 boxes left, and Mr. Nelson, 1,000. The shrinkage by rotting, is only about 2 per cent, since all but one-fourth of the stored apples are laid out in trays holding half a box each, in a single layer. They are never examined until they are sold, since, being stored in single layers, the rots simply shrink away from their neighbors instead of infecting them.

Spitzenbergs and Belleflowers are sold first, before Christmas if possible, since they would deteriorate first. The Gravensteins are, of course, sold on the early fresh fruit markets. The Wagners and Newtowns are held, even as late as April 15.

The trays are 22 inches square, being made of lath with board ends, three inches deep. There is one one lath on each side and eight across the bottom, so spaced that the apples rest squarely on them. These trays, full of apples, are easily handled, and are stacked 30 deep from a small step-ladder.

The floor and sides of this home cold storage plant are of sawdust, held in place by inch board sheeting, inside and out. The ceiling has two layers of sheeting and 14 inches of sawdust, above which is six feet of air space and then the regular roof. The air space and sawdust insulate the fruit from the heat of the sun on the roof. Along the entire length of the peak is a low, open cupola. On each of two sides are seven doors, about 2 feet square, built like the sides and located just above the level of the floor. At night these are opened. The fruit has been stacked so there is an aisle between each pair of doors located on opposite sides of the house. A gentle draft of cold air flows in while the air inside, warmed a little by the day's sun and respiration of the apples, flows up through the cupola. The ventilation doors are screened with wire fly-netting to keep mice out and codling moths in. The percentage of wormy apples is minimum, but still it pays to kill all worms that remain when the apples are sold, by closing the building tight and burning sulphur. This is a point at which too many farmers nullify the expense they have made in spraying. It is surprising how cold those apples stay all day and how sound they remain in storage of such automatic operation.

This is the season to make and execute plans for such methods of doubling the net profit on apples and pears—there is surely a suggestion here for California apple growers.

FAVORS ENGLISH BLACK WALNUTS.

To the Editor: Noticing in your issue of November 29, under caption "Late Blooming Fruits," I take the liberty of offering a suggestion, in regard to late frosts; (especially in reference to almonds and the so-called English walnuts) which I think may be overcome by grafting those nuts on the eastern black walnut as it does not bloom until about the first of May in this locality, and practically all danger of a killing frost is past; there has been some grafting of those nuts on the California black walnut, but I think it objectionable for two or more reasons; first because it blooms early in April and for the further reason that it grows too rapidly to be suitable for either of the nuts referred to thereby making an unsightly tree. I think by using the eastern stock that it may be possible to grow both the almond and the white walnut in the greater portion of the United States, successfully, and possibly on a commercial scale. I have about 30 trees of each of the black walnuts, which produce heavy crops annually with no off years.—

Visalia JOHN BASHON.

[All such observations are valuable. There is, however, a preponderance of testimony favoring the California black walnut rather than the eastern, though the latter has advocates and it has been grown in this state for fifty years or more. We cannot follow the suggestion concerning the almond for it will not grow upon that stock, but the "white walnut or butternut" will do so.—Editor.]

There is going to be a powerful demand for all the wheat we can raise, in spite of the increased acreage all over America. Unfavorable conditions east of us have reduced the estimated total yield of winter wheat for next season, when it will be needed even worse than in this season of the world's greatest crop and phenomenal prices.

A Tip on Almonds

On this continent Almonds are grown only in California. The American market alone demands *four times* the present supply.

With practically an unlimited home market and a monopoly of the product

Plant Almond Trees if you are seeking a real money-making investment. We have an extra fine lot of trees growing on Bitter Almonds, Peach, and Myrobolan Root, but as there is usually a shortage of trees on Bitter Almond, place your contract immediately—don't delay.

Write Us First

The Silva-Bergtholdt Co.
P. O. Box B Newcastle, Cal.

$1420 from 133 J. H. HALE Peach Trees (1 Acre)

" . . . from one measured acre of 133 trees we picked, September 14th, 748 bushels, or an average of 5½ bushels or 8 crates per tree, over 95% of this fruit being high class merchantable fruit, selling f.o.b. at the farm at $2.00 to $2.50 per bushel . . . "

(Signed) J. H. HALE

(Figuring on the basis of 95% of the crop from this acre, at the lower price of $2.00 per bushel, the figures quoted above are had.)

Why Such Profits Are Possible

The J. H. Hale peach is ⅓ to ½ larger than Elberta; extremely juicy; golden yellow flesh, brilliant carmine skin; meat is solid as a cling, yet a perfect freestone; round shape, excellent for preserving; stands shipping much better than Elberta; ripens a week earlier and hangs longer on trees; skin smooth and thick—*almost fuzzless*; hardier in wood and bud than Elberta, Georgia Belle or other hardy peaches; healthy, vigorous grower; withstands severe drouths and still fruits enormously.

And these features, embraced in one peach for the first time in horticultural history, have made the J. H. HALE the greatest commercial peach of America.

You can obtain genuine J. H. HALE peach trees, propagated from buds cut from Mr. Hale's bearing orchards only from William P. Stark Nurseries, Stark City, Mo.

To be *sure* of your trees order now. Hundreds waited last spring until we were oversold. Don't let *yourself* be among the disappointed this year.

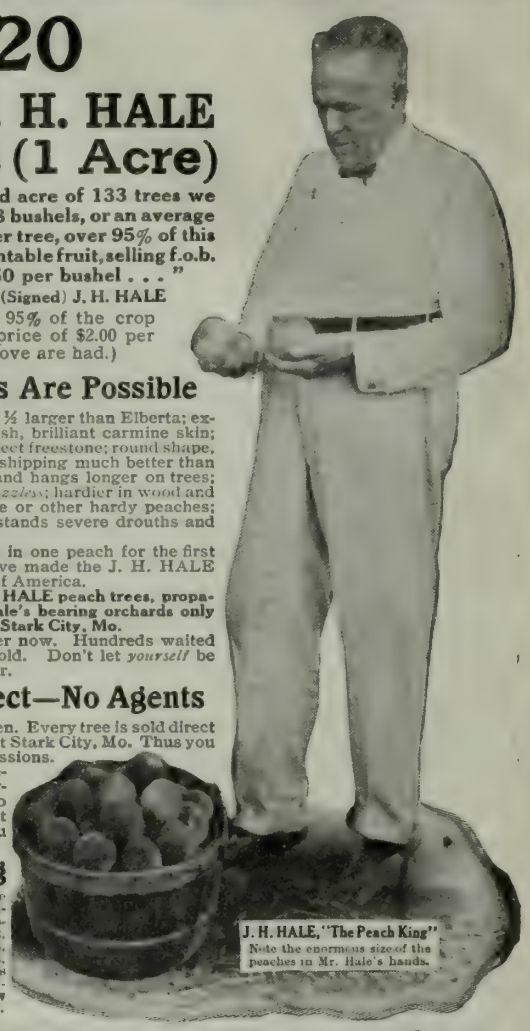
Save ½—Buy Direct—No Agents

We have no agents, no salesmen. Every tree is sold direct to you from our great nurseries at Stark City, Mo. Thus you save 30% to 50% in agents' commissions.

Our catalog is our only representative. Prices are in plain figures—lower than you expected to pay. Note the saving under what tree-salesmen ask you. And you get better trees true to name.

Write for New Catalog

Describes and prices J. H. Hale peach trees, Delicious, Stayman, Baldwin and all profitable varieties of apple, peach, plum, pear, cherry, apricot, quince trees, grapes, blackberries, raspberries, gooseberries, currants, roses, shrubs, ornamentals. Famous Stark-Ozark grown. Doubly guaranteed true to name. Send for the new catalog today. 132 pages, illustrated.



J. H. HALE, "The Peach King"
Note the enormous size of the peaches in Mr. Hale's hands.

William P. Stark Nurseries
Box 365 Stark City, Missouri

Ground Phosphate Rock

The Natural Plant Food and Permanent Soil Builder.

1000 lbs. per acre once in each four years will cost about $1.00 per acre per year. At Penn. State College $1.05 invested in Rock Phosphate gave increased yields of $5.85—over 500%. At Maryland Ex. Station $1.96½ gave $22.11—over 1000%. At Ohio Station each dollar paid for itself and gave $5.68 profit. At Illinois Station $2.50 gave the same return as $250 invested in land.

Each ton contains 280 lbs. of phosphorus, not rendered available artificially by high-priced destructive acids, but so finely ground as to become available in nature's own way.

UNITED STATES PHOSPHATE CO., Salt Lake City, Utah

Write for literature.

"Perfection of fineness in grinding," our motto.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN CALIFORNIA

BEAN POWER SPRAYERS

Note the complete, finished appearance of the Bean. This spray is no experiment.

—drive the material on at high pressure and have non-rusting ball valves, porcelain-lined cylinders, Bean patented pressure regulators and many other distinctive advantages. On account of their low-down, compact, perfectly balanced construction they are as easily handled on hilly ground as on the level.

SEND FOR CATALOG 28-A

It illustrates and describes the entire Bean line of Hand and Power Sprayers and Pump Accessories. Send now.

BEAN SPRAY PUMP CO. 211 W. Julian St., San Jose, Cal. Also Lansing, Mich.

AGRICULTURAL REVIEW OF THE YEAR.

(Continued from page 1.)

worth of prunes. Austria's imports of fruit from California were only $4,000 by sea from San Francisco. The German markets are practically closed to America and we lose that.

Two great fruit growers' conventions have brought to the public ear the experiences of all kinds of horticultural leaders. At one of these conventions the Farmers' Protective League was formed to kill the 8-hour proposal and is continuing along other lines.

Livestock Conditions.—With livestock for meat, the supplies have been diminishing the world over, while the population has increased, and the prices make it a safe bet for any intelligent breeder and feeder. California's pork supply lags even slower than beef or mutton in proportion to the demand. This is quite largely due to fear of cholera, and is unnecessary. Let the quarters be kept clean and the pigs inoculated, and cholera will scarcely be felt. There is a movement on to increase the raising of heavy poultry breeds to help fill the gap. Mutton, rather than wool, is gaining ascendency with the sheep growers.

Horses have felt the competition of mechanical power, but the slaughter across the sea makes horse raising, either as a specialty or a side line, a very safe proposition.

With animals for dairying, the abnormal price of cows, as compared with the reasonably stable price of butter, makes a peculiar situation. It is due quite largely to the need of animals to turn an abnormally cheap alfalfa crop into something that promises to pay better than hay. Still there is little danger in dairying, for the constantly improving grade of cows is reducing the cost of production per pound, and the prices of butter are out of reach of speculation. Cold storage holds the price up in springtime; Australian importations keep it down in seasons of our scarce production. But we believe there is a market for all we will make at reasonable prices if we make it right. The movement for grading of cream promises much for quality, but this must be supplemented by good, uniform workmanship in the factory. There seems to be no reason to hope for excessive profits from butter in the future, and likewise no danger of heavy losses on the market end. However, without legal condemnation of tuberculin-tested cows to death, there should be a rigid practice of testing and keeping the reactors separate, where they cannot infect healthy cattle. This can be done without serious loss and with much permanent gain.

All kinds of hay started the year with good prices, but the extremely favorable weather for the new crop brought out all the old reserve early in the season with lowering prices. The demand has been weak all through the year, owing to the plentiful supply of all kinds, everywhere, or to the prospects of such plenty. It closes the year at less than two-thirds of last New Year's price.

The steady grain prices early in the year were gradually depressed by the same favorable weather that made hay a good crop. There is, and has been only a very slight demand for rye and oats all year. The spectacular piling up of barley in the warehouses and freight cars when the mastery of the sea was disputed, has been relieved by a month or two of unprecedented exportations, for the crop was enormous and the demand extraordinary. The barley stunt was only equaled by wheat, which rose above all recent records, in face of one of the largest American crops of history, so that a dollar a bushel to the farmer looks small now. California corn has usually been in nominal demand, but its use as silage has increased wonderfully and is one of the factors in holding dairy products near to the average prices all through the year. Alfalfa for silage is coming to the front and in the future is likely to equal or outstrip corn in popularity.

Field Crops.—Potatoes have been afflicted by the steadily growing inroads of disease and pests, until this year a conference of international character was held in California to devise means of saving the industry and an interstate potato association formed. Various quarantines have been established by neighboring States, but at least one of these, that against the eel worm, has recently been lifted. The necessity for planting only clean seed has encouraged growers in disease-free sections to hold their potatoes for seed prices.

The bean crop of the State this year is estimated at 1,180,000 sacks. This portable concentrated food is likely to become an important part of army rations in Europe, but California beans are likely to feel only a secondary influence of this factor. A movement among growers to store their beans for higher prices has gained headway.

Sugar prices have soared and some of the beet factories are planning greatly increased acreage. The crop last season was of excellent sweetness. Beet seed scarcity has caused a flurry and probably many growers will raise seed next year.

The cantaloupes of Imperial valley, big as the crop was, have encouraged the planting of increased acreage for next year. Melons were a discouraging crop this season for lack of good marketing facilities.

Mechanical Power.—The year has seen a wholesome increase in the use of tractors, trucks, automobiles, gas engines and electric motors on the farm, and the manufacturers are responding to the demand for orchard tractors of small horsepower, also automobiles on which truck bodies may be mounted.

SOFT OLIVES.

To the Editor: What is the formula for making olives keep firm? Mine keep about two months, then get soft, both ripe and green.—Subscriber, Healdsburg.

[They soften because of decay organisms that get into them, probably from the water they are preserved in. When the lye is all washed out immediately pour over them a salt brine that will make a potato swin. That takes care of the organisms and keeps the olives firm. If too salty when wanted for eating, just soak them in clear water a little while.—Editors.]

Having to do today what should have been done yesterday is what makes the tasks of some of us so everlasting hard.

Sonoma county is buying a Best tractor for road work.

Use Natural Fertilizers ---Don't Rob the Soil.

Put back into the ground at least a portion of the natural elements you take out of it.

Use Hauser's Organic Fertilizers.

HIGH GRADE.
Ground Tankage--Dried Blood.
Fine Blood Meal—Bone Meal.
Ground Sheep Manure
Commercial Fertilizer..4-10-2
Commercial Fertilizer..5-10-5

Nitrogen and Phosphoric Acid derived from organic sources only. Carloads or less. Write for prices and list of satisfied customers who will give references as to results from the application of natural fertilizers.

We will put up any formula to order for any special requirement.

Send for booklet "Good Reasons," tells you why "Natural Fertilizers" fertilize and return you many times the money spent for this unexcelled plant and tree food.

"Plant" a few dollars in Hauser's Organic Fertilizers and reap hundreds in profits.

HAUSER PACKING CO.
Broadway 5600 LOS ANGELES Home 10336

40-ACRE EQUIPPED
FARMS

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO
DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Alfalfa Seed

THIS IS THE AGE OF THE SPECIALIST.
Why not let us be your ALFALFA SEED SPECIALIST? The culture of Alfalfa has been a life-long study with us. We grow and deal in no other variety of seed. We are serving the most conservative people in the West—WHY NOT YOU?
You may find cheaper seed, but you will not find better.
Write us for Prices, Samples, etc.
V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Cal.
The only exclusive Alfalfa Seed dealers in the West.

Fruit Trees
ELMER BROS. NURSERY
AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

SEED POTATOES
If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.
WRITE FOR PRICES.
Alfalfa Seed a Specialty.
VALLEY SEED CO.
510-512 Jay Street, Sacramento, Cal.

GYPSUM LAND PLASTER
Gypsum neutralizes alkali; Cures Gum diease, root rot, varigated leaf; mellows gumbo soils; binds sandy soils.
WRITE FOR BOOKLET "LIMING OF SOILS"
CONSOLIDATED PACIFIC CEMENT PLASTER CO.
611 San Fernando Bldg., Los Angeles, Cal.

A Champion of Sweet Clover.

To the Editor: Referring to the inquiry concerning sweet clover in my Rural Press of Jan. 10, I beg to offer an exception to your reply. Perhaps I am only one of the occasional men who esteem the plant for bee forage or for feeding animals, but I do esteem the plant for both. I believe firmly that the common prejudice against the plant is unjust. I am speaking against years of accumulated sentiment and do not expect to avail much, but I think the time will come, the conditions being right, when the sweet clover (melilotus alba, or Bokhara clover) will come to be acknowledged one of the most valuable plants for forage, more widely adaptable to soil and climatic conditions than alfalfa.

Eastern Prejudice.—Many years ago, when I was in New York State, the plant was familiar to me, and then as now, it was an outcast by petty prejudice. Then each farmer took his own grain to the mill for family flour, and was very careful not to get the weed seed in the grain. He was also careful to keep the cows from eating the weed because it flavored the milk. It does flavor the milk, and so does alfalfa, if fed to excess when the plant is young and juicy. The sweet clover has an oil, a real imitation of vanilla extract, which flavors milk and butter if the clover is fed in its most succulent growth for only a few days. But I have had much trouble with alfalfa in feeding it to dairy cows in the early season, and yet alfalfa has become a great friend of the dairyman because we have found out how to use it, and we can break in this clover to our needs also.

In the Middle States I have seen sweet clover by the roadside, along fences and streams, occupying the waste lands and in fields, where it produced an immense crop. It is a vigorous grower but not an ugly plant, as it is easy to seed and easy to uproot, and never is troublesome in cultivated fields. Stock has to be educated to eat it, but that takes no longer than it takes a Yankee to like olives. Animals' likes are very similar to heredity; what their progeny has been accustomed to feed on is good, other is questionable.

Sweet Clover in California.—When I came into California I was glad to see my old friend Bokhara growing by the Pacific as well as it grows by the Atlantic. But, you say: "These clovers have a bad reputation in California and are counted by growers generally to be very undesirable weeds." It is the old-time prejudice. Now to qualify your expression a little, I think these growers are chiefly growers of grain for flour-milling. This grain is largely grown on the lowlands, the best of the State, to be sure; but California is larger than the Sacramento valley and all of the valleys. The higher lands may be a lesser consideration in California, but perhaps this lesser part is larger than the greater part of the State. Leastwise, alfalfa is friendly with the grain industry, and alfalfa is king of the low-lands, we admit, but we need his cousin, Bokhara, to help out higher up.

In the Eastern States, the clover is sown early in April and makes a hay crop the first year. Second year it is cut before the blossom opens and makes a large hay crop and a second cutting makes a hay crop and a seed crop of 1 or 2 bushels per acre. In California it should do better; if sown before the wet season begins, it should make three months of pasture, after which three crops of hay and a crop of grain.

Sweet Clover for Stock.—Again, these growers of whom you speak, may be stock men who are unfamiliar with the feeding value of the plant; and having seen animals reject it as they came to an occasional stem in the hay, have jumped at the conclusion that animals do not eat the clover. Many people's conclusions are thus superficial. Indeed, I have had dairy cows that would reject the ensilage and each year had to be taught to eat it, but after a day or two, they would push away their grain to get it; and I have known horses to pass by their corn to get woody clover stems and eat them greedily.

My experience in feeding various kinds of animals has led me to believe that after alfalfa, Bokhara is the most nearly universal in its requirements of soil and climate, its ready methods of culture and qualities for feeding and forage of all our horticultural species. But the culture of Bokhara has never had any encouragement—all for no good and valid reason.

Some years ago when alfalfa was being introduced generally, many farmers put in their trial patches and on their failure denounced the plant as a fake; a few, however, the salt of the earth, so to speak, persisted in trying against failure, and their success introduced the plant against the opposition of others. Those who had failed and joined the doubters' club then rallied to the front and began to grow alfalfa at a profit after they had learned the proper methods of its culture from the success of the few. The doubters' club still exists, and the secret of its great strength is the lack of sentient thought, reason and judgment. The doubters' club is working at the cactus now, and all things of value must run the gauntlet before this doubters' club. Only when we have defeated the doubters' club will we have Bokhara and cactus and numerous other things which humanity needs.

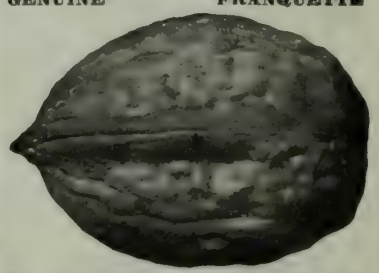
St. Helena. W. S. De WITT.

[We are glad to have this defense of white, sweet clover, although we are not ready to confess judgment in its favor. Let it be tried. It is not dangerous, for summer cultivation will clean it out. The reader should notice that the appeal covers only "white sweet clover"; the yellow melilot remains undefended.—Editor.]

A prune tree ought to last 60 years, according to A. Taylor, of Santa Clara county. As proof of this, he cites an acre of prunes near Vacaville, set 20 feet apart, 65 years ago. They had grown so big that alternate rows were taken out, and when Mr. Taylor saw the orchard nine years ago, the trees were interlocking again and bearing fine. They had been kept free of disease and had been topped back lightly every year, to renew fruit wood before old spurs would die.

Scalefoe Kills
Scale on Trees, Shrubs and Bushes
also
The Red Spider and other Insects, Worms and Bugs
Does Not Hurt the Plant or Tree.
Quart, 20 cts. 2 Quart, 35 cts.
Gallon, 50 cts.
5-Gallon Can $2.00, freight paid.
Special prices by the barrel.
Correspondence solicited.
West Coast Seed House
116-118 E. 7th,
LOS ANGELES, CAL.

If in Doubt—Plant Prune Trees
The demand for Prunes is constantly increasing and California must supply this demand. With a cheap water rate thru to the Eastern states, giving California growers control of this market, prune trees become
Staple Money-Makers
In the export market they compete successfully with European grown varieties.
Our parent trees of French, Imperial, Sugar and Robe de Sargent have been carefully selected from trees having the best record of QUALITY, PRODUCTIVENESS AND SIZE OF FRUIT.
WRITE US FIRST
The Silva-Bergtholdt Co.
P. O. Box B Newcastle, Cal.

GENUINE FRANQUETTE

The best commercial Walnut; also San Jose Mayette. All trees grafted on California Black Walnut root. 6 to 10 inches above ground. Sizes from 3 to 10 feet. Prices reasonable.
SUNSET NURSERY,
525 San Carlos St., San Jose, Calif.

MANURE
Carload Lots
HORSE, COW or SHEEP
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St. San Francisco

Kirkman Nurseries
RELIABLE TREES AND VINES
We again solicit the fruit tree and vine orders of the planters of the West, knowing that nothing but the Best will satisfy the experienced buyer. Twenty-eight years of successful nursery business has proven the quality of
KIRKMAN TREES
and the treatment Kirkman accords his customers. Our steadily growing patronage has demanded that we grow more stock each year, until we now have more than **five million** trees and vines growing in our nursery plants in California and Arizona. A considerable portion of the stock in our nurseries, which will be ready for delivery this coming winter and spring, is already sold to early customers, but we still have a complete stock of all varieties of fruit trees and vines, as well as a general assortment of **ORNAMENTAL** and **SHADE** trees, etc., etc. What are you going to plant? We have it, without doubt, in large or small quantities. Illustrated price catalog on application. Please mention what varieties you are expecting to use.
KIRKMAN NURSERIES, P. O. BOX 604, FRESNO, CALIF.

Rice Growers Should Wake Up.

To the Editor: Believing that the Pacific Rural Press is out for facts and trying to get at the root of matters for the benefit of all, and especially for the agricultural interests of the entire Pacific coast, and having read your article "Rice as California Knows It," the writer of this article, being neither a professor nor a college student, but one of the ordinary "at the shovel-handle working class," at present engaged in growing rice in Butte county, sees that unless we in the rice districts put in a combined drainage system "right now" and levee the Feather river at such places as it overflows, the rice lands will soon be swamps where all kinds of water grasses will take complete possession, so that we can not even grow rice, that is a water plant.

To make two grains grow where one grew before will benefit humanity more than all of the wars of all time put together, but if we are so selfish and so much in a hurry that we do not care what condition the land is left in when we have reaped the two grains, we are not of much benefit to humanity.

With irrigation a new era is upon a country and it should be the State's business to see that no section or subdivision of land was put under irrigation until proper drainage was provided. It is a crime and a menace to all agricultural interests that irrigation and drainage laws are not formed and improved in time.

The natural main drainage of the Sacramento valley is of course the Sacramento river, so it follows that all drains must lead to it. As undoubtedly a big percentage of the Sacramento valley will be brought under irrigation before many years, it is time that the interests of the valley get busy about drainage.

Now as to our local conditions for rice culture: It is a proven fact that as to yield and quality we are ahead of any other country on this globe. Climate, soil and water conditions are most excellent, and at no other place can from 50 to 80 sacks of rice be produced to the acre. But the disadvantages are here also, and foremost among them is water grass of many different varieties, and we have already seen that this pest has taken complete possession of several hundred acres the second year. This means that no rice can be grown on such a field for several years to come.

What must we do then to be able to keep on growing rice? We must organize all rice growers, form laws and enforce them, which means that we must see that every ditch and drain in the rice-growing districts is kept absolutely clean and free from all kinds of waterplants, always. See that all rices planted are free from water-grasses and create an ambition in every rice grower to see that every water-grass plant appearing in his fields be pulled (root and all, gathered in sacks and burned, not thrown on the levee.

In some of the rice districts water grasses of many different varieties have already taken such a hold that it is serious and the former rice fields will have to be planted to other crops in order to work out the water grasses. How many years that will take still remains to be seen, but it is not likely that it can be done in a season or two, inasmuch as water grass in this valley seems to be hard to get rid of, owing to lack of drainage, and seeds from a few plants can be carried all over with back waters.

This matter is one which you, with your thousands of far-seeing readers that you so justly serve, could greatly aid in and in that way make for a better and bigger agriculture in California.

"A WELL WISHER OF RICE."
Biggs.

[This is a new aspect of the rice industry and judging from what you base your argument upon, one worthy of serious consideration. There are many instances in the past history of California which show the futility of insufficient drainage and it is easy to understand how a serious condition might arise from the immense amounts of water used in rice culture. In the matter of drainage the entire Sacramento valley, we believe the plan being fostered by the State Reclamation Board to broaden the outlet of the Sacramento river and thus allow flood waters easier access to the ocean, will in time make possible the plan you describe. In the meantime a strong rice growers' association should be able to secure many improvements in local conditions, the same as strongly organized farmers' associations do in other branches of agriculture. Such an association certainly looks very desirable and the Rural Press is glad to air your views on the matter.—Editor.]

HOME-MIXED LIME-SULPHUR

To the Edtior: Can I mix my own rex spray, and if so, what proportions of lime and sulphur should I use to make fifty gallons of rex spray, and how much water should I use in cooking it, and how long should it boil? Could I triple the strength in boiling so as to make 150 gallons, or enough for 2000 gallons of water.—L. W. J., Selma.

[Rex sprays are not only lime-sulphur but also oils, arsenates and bordeaux. The lime-sulphur is concentrated by commercial methods. Directions for the lime-sulphur spray you wish to make at home are adapted from "Insects of California" by E. O. Essig, published as a monthly bulletin by the State Commission of Horticulture. For 2000 gallons of spray multiply the quantities given by 20, but you are not likely to want to handle that much.

For 100 gallons of spray, heat in a cooking barrel or vessel about 30 gallons of water. While it is heating, mix 30 pounds flowers of sulphur into a thick paste with water. When the 30 gallons of water is hot add 40 pounds of lime and then the sulphur paste quickly, but watch not to get burned with spatterings.

After the lime is slaked the bubbling ceases and another 30 gallons of hot water should be added. The ingredients have been thoroughly mixed by the slaking of the lime. Cooking should be continued for an hour, stirring it quite often if cooked directly over a fire. When ready to use, add enough water, hot or cold, to make the whole mixture 100 gallons. It must be strained through a fine sieve into the spray tank. Under most conditions, it is more satisfactory to buy commercial lime-sulphur.—Editors.]

SCALES ON AVOCADO.

To the Editor: What can I do for the scale on my alligator pear tree?—H. E. H., So. Berkeley.

[Most everyone living on even a small lot should have a small hand spray pump with which to keep his roses and fruit trees free of insects, and we would think it advisable for you to get one, not only for the pears but for potatoes and roses. Then get a small quantity of commercial lime-sulphur from our advertisers, dilute it according to directions, don't soak the pear tree with it, but spray it on every part of trunk and branches, any time soon. That is probably all you need. Other sprays are advisable for other plants. —Editors.]

Before You Plant
CITRUS TREES

Meet the Five Essential Requirements of Success.

Here they are: Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true Citrus land—you cannot afford to miss the opportunity to

PLANT CITRUS TREES

Place your order NOW for spring delivery. You will perhaps never have another chance to buy QUALITY TREES at so reasonable a price. Even the so-called CHEAP TREES (which might better be called EXPENSIVE TREES by the man who expects to receive an adequate return on his investment), are quoted the same or very little less.

We were founded twenty-five years ago and have been improving the grade ever since. Buy TEAGUE QUALITY TREES, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No order too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries
San Dimas, Cal.
Citrus Trees Exclusively

Maxwell's Nurseries, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.
TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

TREES TRUE TO NAME. THE SILVA-BERGTHOLDT CO. NEWCASTLE, CALIF. PLACER NURSERIES

Clingstone Peach Trees

TUSCAN! Ours are the improved Round Tuscans—firmer, more symmetrical and uniform, Finer Grained, less subject to Wind-Fall and Split-pit, and preferred (to the extent of $2 to $5 more a ton) by canners to the oblong Tuscans commonly propagated.

PHILLIPS! We cut our buds from a block of trees that have proven an exceptionally good strain of this variety. Peach trees are always a safe investment—the demand is large, the price firm, and the profit good. What more can you ask?

THE SILVA-BERGTHOLDT CO., "Fruit Tree Specialists," P. O. Box B Newcastle, Cal.

TREES TRUE TO NAME. THE SILVA-BERGTHOLDT CO. NEWCASTLE, CALIF. PLACER NURSERIES

Water Rights Protected by Law.

[By Horace Jones, Attorney for State Water Commission.]

The new water commission act ratified by the people at the November election provides for the investigation of relative rights of stream users and the granting of permits to prospective users.

By this law, holders of rights to the use of water may, at their option, apply to the commission to ascertain and record their rights to the use of water upon any particular stream. The benefit accruing to the stream user from this ascertainment and record of his right arises from the protection which will be given to that right by the State.

The Old Law.—Under the present laws very few if any of the stream users know how much water they use or are entitled to. When any question on this subject arises it has to be taken into court and litigated at the expense of the water user. Thus, a perfect stranger to the user of water upon any particular stream may drag a stream user into court and litigate him until his money runs out. Then the stranger gets the water, because of the inability of the original claimant further to prosecute the suit. Because of the lack of a record of water rights, the courts necessarily have to adjudicate the rights of the claimants. This is not only once, but as many times as some troublemaker may choose to question the right. Thus, A and B may litigate their right in court. The court decides in favor of A. Then C comes along and takes A into court again. Again the court decides in favor of A. Then D comes along and again A is litigated and wins. He may win every case, but he has to defend every case. The records of past cases do not have any effect on others. One can readily see that A would soon become financially unable to carry on this immense burden of litigation. He will have to mortgage his farm, and when he finally has to give up he loses not only his water right, but his farm also.

In addition to the litigation between present stream users, the existing law permits any Tom, Dick or Harry, responsible or irresponsible, to post notices of appropriation of water. This gives Tom, Dick or Harry a club which he holds over the heads of other stream users. If they pay him a sum sufficient to satisfy him, he will abandon his claim. If they do not he can enjoin them from using any water. Every farmer knows what would be the result if he were enjoined from using water rights in the midst of a growing crop. It means ruin.

This condition of the old law has been brought time and again to the attention of the conservation commission and the present State water commission, and it was for the purpose of remedying these defects in existing laws that the new water law was recommended to the Legislature by the conservation commission.

Water Rights Recorded.—Under the new law, if there is any threatened trouble on a stream, any stream user may ask to have the rights of all users ascertained by the commission. The commission holds a hearing and finds from the claimant in each case what his rights are. This is then summarized and a schedule of all relative rights filed with the clerk of the Court for the county in which the stream is situated. All claimants are notified of the summary, and if there is any dissatisfaction may contest the result thereof. If the contest is in good faith and establishes a right to water different from that contained in the summary, it does not cost the person bringing it a cent. If it is not in good faith, but merely for the purpose of making trouble, the person making the trouble forfeits to the State $5 a day for each day consumed in taking testimony.

Having summarized all the rights, and the summary having been accepted by the respective stream users, it becomes in effect a stipulation among the respective claimants to the use of water, that it shall constitute their right to the waters of the stream. It is then submitted to the Superior Court of the county in which the stream is situated and the court enters a decree ratifying the summary or ascertainment.

Inasmuch as this decree was rendered upon a practical stipulated agreement among the users, one cannot conceive of any case in which there would likely be an appeal from the decree. The same law has worked in Wyoming for twenty years, and fifteen thousand rights have been ascertained by its commission. Only ten appeals have been made to the courts. Oregon has had a similar law for five years. Over one thousand rights have been adjudicated, and no appeal to the courts.

No Over-capacity Claims.—Having ascertained and recorded the rights of the stream users, the new law goes further and says that neither Tom, Dick nor Harry may post notices of intention to appropriate water or attempt to appropriate water without first applying to the commission. If after due investigation it is found that, after all the claims of prior appropriators are satisfied, there is surplus water running in the stream, a permit will be granted to Tom, Dick or Harry and he will be allowed, upon full compliance with the law, to divert and use the water.

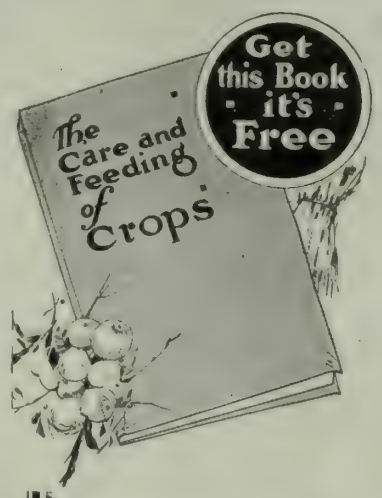
Rights initiated under the old law will be judged in accordance with that law.

The benefit of the new law upon irrigation in the State of California can readily be seen. Newcomers will be assured that if they buy land with a water right attached thereto, they will be able to get the water, which often is not true under present conditions.

Capital Attracted.—There are seven million or more acres of desert land in the State of California open to the public. A great quantity of this land cannot be irrigated save through the diversion of a great amount of water at large expense. The Eastern capitalist will not, and has not for a long time past, under present laws, invested money in irrigation projects in California because of the risk of buying a lawsuit. With water rights duly ascertained and recorded, capital will have confidence and will readily invest.

The State of California is entitled to one million acres of desert land from the Federal Government. This is under what is known as the Carey act. All the Legislature has to do is to pass an act accepting the terms of the grant. With water rights made secure, large irrigation projects under that act can be successfully undertaken.

In the Sacramento valley alone 13,000,000 acres of land can be irrigated from water from the Sacramento river, which today is going to waste. Large areas of land are today uncultivated because no one desires to attempt to appropriate water and run the risk of having, personally and at his own expense, to litigate with every property owner along the river.



Barnyard Manure Cannot Take the Place of a Commercial Fertilizer

When crops are taken from the soil season after season, there is a loss of plant food which cannot be supplied by manure.

Any crop requires a particular kind or combination of kinds of plant foods before it will grow to its full maturity. Farm manure increases the condition of the soil, but does not supply these food elements.

Read this Book

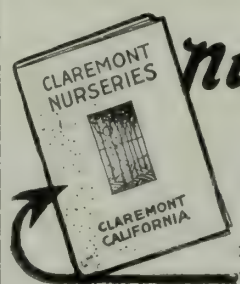
It gives you just such simple, vital facts which are so necessary to you in order to grow the largest crop on your land. Without this information you are working in the dark—you cannot get the greatest good or the largest crop without working intelligently and supplying the land with the necessary food elements.

Don't put off sending for this book, but write for it today. Ask any questions about fertilization which puzzle you, and you will receive a clear, definite answer from our experts. They're here to serve you, without any expense to you.

Write for this book today—don't put it off because you might forget.

The Pacific Guano & Fertilizer Company. 804 Security Bldg., San Francisco, Cal.

THE PACIFIC GUANO & FERTILIZER CO. SAN FRANCISCO, CAL. TRADE MARK



Write for this Nursery Catalog

MISSION AND MANZANILLO OLIVES.

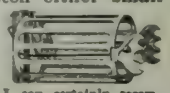
Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

Chubbuck's Ideal Gopher Trap

The result of years of experimental work, covering every known method of exterminating the gopher pest. Poison is dangerous and not very effective. The Ideal is the only Trap that will catch either small or large gopher.

Price 50 Cents.



This is what another customer says:

"I am more than pleased with your traps. In about one hour after I received the Ideal I had the first gopher, and the next day I caught 3. I can certainly recommend the Ideal to any one who is troubled with gophers."

If your dealer cannot supply you, we will send you one, postpaid, upon receipt of 60 cents. Money returned if the Trap is not satisfactory.

731 MARKET ST., E. J. CHUBBUCK CO. SAN FRANCISCO, CAL.

FARM PRODUCE EGGS and POULTRY

The Farmers' Union Inc.

is now located at 1235-37 East Sixth St., Los Angeles, and respectfully solicit consignments of all kinds of farm produce, including eggs and poultry. We guarantee to get the highest market price and remit promptly to shippers. A trial shipment solicited. We work on a commission basis, stating to shippers the amounts we receive for produce. We will give you a square deal. Send on your produce. FARMERS' UNION, Inc., of Arroyo Grande, Cal.

C. A. Cheadle, Mgr., Los Angeles Branch, 1235-37 E. 6th St., Los Angeles.

Watch for Citrus Canker.

Importation of citrus nursery stock, scions, buds, and seeds may be prohibited to prevent further infection of American orchards with citrus canker whose desperate means of control are described elsewhere in this issue. The U. S. Dept. Agr. held a public meeting in Washington, Dec. 8, to consider the question of such a quarantine.

Since the cheapest time to control such troubles is before they spread, we print the following description taken from a Florida Experiment Station Bulletin so that our readers may distinguish the disease at its first appearance. If in doubt, send ample specimens to the Cal. Experiment Station, Berkeley, for identification.

Appearance.—The disease appears as small, circular spots, from less than one-sixteenth to one-quarter of an inch across. They may occur singly, or several together may form an irregular area. They are raised above the surrounding tissue, are light brown, and composed of a spongy mass of dead cells covered by a thin (white to grayish) membrane that finally ruptures and turns outward, forming a ragged margin. The older spots often become overgrown with saprophytic fungi, and may be pink or black on account of secondary infection by species of Fusarium or Cladosporium.

The infections on the leaves appear first as small watery bulging dots, which are usually of a darker green than the surrounding tissue, They may appear on either surface of the leaf, but do not penetrate through the leaf tissue at this stage. The spots gradually increase in size, change to a light brown color, and become visible on both sides of the leaf. They may project from the surface on one or both sides of the leaf. Each spot is surrounded by a narrow yellowish band. Later the surface becomes white to grayish, and finally ruptures, exposing a light-brown spongy central mass.

The spots on the fruit are similar to those on the leaves. They project from the surface and retain a circular outline. They do not penetrate far into the rind; and may be scattered singly over the surface, or several may occur together, forming irregular masses.

The spots on the older twigs are more prominent and usually larger and more irregular in shape. They show the same spongy tissue and the same color as those on the leaves. On growth more than a year old, they assume a cankerous appearance and the membrane covering the surface disappears. The spots do not penetrate to the wood, but are confined to the outer tissues of the bark.

Distinction from Other Diseases.—(1) It differs from Scab in the roundnes of the typical spots, in the larger size of the spots, and in their white or grayish color. It does not distort the leaves, nor cause the wart-like projections that are common in infections of Scab. Canker is found on the older wood, while infections of Scab never occur on older twigs or branches.

(2) It differs from Scaly Bark in producing much smaller spots which are more circular in outline. Scaly Bark spots usually show a hard glazed surface, while Canker is more spongy. Canker is common on the grapefruit, and forms spots on the leaves; while Scaly Bark rarely attacks grapefruit.

(3) Anthracnose spots are sunken usually many times larger and much firmer than those of canker and they do not attack young shoots or twigs.

SEE LAND BEFORE BUYING.

To the Editor: I am very much interested in a colony enterprise, but owing to ties and interests at home I may not be able to go there to live, yet I would like to invest in property there if that would be a safe transaction for a woman at a distance. My little all is in bank now but I would rather put it in real estate if I can do so with absolute safety.—Mrs. H. G. G., San Jose.

[However worthy a colonizat project may be, and the development of California depends largely on such, our advice is always to see a piece of land before you buy it. Consider what may be grown on it under the climatic, soil and moisture conditions, and the probable market for those crops. Consider how much capital will be required to bring them to profitable bearing. Then if we were buying land, we would investigate for alkali and acidity, and with a soil auger, bore deep enough in several places on the tract to see whether there is hard pan or gravel subsoil and the thickness and depth of it. Then if the land lies so it will drain well, either artificially or naturally, we would consider the price asked. If pleased with the result of personal investigation, we would buy, for California is a good place to live. A fair-minded real estate dealer can hardly object to full investigation. However, if you cannot personally supervise the care of crops and must hire it done, the chances are that all income will be eaten up in deterioration, and the crops will scarcely pay the labor unless you know some one who is absolutely trustworthy. We have seen results of absentee ownership in many parts of California.—Editors.]

Fair sized and uniform litters of pigs are more desirable than large litters of various sized ones.

CALIFORNIA GROWN
J. H. HALE PEACH
For sale, seven thousand dormant buds. Price 20c each. $15 per hundred.
Robert C. Morrison, Nurseryman
KING RANCH, LOOMIS, CAL.

Plant Pears for profit. California Bartlett ripen earlier than Eastern and Northwestern grown pears. During their season they monopolize the markets of the United States and Canada.
Silva-Bergtholdt's
FOOT-HILL GROWN PEAR TREES
have strong, hardy root systems, the foundation of all successful trees.
We have a fine block of Bartlett, Comice, Winter Nelis, Anjou and other varieties. Our buds are cut from selected parent trees.
THE SILVA-BERGTHOLDT CO.
"Fruit Tree Specialists"
P. O. Box B Newcastle, Cal.

The Panama Canal and The California Fruit Grower.

P-A-N-A-M-A C-A-N-A-L spells, to most people, merely Panama Canal, but to the California Fruit Grower it spells OPPORTUNITY, for fruit can now be shipped, via the Canal, to the Atlantic Seaboard, at

A Saving of 60% or More

over the present freight rates. This means Business Expansion—new markets—greater demand—larger sales—and MORE PROFITS—for those growers who are *prepared*.

BE PREPARED BY PREPARING NOW.

Increase your acreage. Plant more trees—thrifty Foot-Hill Grown Trees, with their good root systems, hardiness, and freedom from disease—the Silva-Bergtholdt kind.

As to which are the best and most profitable varieties for this new world-wide market, and the wonderful possibilities of this great Opportunity, are discussed thoroughly in our new Catalog and YEAR BOOK

—Send for your copy TO-DAY.

The Silva-Bergtholdt Company
"Fruit Tree Specialists"
P. O. Box B Newcastle, Calif.

ORANGE
LEMON
GRAPE FRUIT
LIME
TREES

WE are digging our citrus stock now and the trees are splendid. We never handled or grew finer trees. They are of large caliper, well branched and absolutely free of all insect or fungus pests. We have about 75,000 trees to dispose of during the coming season which accounts for the low prices at which we are offering them: Oranges, Navel and Valencias; Lemons, Eureka; Grape Fruit; Limes. These are not "cheap" trees. They are first class in every particular, but we are overstocked. The trees can be seen any time at our Nursery Salesyard back of the big store.

We also carry a full line of ornamentals, parking and street trees, roses and fruit trees. We invite your inspection.

Please address Department R

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

RELIABLE TREES

Get them from the most complete nursery in the world.

SEND FOR CATALOG A.

CALIFORNIA NURSERY CO., INC.
NILES, CALIFORNIA

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

How to Raise Rabbits and Hares.

[Written for PACIFIC RURAL PRESS by Mrs. Susan Swaysgood, Pomona.]

It is claimed by some, that the Belgian hare is nothing more than a rabbit bred to one color. But any one who has ever seen a true wild hare, and I have seen hundreds, knows that the Belgian has the build of a hare besides color. A real hutch tame rabbit is deeper bodied and shorter in the back, hence I believe it is a cross. The real wild hare has dark meat and the flavor is strictly gamey.

It is generally conceded that so far as rabbits go the Belgian is the best we have for table purposes. If one breeds for table use there is no need of high-priced stock. All that is needed is that they be healthy and of mature age and size.

Age for Breeding Stock.—The beginner should always select animals at least one year old for breeding stock. The does may be all of the same strain, but the buck should be as far from being related as is possible. Yearling rabbits have a brisk, alert look, small white teeth, and small claws that are almost hidden in the fur. Coarse long claws are a sure sign of age. See that the white of the eye is clear and not stained yellow, as this indicates both age and debility.

Hutches and Pens.—There are two ways of housing, or what is called "making a rabbitry." (1) Entirely in hutches, or (2) in outdoor runs or fenced courts, with hutches for does at breeding time and when having young. The hutch system is almost entirely used in this section and there are quite a few rabbits kept here. A tier of hutches built in an old shed or open barn, away from the hot sun and free from draughts would be just the thing. Being indoors and yet open to plenty of fresh air is a decided advantage over outdoors and the rabbits being exposed to uneven temperatures and hot sun.

One of my neighbors had two does come in about a week ago and for some reason one doe got negligent and left her young out of the inner nest box. Five of them got so chilled they died. This is a case where if the hutches had been sheltered, the fur alone would have kept them alive until morning. The hutches should be built of good lumber with tight floors, and each should have at least 12 square feet of space, and a height of 2 feet. Each hutch is complete in itself, so that the top one may be moved to the bottom at will, and so on. Any one can gain a better working idea of how to construct hutches by visiting some few rabbitries where they can note the difference in the appearance of the rabbits, then judge accordingly.

Food and Feeding.—Now in regard to the feeding of rabbits, like everything else, there is a great diversity of opinion. I claim no person ought to keep anything unless they try to keep it well; and to keep it well, they must approach as near what it would get under natural conditions as possible. I believe my neighbor's loss of her young rabbits was owing to the mother rabbit being so poorly fed that her milk gave out; and as the young were a bother to her under those conditions, why she did not care whether they lived or died. If she had been well nourished herself, she would naturally have taken good care that the young ones were fed and kept inside the nest. On asking questions it was easy to diagnose the case—the mother had been fed nothing but hay and a little rolled barley. The rabbit thrives best on a diversity of food; and at parturition, should have some good staple grain and also something that nourishes, like milk and bread.

Green Foods.—Green feed, such as kale, spinach, cabbage, and rape are among the best green feeds for rabbits. Hay is to be fed as a staple food, because it acts as a corrective. Beets and mangels are also good. Ordinary stock should be fed twice a day, but suckling does should have a good feed at noon. If this extra feed consists of milk and bread or corn meal mush and milk the doe will have more milk for her young Or it may be a feed of ground oats and bran; bran is a good milk maker and this should be the aim, to furnish something that makes milk. When feeding green feed or roots, it is best to wash the soil off and then let them dry out a little. A little hay should be given at every meal; they will eat what they want of it and the rest will do for bedding.

Corrective Feeding.—Avoid over feeding, and also the feeding of green stuff that is wet with either dew or rain. Occasionally a warm mash of cooked potatoes mixed with chops and a little bran is desirable, and a sprinkling of sulphur as a medicine, but in case of looseness of the bowels mix a little flour in it or with the other grains. In cold weather, some breeders feed this warm mash every evening. Unless there is an abundance of green feed the rabbits must be given water daily and in summer twice a day. The does with young should be given warm milk and water.

Keep a piece of rock salt in every hutch, then they will help themselves. Rabbits under three months old must be limited in the supply of green feed as it makes them pot-bellied. When a young rabbit is noticed getting in that condition the use of green feed must be discontinued and the rabbit given lots of exercise. Under such treatment it will recover, but if not taken care of at the right stage it terminates in convulsions.

Methods of Mating.—Some breeders leave the buck in with a doe but a few minutes, while others leave him over night. In California, where we have green feed all the winter long, a great many are breeding now, and some are already having young. Four litters a year is about what they hope to have, and as the sale of rabbits is very slow in summer time, it is up to the rabbit men to "make hay while the sun shines in winter."

The gestation period of a rabbit is about 30 days. When the doe is nearly ready to bring her young, the hutch should be cleaned out and disinfected, and she should then be supplied with a good nest of soft

Open the throttle—crank up, and under the hood of The Yuba Ball Tread Tractor the motor responds. The tractor becomes alive. Ready to do the driver's bidding is the power of 12 or of 18 horses—real live animals, with head down and shoulder straining against the collar.

THE YUBA BALL TREAD TRACTOR

Every day in the year The Yuba Ball Tread Tractor is ready for work. Spring, summer, fall or winter it will haul, or supply power to pump water, cut wood, chop feed, mix concrete or thresh wheat.

The low pressure per square inch on the tread-bearing area makes it particularly valuable in winter. Water below the carburetor intake does no harm. Soft mud that horses mire in presents no difficulties. The Yuba Ball Tread Tractor stays on the surface and pulls with the power of all its horses.

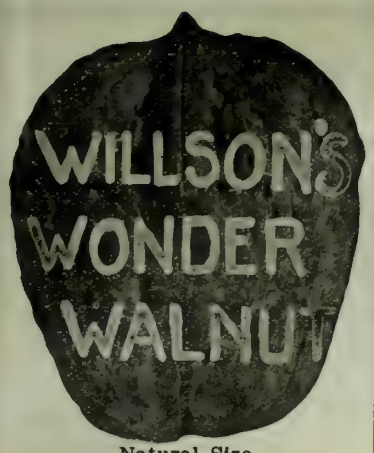
There is a booklet telling more about it.

THE YUBA CONSTRUCTION CO.

433 California St. San Francisco

Dept. C-11

Works, Marysville



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer

Customer on investigating trip says:

"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."

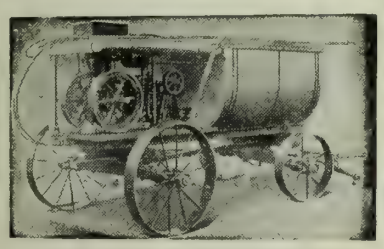
All trees grafted on Cal. Black Stock limited

Write for circular with prices.

Encinal Nurseries

Sunnyvale, Santa Clara Co., Cal.

HARDIE SPRAYERS



The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Write for Catalog.

POINDEXTER & SNITZER, State Agts. 320 Market St., San Francisco.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING

8 New Street, SANTA CRUZ, CALIFORNIA

Cherry Trees

Cherries are the first, the most attractive and the best fruit of the summer season. This, together with the fact that they are very profitable, yielding from $400 to $600 an acre, makes them a good "buy" for any fruit grower in position to raise them.

Our block includes Bing, Black Oregon, Black Tartarian, Burbank, Royal Ann, and other good varieties on Mahaleb and Mazzard Root. Write Us First.

THE SILVA-BERGTHOLDT CO.
"Fruit Tree Specialists"
P.O. Box _ Newcastle, Cal.

hay; oat straw is best. If the hutch has no nesting compartment in it, put a box in the corner. Make a hole in the box large enough for her to pass in and out with comfort and turn the box up side down, the doe will arrange her own nest. Feed her milk and water before the young are born, as this gives strength and brings her milk to nurse her young. Be careful that cats or dogs do not frighten her during these last days or after the young come.

During the first week, milk and bread and a little green feed is the best diet for a young doe, giving a little ground oats and green feed for the last meal.

Number of Young.—Belgian hares very often have litters of 10 to 12, but these are too many for the doe to raise; an average of six or seven is enough. If several does are bred at one time, usually the number can be averaged among them by giving the smaller families some from the larger ones. When the young begin to leave the nest, usually at three weeks, the nesting box and compartment should be well cleaned and disinfected again. They may be weaned at a month old, but it is better to leave them until five or six weeks old.

Ailments of Rabbits.—If cared for properly, rabbits are remarkably free from disease. Insanitary conditions will, however, bring on such things as mange, scurf, surfeit and a disease of the eyes. Colds, snuffles, etc., are the result of drafts of cold air. Too much wet feeds bring on disorders of the digestive tract, but all these are preventable with proper feed and care. For pot belly, constipation, and such ailments, exercise is at once the prevention and cure. For diarrhoea, a little dry barley meal and flour. For ear canker, remove the incrustations and syringe with boracic acid and water. This may have to be repeated several days in succession and every time a quantity of powdered boric acid should be dusted over the ears.

There is a disease among American hutch rabbits, known as coccidus. It is caused by an internal parasite and when it gets in a rabbitry kills numbers of young rabbits. Absolute cleanliness is the best preventive, also isolation of a case once it is suspected.

NAPA GRANGERS' WORK.

To the Editor: In your issue of Dec. 12, under the caption, "Are There Too Many Cooks" | is an article written by Chas. Blom, of Napa. With your permission, I would like to reply briefly to a portion of the article.

In naming over the different organizations we have here in Napa county, which are calculated to be for the benefit of the farmers, Mr. Blom heads the list with the "Patrons of Husbandry." As a member of long standing in this order, it is to this particular part of the article that I will confine myself.

I quote from Mr. Blom's article: "We have had the Grange as far back as I can remember. In what way does it not fill the bill for the rancher? I have asked these questions from those who claim to know. They tell me that it is strong in silk socks; that they do not encourage the rank and file of farmers to join; they are strong on educational talk but weak in matters pertaining to the every-day needs of the farmer. About this I know nothing."

In seeking information on any particular subject, I have always made it a practice to get my information from headquarters or from some one in a position to give that information authoritatively. If the writer of the article referred to had taken this same course and asked some member of the Grange for his information instead of seeking for it from some one who knew no more of the Grange than he himself knew, it would have been unnecessary for him to close his communication with "About this I know nothing."

Notwithstanding the fact that Mr. B. has lived in Napa county for a long time, and that "We have had the Grange as far back as I can remember," several very material benefits that "pertain to the every-day needs of the farmer" can be pointed out to him as the direct result of the Grange.

Would space permit, I would be glad to point out and speak of some of these, such as The Rochdale Union, The County Mutual Fire Insurance Co., the introduction into the high school of agriculture, domestic science and manual training, the holding of numerous farmers' institutes, etc., etc. While the Grange does not herald its accomplishments with a brass band, it is and has been getting good results.

After reading the communication in question, I determined that its writer should no longer have the excuse to speak with no knowledge of the Patrons of Husbandry, so I made a personal visit to Mr. Blom's home with a membership application blank. Do you think I could persuade him to become a member of the Grange and thus place himself in a position to see for himself whether the order was made up of "silk socks" or whether it had a membership of farming people who were trying to do something "for the every-day needs of the farmer"? Nay, Nay! He prefers to stay on the outside and do his shooting from there; and then say "Of the truth of this I know nothing."

BEANS ON IRRIGATED SOIL.

To the Editor: Enclosed are some brown colored beans a little larger than small navy beans and of flatter shape with a projecting round point just off the center of one end! What variety are they? Will they thrive on good irrigated soil in San Gabriel valley?—C. H. B., Eugene, Ore.

[Answered by John Cook, San Francisco.]

[Bean dealers here are somewhat uncertain about the variety of this sample. However the Morse Seed people state that they consider it of the "Giant Stringless Green Pod" variety, and if so, these beans would thrive in good irrigated soil.]

PLOWS 8 INCHES INSTEAD OF 4.

To the Editor: I am plowing with a "Yuba Ball Tread Tractor," pulling a five-bottom bonanza, cutting 8 inches deep. Land is sandy loam, and never was plowed more than four inches in the past thirty years, has always been in grain. This is my first experience as a farmer.

Chico. C. W. CARMACK.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 70% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St.,
San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco
CALIFORNIA SEED CO., 151 Market St., San Francisco
SUNSET NURSERY CO., 92 41st St., Oakland
VALLANCE BROS., 81 Glen Ave., Oakland

TREES

Grown on Sandy Loam Soil

No Spike Roots.

Almonds on Almond & Peach Root.

All Varieties of Fruit Trees for sale.

Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of water.

RIPON NURSERY and IMPROVEMENT CO.

J. F. STUART, MGR.

FRUIT TREES

"HEMET GROWN ARE BEST"

Apricots, Peaches, Pears, Apples, Olives, Walnuts, Plums, etc., etc.

Send a list of your wants and I will quote you special prices.

Julius Mayr

"TREE GROWER"

HEMET CALIFORNIA

APPLES, PEARS, CHERRIES, PLUMS, PRUNES, APRICOTS, PEACHES, NECTARINES, FIGS, QUINCES, OLIVES, ALMONDS,

WALNUTS,

AND CITRUS STOCK.

Before placing an order for any of the above stock let us figure on your order.

Send for price list.

The Delano Nurseries

Delano, Cal.

Blake, Moffitt & Towne

Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO.
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

Mechanical Power on the Farm.

COST OF TRACTOR POWER.

The following tables show the daily operating cost of a 15-30 oil tractor, as furnished by J. B. Benson, of the Rumely Co. ("15" is the horsepower exerted at the drawbar; "30" is the total power developed, half of which is consumed in the gearings and in running the engine itself.)

POWER TRACTOR, Price $2000.

Depreciation, figured on 1000 days' work	$ 2.00
Interest at 6%, charging off $200. each year and figuring 100 days' work.....	.66
Fuel, 35 gallons, at 9c.....	3.15
Lubricating oil and grease..	1.00
Repairs	1.00
Wages and board of tractioneer	3.50
Hauling water and fuel.....	.49
Total daily cost.....	$ 11.80
Cost of belt work per horsepower hour.....	.039
Cost of tractive horsepower hour	.079
Cost per bu. in hauling wheat 10 miles on average roads	.023
Cost of plowing per acre under ordinary conditions...	.984
Cost of harvesting per acre..	.273

How We Get the Figures.—The price of 15-30 tractor is figured at $2,000. This price is only approximate, but it is sufficiently high to serve our purpose.

Few tractors have been used long enough to wear out, but those that have been in the field four or five years and that are still in good condition bear out the conclusions at which most power-farming experts have arrived—that there are at least 1000 ten-hour days work under the iron hide of every gas tractor.

Frank T. Reynolds, of Glendive, Mont., did all his own work and $1,800 worth of custom work at an expense for repairs of less than $40. Ole E. Jenson, of Seven Persons, Alta., plowed 1,029 acres, disked and seeded 235 acres and threshed 80,210 bushels of grain within two years and his expense for repairs was $13.35. B. J. Seay, of Cholyheate, Ga., pulled two 8-horse road machines 600 miles in county road-making and hauled 400,000 feet of lumber over rough roads. His repair bill was $60. In view of these statements and many similar statements which we have received, our allowance of $1.00 per day for repairs seems to be a liberal one and should be sufficient to cover all repair bills even in extreme cases.

The question of fuel and the question of lubricating oil are local ones. The quantities of these required will vary just about as much as the prices. The quantity will depend upon the skill with which the tractor is operated and the conditions under which it works. Our figure, 35 gallons of fuel for a 15-30 tractor, is right in line with the estimates made by most of those who have figured the fuel question. We have priced fuel oil at 9c per gallon. This is undoubtedly high where distillate or some of the other baser fuels are used, but it is an easy matter for anyone to get prices on fuel and lubricating oils and figure these items for themselves.

We have allowed $3.50 per day to cover the wages and board of the tractioneer. E. R. Wiggins, M. E., in an article in the April Thresher-men's Review, gives the average monthly wage of farmhands at $46.40. Mr. Wiggins' figures cover board and lodging. The tractioneer will probably command a little better wages than the average farm hand, but the $3.50 per day should be an ample allowance for her services. [In spite of this we still emphasize the point made in the Pacific Rural Press of Nov. 28, that a more expensive man is cheaper.]

We have allowed 49c per day to cover the cost of a team to supply the tractor with fuel and water. This is pay for a team for two hours, which is more than the average time taken to supply even the larger tractors with fuel and water.

In figuring our costs we have made no allowance for shelter. In very few instances an extra building to shelter the tractor is necessary. We have also left out any allowance for the care of the tractor because the tractor, unlike horses, will require care only when in actual use and during this time, the tractioneer will take care of it and keep it in order as a part of his regular daily work.

Conditions vary so much that it is impossible to compile a set of figures that will fit all of them. Our figures are only comparative, but they will serve to show the saving a tractor makes and whether the costs are higher or lower.

In estimating hauling costs, we have figured that a tractor will haul 500 bushels of grain at one trip and will make one ten-mile trip per day. We have allowed 12 acres as a day's work for the tractor at plowing. In harvesting we have figured 80 acres as a day's work for the tractor, pulling five seven-foot binders. In estimating tractor costs in harvesting, we have allowed $10.00 for the wages and board of five men, one on each of the binders.

Ten hours' work has been considered a day for the tractor, but it is well to bear in mind that a tractor does not tire and will work 12 or 14 hours, or even 24 hours per day when this is desirable.

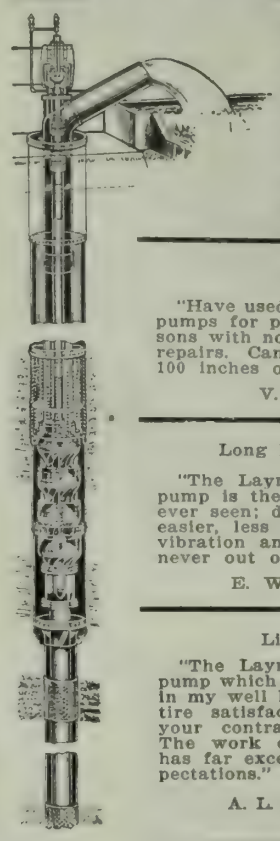
We have considered only the 15-30 tractor. A 30-60 tractor will show an even greater efficiency and is undoubtedly a better size where the farm is large enough or a sufficient amount of custom work can be found to keep it employed.

AUTOS PER CAPITA.

[By A. E. Chamberlain, of I. H. C.]

The farmers' purchases are not confined to necessities, but include comforts and conveniences. The four states having the largest number of automobiles per capita are all west of the Missouri river. Three of them—South Dakota, Nebraska, and Iowa—are purely agricultural, without a large city. Nearly as much can be said of the fourth—California. South Dakota leads with one for a fraction less than every 20 people. Her largest city has a population of less than 20,000 people. So I say the greatest purchasing power in this country today is the farmer.

WHAT A FEW OWNERS SAY
About the
LAYNE & BOWLER PUMP



We give below several extracts from letters received from users of the Layne & Bowler Pump. We have hundreds of such letters on file. Send today for our Catalog No. 25. It tells how you can produce the cheapest water and gives valuable irrigation data.

Chino, Cal
"Have used one of your pumps for past two seasons with no expense for repairs. Can easily pump 100 inches of water"
V. E. WIRE.

Long Beach, Cal.
"The Layne & Bowler pump is the best I have ever seen; does its work easier, less friction, less vibration and noise, and never out of balance."
E. W. SPEARS.

Lindsay, Cal.
"The Layne & Bowler pump which you installed in my well has given entire satisfaction as per your contract with me. The work of the pump has far exceeded my expectations."
A. L. LAIDLAW

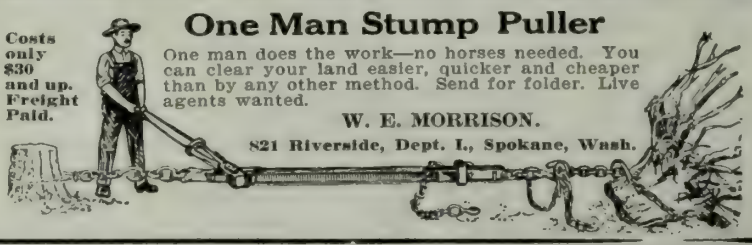
Elsinore, Cal.
"My Layne & Bowler pump has run through the season and has done perfect work I do not hesitate to tell everyone it is the best pump on the market"
F. C. LILLIE.

Los Angeles, Cal.
"With the Layne & Bowler pump we are pumping about 40 inches more than we expected to get. I consider it the best pump for irrigation."
PERCY H. CLARK.

Van Nuys, Cal.
"I have always been a booster for your pump and it has given me all the water the well will supply at a depth of 118 feet. What more can a pump do?"
S. O. HOUGHTON, JR.

Layne & Bowler Corporation
900-910 Santa Fe Ave., Los Angeles, California.

One Man Stump Puller
Costs only $30 and up. Freight Paid.

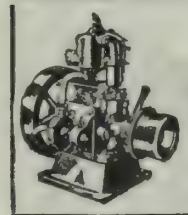


One man does the work—no horses needed. You can clear your land easier, quicker and cheaper than by any other method. Send for folder. Live agents wanted.
W. E. MORRISON.
821 Riverside, Dept. I., Spokane, Wash.

Second Hand PIPE Screw Casing
ALEXANDER PIPE COMPANY
— 254 No. Point Street, San Francisco, Cal. —
501 Clarence St. Los Angeles, Cal.

ENGINES PUMPS MOTORS EQUIPMENT

Our Engines and Pumps are the Quality Kind. It will pay you to get our prices and guarantees, write for catalog and state requirements.
NORMAN B. MILLER CO., San Francisco, Cal.
503 Market Street



CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Write for Catalog
Light Weight
THOMAS R. BROWNE,
Stockton, Cal.

BURN OIL
SAVE MONEY
Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron clad guarantee.
STAR OIL GAS BURNER CO.,
Pasadena, Cal.

REDWOOD
TANKS—SILOS
Water troughs, tank frames, and towers. Steel and Wood Windmills.
Prices the lowest.
BROWN & DYSON
640 So. Center St.
Stockton, Cal.

WATER POWER FOR ELECTRICITY.

To the Editor: In your issue of the Rural Press Nov. 28, you published an article on the advantage of electricity, which has caused me to wonder if many of your readers could not have electricity generated on their own places by using water power, which a good many have. How much water and how much fall would be required to run a small water wheel that would run a motor to generate electricity enough for lighting an ordinary farm house and barn, run a separator, washing machine and electric iron? A reply to the above through your paper I believe will be greatly appreciated by many of your readers.—J. R., Sonoma.

[Answered by E. P. Gibson, of General Electric Co.]

[The amount of power that can be obtained from a stream or waterfall depends upon the head, the quantity of water and the design of the wheel. Let us take an example.

You have a stream flowing down through your ranch and by means of a weir you find that there is an average flow during the year of 80 gallons of water per minute. Up the stream some distance a dam is built and the water conducted in a pipe or flume down to the lowest point. By a survey, you find the vertical distance from the low end of the pipe to the dam to be, say 60 feet. By consulting the tables of some reliable water wheel catalogs we find that, with a 12-inch wheel it is possible to develop about 1.8 horsepower with 550 revolutions per minute of the wheel.

This wheel can be used in connection with the electric generator and equipment as described on page 633, issue of Dec. 19, and will give an ample supply of power for operation of separator, washing machine, electric iron and lights.

If any of the readers have water power available, measure the flow and the head and write some reliable water wheel people for their estimates.]

DEMONSTRATION PUMPING IN ARIZONA.

A model pumping plant was exhibited on a flat car in the demonstration train which the Arizona Experiment Station recently sent through the State in connection with the railroads. The pumping plant was in charge of Prof. G. E. P. Smith.

A horizontal centrifugal pump circulated water from one pit to another. Between the pits was a standard farmers' weir by means of which the water was measured as it flowed back from the second pit to the first. The pump was driven by a 16-horsepower four-cycle oil engine, with magneto ignition, and the fuel used was the low-grade distillate called tops or special gas oil, selling at 7 cents a gallon retail throughout Arizona. The farmers appreciated the good features of the machinery shown, and it can be seen that they are becoming more discriminating in their purchase of pumps and engines.

No other place in Arizona is showing so much activity in developing the groundwater for irrigation as Casa Grande. New pumping plants are being installed, others are being contracted for, and more wells are being drilled. The business depression which is apparent in some parts of the country has overlooked this little community, and apparently the people have decided not to sit idly by while waiting for the San Carlos dam to materialize.

POWER FOR PLOWING

[Written for PACIFIC RURAL PRESS By W. H. Kritzer.]

The power required to drag a 3-gang, 14-inch bottom plow turning to a depth of 9 inches and moving forward at a speed of 2 miles per hour averages about 1200 pounds on the drawbar, and for a disc harrow having 24 18-inch discs set at their greatest angle and weighted to cut plowed ground to their maximum, average about the same—1200 pounds.

A 12-inch moldboard plow will ordinarily require 6 horse power, and a 14-inch about 7 or 8 horse power, so the amount of effort at the draw-bar in pounds pull for plowing under different conditions for each bottom used is for:

Breaking 700 to 800 pounds plowing 4 inches deep.

Blue Grass 500 to 600 pounds plowing 7 inches deep.

Clover Sod 350 to 450 pounds plowing 7 inches deep.

June Grass 500 to 600 pounds plowing 7 inches deep.

Corn Stubble 300 to 350 pounds plowing 7inches deep.

Wheat 350 to 400 pounds plowing 7 inches deep.

For some classes of cultivation disk plows have proved more popular than the moldboard type, as it is possible with them to cover more ground with a given expenditure of time and power. They accommodate themselves readily to uneven surfaces and to rolling over obstructions, furthermore it is possible with them to plow a continuous furrow around a field without labor and loss of time in lifting plows at corners or headlands, though in this case the corners are usually left to be plowed out with horses. They can be used under certain conditions where moldboard plows cannot, yet it is doubtful whether, on the whole, they do as efficient work.

HEAVY FUEL FOR TRACTORS

[Written for PACIFIC RURAL PRESS By Wm. H. Kritzer.]

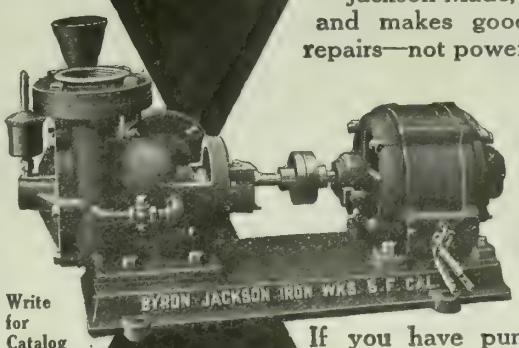
For tractor fuel gasoline and distillate are considered the best. Kerosene at the present time is successful and economical in internal combustion engines for stationary purposes only. No device has been perfected that will effectually provide for the greater variation in loads required of traction engines. This results in excessive carbonization and much greater ultimate expense than the use of distillate, which can be purchased for less money at the present time.

Over two thousand new pumping plants have been installed in two years in nine counties of Southern California. This has brought 87,000 acres more under irrigation, making a total of about 925,000.

A labyrinth of sloughs, cutoffs, and bayous in the Sacramento-San Joaquin delta makes transportation by the shortest route a problem. The sign-posts telling distances and directions which the American Power Boat Ass'n proposes to place at the "cross roads" will make navigation much easier.

"Jackson MADE"

The secret of the wonderful popularity of "Jackson Made" pumps is their all the year round efficiency. No matter what the job may be to which you put a "Jackson Made," it takes right hold and makes good. No expensive repairs—not power eaters.



"Jackson Made" Pumps save practically their first cost in a very few months.

Write for Catalog No. 47J

If you have pumping worries—tell them to our expert engineers—they'll help you free of charge.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

INSTALL THE KT IRRIGATION SYSTEM
SAVES WATER LAND AND LABOR

Every rancher is continually on the lookout for the most efficient and economical means of carrying on his work. In the Southwest the most important matter to contend with is irrigation. Your irrigation system should be

Permanent--Efficient--Economical

In no system are these three essentials emphasized more than in the K-T System. The conduits are underground, completely out of the way—always clean and free, always delivering the maximum flow, conserving every drop of water. One man can do the work of many with this system. Don't experiment—the best is the cheapest in the long run.

Write for our Brown Book on Irrigation, which describes the K-T System in detail

KELLAR-THOMASON CO.
"Originators of the Valve System of Irrigating."
1234 EAST 28th ST., LOS ANGELES.

(Ask your Dealer or Contractor.)

KT KT

The KROGH Vertical Pumps

New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.
SAN RANFCISCO, LOS ANGELES

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and New

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4Main and Howard Sts., San Francisco

Agricultural Review

CITRUS AND SEMITROPICAL.

The Piru Citrus Association was recently organized in Ventura county.

Kern county will have produced about 20,000 boxes of oranges this season.

To December 19 Riverside had shipped 51 cars of oranges and 32 of lemons this season.

To prevent importation of date pests, a State law is proposed quarantining imported date off-shoots.

A banana grove in Tulare county has matured half a dozen bunches, which will be shown at the World's Fair.

Butte county has marketed her orange crop, all at first-rate prices and a third greater in quantity than a year ago.

Twelve-year lemon trees in Sutter county are producing such a heavy crop we are afraid to repeat what is said about them.

Defoliation and dipping of citrus nursery stock brought into Fresno county is to be the rule enforced in the coming season.

A cluster of eleven grapefruits, weighing 13½ pounds was recently presented to the Chamber of Commerce to be processed for the Panama-Pacific Exposition.

A Stanislaus county grower doubled his orange crop and made it of finer quality by using 40 pounds commercial fertilizer per tree two years ago and 20 pounds the past year.

A complete citrus fruit exhibit from Fresno county for the San Diego exposition is being prepared. It will include all commercial varieties of oranges, some lemons and grape-fruits.

Florida citrus shipments this season to Dec. 19, were over 8,000 cars, including well over 2,000 cars of grape fruit. Nearly 2,000 cars of citrus fruits moved out in one week, probably the heaviest week in citrus history.

Lindsay had shipped 1976 carloads of oranges, including Dec. 27, and expected 250 carloads more. Up to Dec. 22, Porterville had shipped 1238 cars, with an estimated 350 to come. Shipments from other points are expected to swell the total for the Tulare district to well over 5,000 cars. The prices have held up well. This was unexpected and is probably mostly due to the standards of maturity enforced this season for the first time. This in spite of increased importations to America from the peaceable Europeans.

Riverside gets the new University of California Citrus Experiment station, for which a site, with water rights, valued at considerably over $100,000 is furnished at the legally provided price of $55,000. It includes 477 acres of land, about two miles east of Riverside. Of this, 236 acres have deep, uniform, average citrus soil, 100 acres are high-grade foothill orchard land, and 141 acres are quite hilly and rocky—good for building sites and parking. Citizens of Riverside subscribed $18,400, and the city will furnish power for irrigation pumping at a cost of about $3 per acre per year for all but 40 acres, which will be irrigated by gravity from a ditch. Dr. H. J. Webber, who is to be in charge of the new station, is ready to begin a soil survey, soil leveling for irrigation and tree planting. Close at hand are commercial orchards of every age, available for study, in connection with station experiments. Riverside was selected after a long, stubborn fight in which 59 other prospective sites were eliminated. Improvements are to cost $120,000.

DECIDUOUS FRUITS.

Dried peach packing continued late into December in Fresno county.

Forty acres of Burbank plums are to be planted in the hills near Dinuba.

A $25,000 plant to handle green and dried fruit will be erected at either Yuba City or Marysville.

In storage at Los Angeles were recently 550 cars of Pajaro valley apples, mostly Belleflowers, some of which were developing decay.

One of the fresh fruit packing houses of Dinuba closed just before Christmas, having shipped 20 cars of oranges and 66 of grapes and peaches.

Canned fruits and vegetables, to the tune of 7,000 cases, grown near Sacramento, were shipped in one day from Sacramento to go to London, via Panama; 120,000 cases have gone to Europe in two months from this point.

A cargo of fruit and vegetables, the first ever sent under refrigeration via Panama, left San Francisco just before Christmas. It included several thousand boxes of apples from Watsonville and 1,000 crates of celery from the Delta. The refrigeration experiment will be watched with great interest.

GRAPES.

A 160-acre Thompson Seedless vineyard is to be planted in Sutter county.

Dollar Christmas packages of raisins sent by express from Fresno amounted to about 60,000 packages weighing about 400,000 pounds and costing about $20,000 express charges. They went to every part of the United States.

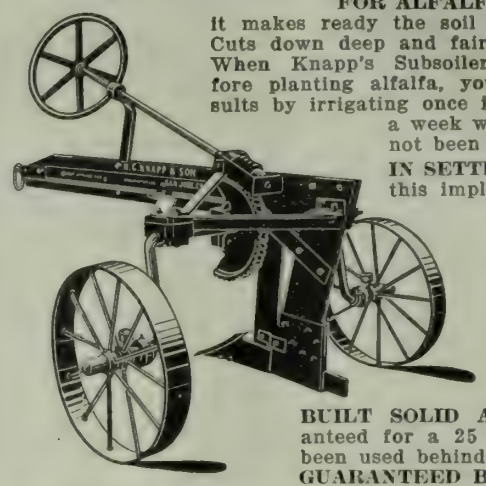
The Cal Associated Raisin Co. has framed a bill to be proposed at the next legislature compelling all raisin packers to put permanent labels on raisin packages which will tell the grade and variety. National legislation on the same line is also suggested.

Raisin prices are to be raised 1-3 to 1-4 cent a pound Jan. 1, in view of the cheaper water rates via Panama, the expected early demand from Europe, and the increased American demand resulting from the recently inaugurated advertising campaign of the Associated Raisin Co. Consumers will scarcely feel the increase.

If your fall litters of pigs are to secure the best possible growth during the winter months you should provide them with shelter from rain, and dry pens to run in.

Knapp's Sub-Soiler
AND DITCHER
Breaks Up Hardpan and Plowpan

FOR ALFALFA LAND.



it makes ready the soil as nothing else can. Cuts down deep and fairly pulverizes subsoil. When Knapp's Subsoiler has been used before planting alfalfa, you can get better results by irrigating once in 60 days than once a week where the hardpan has not been broken up.

IN SETTING FRUIT TREES—this implement makes digging the holes the easiest of tasks. Where trees are all ready planted it breaks up the plow-pan and allows the moisture to get down to the roots. Breaks a strip of ground from 3 to 4 feet wide.

BUILT SOLID AND STRONG—guaranteed for a 25 H. P. pull—and has been used behind a 35 H. P. machine.

GUARANTEED BY KNAPP—and that means a lot. Knapp's plows are known all over the Pacific Coast, wherever good plows are used.

DITCHER ATTACHMENT—with this attachment you can ditch as you sub-soil, making a ditch 2 feet deep and 4 feet wide.

WRITE FOR MORE PARTICULARS—ask us anything you want to know about the subsoiler and ditcher—and for names of those who are using it.

H. G. Knapp & Son, 1022 S. First Street SAN JOSE, CAL.

Landscape Gardening a Specialty

Immense stock of ORNAMENTAL SHRUBS, TREES AND PLANTS, including 75 Native Californian Species. also FRUIT, NUT TREES, ETC. Pedigreed French Prunes.

LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

"Bauer" Berries
Strawberry plants—Klondike, Aroma, Gandy. Every plant guaranteed. Send for free 68-page catalogue.
J. A. BAUER, Judsonia, Ark.
Strawberry Specialist. Establ'd 1880
Box No. 7

TREES

French and Imperial Prunes, Bartletts and other Pears; Tuscan and Phillips Clings, Fay, Elbertas and other Peaches, Cherries, Plums, Apples, Grafted Walnuts, etc. Stock pure and of best strain. Place orders promptly. Prices reasonable.

TABLE GROVE NURSERIES
Healdsburg, Cal.

St. Joseph's
Agricultural Institute
RUTHERFORD, NAPA CO., CALIF.

An Agricultural High School for boarding Students. A thorough training given in the theory and practice of diversified farming. The school is located on a thousand acre farm. The students assist in all the branches of work conducted on the farm, plowing, seeding, cultivating, orchard and vineyard work, dairying, hog raising, poultry raising, etc., thereby acquiring a practical knowledge of agriculture, which is of equal importance to the theory. The eighth grade is conducted as a preparatory class. The fee for board and tuition is very reasonable—Classes reopen on January 4th, 1915. For further information apply to the principal.

Bro. Thomas H. Claffy, S. M.

AXLE & GREASE
LARGE HANDY C&S BUCKET — SMALL C&S CAN
WHITTIER COBURN CO. S.F. SOLE MFRS.

Every packet of Morse's Seeds Vegetable or Flower, are dependable seeds. Fully tested before packed. For Sale Everywhere

C.C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Write for a copy of Morse's 1915 Garden Guide Just off the press Mailed Free.

OLIVES AND NUTS.

A tract of 640 acres in Tulare county is to be set to olives, also a 500-acre tract in Tehama county.

Codling worms are becoming a menace to walnuts.

When the tariff on olive oil was reduced by cutting the 40 cents a gallon in half, it opened the country to a flood of cheaply produced oil from European countries, whose European markets had been cut off by the war. This has been disastrous to the California product.

Sutter county growers got together last week in Yuba City, and quizzed Prof. W. F. Oglesby, of the University, after he had told them all he could think of without resting. One of the points made is that there are several varieties of the Mission olives; another is that only pickle varieties should be grown, with the off-grade fruit for oil.

The Lindsay Olive Growers' Association has packed 150 tons of ripe olives in the plant erected for that purpose by the Tulare County Growers' Association. The local press is now urging that home industry be encouraged by calling for the local brands. Minced olives; canned and cooked in their own oil, are made from the fruit bruised in handling.

VEGETABLES.

Maine potatoes are quarantined for powdery scab and all shipped for seed from this great seed potato State are supposed to have a "government inspected" label.

Railway rates on melons from Sacramento to Oregon and Washington were recently raised. This will throw still more of the enormous San Joaquin valley melon crop onto the local markets.

On a quarter acre of potatoes a Nevada county farmer produced 9217 pounds of marketable potatoes and 720 pounds of culls. The cost of seed and production is estimated at $74 and the net profit $138. This was done in a contest for a prize offered by a local merchant.

The Lima Bean Growers' Ass'n is charged with raising prices to keep pace with other products. They rose so suddenly and high that eastern buyers canceled their orders and the price then sank to a dollar a hundred less than had been asked. It was said that the rejections were due to poor quality, and the combination of circumstances has incited a government probe.

GRAIN AND HAY.

On Natomas reclaimed land 55,000 acres is being plowed to be planted to grain, hay, and beans.

Rice cutting is again in full swing in Butte county following a lay-off due to storms. The loss of grain was small.

The new South Wales (Australia) government has seized the entire wheat supply of that country except that needed for seed. A price of $1.20 per bushel is fixed to prevent all speculation on account of the war.

Growing vetch on hillsides for hay is proposed by the Farm Adviser of Alameda county. He says vetch and oats mixed, ripen about the same time and has better feed value, especially for dairy stock, than straight oat or wheat hay. The vetch improves the hillside fertility.

FARMS PRODUCE MUSIC.

The latest thing in California agriculture is the raising of material from which musical instruments may be manufactured. The plant is known as the "reed of Hermes." It resembles the bamboo plant and is used extensively in the manufacture of reed musical instruments. Heretofore, according to reports coming from Yuba county, manufacturers have secured the material in European countries, but since the beginning of the present war their supplies have been cut off; and in search of available supplies, it develops that the plant has been growing satisfactorily in Yuba county for several years, and it seems probable that it will be commercialized in the near future.

COPPER FUMES A MENACE.

The report of the committee provided for at the last session of the Legislature to investigate the reported damage to farm lands by fumes from the various smelters over the State has just filed its report with the Governor. According to the report, farm lands around smelters are seriously damaged in the following ways: the fumes destroy pastures, orchards lose their thrift and productivity, cereals, alfalfa and truck crops suffer serious damage, and the forests have succumbed to the fumes. The investigations were carried out near Kennet, Shasta county, and at Campo Seco, in Calaveras county.

ARIZONA FARMERS' COURSE

With the purpose of giving farmers in Arizona and those others who may be intending to engage in farming in that State an opportunity of becoming familiar with the Arizona system of farming, the University of Arizona College of Agriculture announces the third annual two weeks' short course for farmers. The Arizona system is a definite system of farming which has been worked out by the experts of the college and experiment stations, through experiments and by collecting the successful experiences of many Arizona farmers. The course will begin January 4 and end January 16.

CALIFORNIA FRUIT NEWS SPECIAL.

The 84-page Annual Review number of California Fruit News, just published, is well filled with statistics and information, mostly regarding agricultural marketing. Its advertising columns are especially noteworthy for the full-page spreads of the various co-operative and other marketing agencies for California fruit. The editorial columns contain a mine of information.

A NEW DISTRICT FAIR.

In order to bring to the attention of visitors to the Panama-Pacific Exposition, the possibilities of agriculture in Yuba and Sutter counties, a movement is being started at Marysville, by the Chamber of Commerce, to hold, sometime during 1915, an agricultural fair, at which farm products will be displayed. It is planned to advertise the event and run special excursion trains from all points.

DIVIDEND NOTICE.

THE GERMAN SAVINGS AND LOAN SOCIETY.

526 California Street, San Francisco.

For the half year ending December 31, 1914, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, payable on and after Saturday, January 2, 1915. Dividends not called for are added to the deposit account and earn dividends from January 1, 1915.

GEORGE TOURNY, Manager.

SPECIAL SALE of Farm Implements

Startling reductions in many lines. We are preparing to move from one of our warehouses into a new one and find hundreds of items that we wish to close out rather than move. Prices are sharply reduced for quick sales.

PLOWS, HARROWS, LAND ROLLERS, RIDGERS, DRILLS, TRANSPLANTERS, CULTIVATORS, MOWERS, RAKES, FEED CUTTERS, CREAM SEPARATORS, BARN EQUIPMENT, GAS ENGINES, SCRAPERS, VEHICLES, WAGONS, TRUCKS, GARDEN TOOLS, MILK CANS, PAILS, ETC.

We can only give you a rough idea of the principal items. Not all styles or sizes are included, but plenty for you to pick from. You can save money on almost everything you need—but remember, the quantities are limited. Make up a list of what you need and write or call and see us.

Please remember that we are not moving our office and salesrooms—merely one of our warehouses. You will still find us at the same old stand.

Newell-Mathews Company

Established 1886

Implements, Wagons, Dairy Supplies, Road & Grading Machinery.

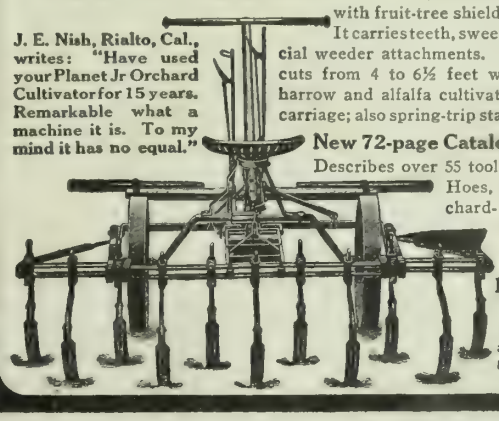
200 NO. LOS ANGELES ST., LOS ANGELES.

Planet Jr. Orchard Cultivator

For the fruit-grower who wants maximum profits this No. 41 Planet Jr Orchard and Universal Cultivator is an absolute necessity in the orchard, vineyard, or hopyard. Its strong, durable construction and lasting service make it the most economical orchard cultivator you can buy.

This No. 41 has strong, light frame, low wheels, and tongue, all of steel. Is equipped with fruit-tree shield and side-hitch for low trees. It carries teeth, sweeps, furrowers, plows, and special weeder attachments. Works deep or shallow, and cuts from 4 to 6½ feet wide. Convertible into disc-harrow and alfalfa cultivator. Can be fitted with forecarriage; also spring-trip standards, and irrigation steels.

J. E. Nish, Rialto, Cal., writes: "Have used your Planet Jr Orchard Cultivator for 15 years. Remarkable what a machine it is. To my mind it has no equal."



New 72-page Catalog (168 illustrations) free! Describes over 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators.

Write postal for it today.

S L ALLEN & CO

Box 1203F Phila Pa

Established over 40 years.

We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast cities.

50¢ POSTPAID!!

To introduce our guaranteed trees and plants we offer you any or all of the following at 50 cents delivered to you. 12 apple, 12 peach trees, 12 rhubarb, 100 strawberry, 6 gooseberry, 12 raspberry, 12 blackberry plants. Write for price list. Offer good only 30 days. Dept. No. 10.

ARKANSAS NURSERY Co GREENLAND, ARK.

RICE LANDS FOR RENT

Any part of two Sections, rich, level land with flowing wells and pumping plants, good buildings, barns, etc., in Tulare County, between Pixley and Spa. Three miles from two railroads. Land has been plowed, fallowed, fertilized and harrowed, and is ready for planting. Rent reasonable and for term of years, if desired. Apply to

R. C. FAIRALL

PIXLEY,

Tulare County, California.

Halliwell Seed Co.

258 Market St., San Francisco, Cal.

SEEDS PLANTS TREES

Write for our 1915 catalogue.

SPECIAL OFFER OF FRANQUETTE WALNUT TREES.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.

NEWCASTLE, CAL.

California Native Plants

Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.

THEODORE PAYNE,

145 S. Main St., Los Angeles, Cal.

Success on a 20 Acre Dairy.

[Written for PACIFIC RURAL PRESS.]

Whether or not the 20-acre dairy ranch will provide a sufficiently good living to warrant its increasing numerically in this State is a much disputed question, some claiming that such small dairies will not produce enough for the American farmer to live on, while others maintain that our dairies will gradually decrease in size as we learn the value of progressive measures.

In many sections of the State the tendency is undoubtedly toward the smaller dairy farm, and the district known as Los Molinos is notable in this respect, the rich bottom land there having been cut up into exceptionally small farms.

It was on a 20-acre ranch in that section that we met Mr. R. F. Massie and his wife and found that they were making rather remarkable headway, simply by putting into practice the advanced ideas for efficiency on the dairy, and their experience is so convincingly favorable to the small farm idea that it should be of value to those advancing this idea.

In the first place, Mr. Massie informed us that previous to two years ago last August he had been a commercial traveler and knew absolutely nothing of the fundamental principles of dairying. Becoming enamored with the "back to the farm movement," which was at that time popular in the East as well as the West, he purchased his present ranch, 12 acres of which was planted to alfalfa, although so poorly done that it has since been plowed up.

After erecting his residence and getting settled, it was evident that a program should be mapped out and followed as closely as practicable. The first move was to get cows, not merely those that could be kept for milking, but some that would keep themselves and owner.

Business methods in other lines had shown Mr. Massie that maximum production at minimum cost was the keynote of success and from agricultural papers, which he early learned to be of value, he decided that he would buy the best utility cows available. At that time many other farmers there also were in the need of cows and a local dealer was shipping in several hundred head with which to supply the demand. By selecting the best of these shipments a small herd was established and the actual revenue started.

Going further toward maximum returns, a Babcock tester and scales were immediately put into use and the poor producers weeded out. After some months of adding to and taking away, a herd of 12 cows, mostly grade Jerseys, were finally selected as the foundation herd and from that number 10 heifers have been raised, one of which freshened last summer and fully demonstrated the worth of a good foundation. It should be said though, that the creditable showing of the heifers is not alone due to the fact that good cows were selected, for in breeding in his cows, a purebred Jersey bull was used. This line of breeding will be carried further by purchasing another bull, one having good milk and fat records back of him, for it is the intention to increase the production of the herd through the bull and the calf lot.

It soon became evident that to supply feed for the stock then on hand, feed must be grown in larger quantities than was possible on the 12 acres of poorly leveled land. The first step toward increasing this supply was in the proper leveling and checking of the eight acres of raw land, and as this was in the nature of permanent improvements, much time and labor were spent in having it well done.

The yields from that field since then have demonstrated the value of thorough and painstaking leveling and checking, for it has been largely from that planting that the cows and heifers have been fed. The accomplishment of this has been possible largely through the conservation of the feed after it has been grown, the first cutting, which ordinarily makes a rather poor quality of hay having been cut green and fed daily and the later crops have been cut just before the bloom, making a quality of hay that was entirely cleaned up by the cows when fed, thus overcoming waste from coarse stems and lost leaves.

The last work of feed development will be done this winter, with the leveling and re-seeding of the balance of the older fields and when this begins to produce, the entire energies will be given to improving the production powers of the herd and increasing the number of cows in the herd to 30 head. This announcement may seem ridiculous to some who are accustomed to figure one cow to the acre or less, but Mr. Massie has demonstrated to his own satisfaction that by intelligent growing and caring for his feed and by keeping the small Jersey cow, he can maintain one and a half cows to the acre of alfalfa.

Not content with simply breeding production into his young stock, Mr. Massie is a strong believer in properly developing his heifers through good feed and care in their early life. With that end in view, the calves are fed liberally of whole milk for the first month, 16 pounds daily being fed at that time, which amount is later increased to 18 pounds. In addition to this, ground barley is fed in amounts up to two pounds daily.

With the developing of both land and cattle, it would be proper to assume that there had been little financial returns, but those few cows whose average production has been 280 pounds of butter yearly have had a good effect on the bank account; the books, and let us state these are interesting books, show that from August 1, 1912, till October, 1914, there had been an average of nine cows milked and that during that time approximately $2,000 had been received for butterfat alone. This did not include hogs, calves vealed and poultry, which considerably enlarged the total receipts.

Of course the undertaking is not yet complete, nor will it be considered so by Mr. Massie till he has developed each branch of his small establishment to a point that will allow of maximum results. This he realizes can not come about in a month or a year, but must be secured by everlastingly plugging toward a chosen goal.

No frills or fancies have been indulged in, neither has some new system been devised by which success may come at one's bidding, but instead, Mr. Massie has chosen to follow lines which have proved most profitable to others, and that his lesson in so short a time has been well learned is evidenced by a chance remark of a neighbor, who said, "When Massie first came here he didn't know how to hitch up a team of horses, but he has certainly made a lot of us old-time farmers go some when it comes to results."

Don't put the hogs off in any old shed and expect the best results. Give them somewhere near the same care and attention that the other farm animals receive and the results will be suprising.

PLACE YOUR ORDER NOW

For An IDEAL GREEN FEED SILO

YOU WILL NEVER MAKE THE profit you ought to from your cows until you feed them silage. No cow-owner or stock-raiser can afford to get along a single year without a silo.

Write now for Circular B and our special proposition.

DE LAVAL DAIRY SUPPLY CO.

Alpha Engines Feed Cutters
SAN FRANCISCO, SEATTLE.
Everything for the Dairy.

2-YR. OLD SHIRE STALLION FOR SALE

SEVERN DONALD 13957 by Severn Pilot 11587
DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399

This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1900. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.

For further particulars write

J. McCORMACK, Rio Vista, California

SALVADOR STOCK FARM

SHIRE HORSES

I have some good stallions for sale and a few young mares.

Prices as Usual in spite of the War

You had better buy now, as importations have stopped.

For further particulars, address
HENRY WHEATLEY,
Napa, Calif.

Don Adonis of Linda Vista.

BERKSHIRES — GUERNSEYS

Our BERKSHIRES are the finest in the State. At the last State Fair we entered in fourteen classes and won ten. firsts.

Stock of all ages for sale.

GUERNSEYS—We offer for sale bull calves of A. R. breeding on both sides. Some by Don Adonis of Linda Vista, whose dam, two grand dams, and two great grand dams have an average record of 714 pounds butter-fat in one year.

GRAPEWILD FARM,
A. B. Humphrey, Owner
Mayhews, Cal.

POLAND-CHINA HOGS

THE BROWNING STOCK FARM
LARGE TYPE
YOUNG STOCK FOR SALE. BOTH SEXES.
W. H. Browning, Prop. Woodland, Cal.

For Sale or Exchange,
One Black Percheron Stallion
"GANTRAN"
8 years old—weight 1940.
Sound and sure.
LINDEN HORSE CO.
Linden, Calif.

TAMWORTHS
The Big Red Bacon and Block Hog.
Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

TEACHING PAYS
Teachers Receive From $70 to $150 Per Month and Have a Pleasant Occupation - Free Catalog
PREPARE AT
WESTERN NORMAL
STOCKTON, CAL.

The Value of Tried Stallions.

[Written for PACIFIC RURAL PRESS.]

Considering their numbers there is no other class of farm animals which have such a far-reaching effect upon all other stock of their kind in a community than the draft horse stallion, yet strange to say farmers have a tendency to pay less attention to the quality of these sires than is generally the case with bulls, boars and rams.

Perhaps one reason for this may be that owing to the individual ownership of the latter sires in most instances, there is a closer relationship between man and beast, but after all it is the desire to raise better stock which induces the farmer to pay a stallion service fee which would be deemed extravagance if applied to other farm animals.

That this service fee is not always well spent is self-evident from the number of mediocre horses which are annually sold from the farms in this State, but the fact that the purebred stallion is continually on the increase in the State and the grade stallion gradually losing ground seems to indicate that farmers are seeking the better bred horse with which to breed their grade mares to.

With stallions however, as with all other kinds of sires, an unfounded belief is often prevalent that all registered animals are good animals to breed too. To any one who has made a careful study of animal breeding the fallacy of this belief is readily seen, for it is a well known fact that many breeders do not practice a system of selection and proper mating, with the result that there are many purebred sires distributed through the country with little or no chance of improving their off-spring. Many other animals which in themselves possess the qualities required in conformation, are not prepotent and the off-spring, instead of resembling the desired type of its sire, reverts to its dam or her ancestors, with resultant disappointment to its owner.

Happening as it oftentimes does with purebred sires, it has been found that grade sires, whose parentage is of uncertain character, have far less chance of transmitting desirable qualities to the off-spring.

With dairy cattle the breeder has the advantage of known production at the pail to go by in selecting his purebred sire and in most instances that is of great value to him, but with horses there is only one sure method of selecting a sire with the desired qualities and that is through the off-spring he has sired.

From this it is evident that in breeding horses the aim should be to breed to stallions of proven worth if possible and to continue breeding to such animals as long as their services are accessible, even though they come at a higher service fee than other horses in the district whose value as breeding animals is still undeveloped.

By continual breeding to purebred stallions of the same breed whose transmitting powers have been proved, the majority of the colts will be of uniform size, quality and disposition, all of which are important characteristics either for farm or market purposes. Success with horses requires the careful selection of the sire as well as proper care and feed for the young and the sooner farmers recognize the necessity of having prepotency and quality in the stallion as well as size, the sooner we may expect more efficient farm power and a resultant higher price for horse flesh.

SILAGE QUESTIONS.

To the Editor: I expect to build a silo and would like to know the size best suited to my needs. I have 25 cows at present and will increase to 50 or 60 as I raise them. I will put in first cutting alfalfa, then refill with corn. What kind of corn is best and how many acres should I plant? It will grow to a height of seven feet here.—W. N. T., Emmaton.

[It is impossible to state the exact size of a silo to be constructed for a given number of cows as variation in the size of the animals will determine whether each cow is to receive 24, 30 or 40 pounds daily. It is better to have the diameter of the silo small enough to make possible the feeding of about two inches from the top each day, as this keeps the top of the silage from drying out and molding. In the following table it is assumed that each cow will consume 30 pounds of silage daily, but in building your silo you should add about five feet to the height to allow for settling, as the following figures are based on actual measurements of the silage after settling has taken place.

No. of Cows	Silage for 180 days at 30 lbs. per day.	Acres of Corn at 12 tons per acre	Size of Silo. Inside Diameter	Depth of Silage
14	38	3	10	26
15	40	3½	10	28
20	54	4½	12	26
25	68	5¾	14	26
30	81	6¾	14	28
35	95	8	16	26
40	108	9	16	28
45	122	10¼	18	26
50	136	11¼	20	26

Relation of Size of Silo to Silage to Be Used Daily.

You will see by the above table that we have figured 12 tons of corn to the acre, which is, we believe, a good average yield of silage corn in this State, and about what we should guess your corn will run. It would be well, however, to plant somewhat more to provide against underestimating and other factors which may cause your crop to be below normal. In view of the fact that you have but 25 cows at present, we should advise the erection of a silo 14 by 28 feet, which would, as you will see by referring to the above table, furnish feed for 30 cows for six months. When your herd increases to a point where such a silo is too small you could erect another one alongside of it, the same size and thus provide for the 60 head which you contemplate keeping. No one knows yet which is the best corn for this State and probably there will never be any one best for all parts of the State. The varieties which are chiefly grown at the present time are "Large Yellow Dent," "Small White," King Philip" and "Deaming." The latter and "Small White" have been very popular among silo owners. For the purpose of siloing it is immaterial which variety you use so long as that variety grows best in your location.—Editors.]

REPORT HOG CHOLERA.

Failure to report hog cholera has caused one Oregon owner the loss of a hundred head of hogs by this disease. Other hog growers have hauled the carcasses of hogs that died of cholera to the woodlot, where they are picked at by crows, magpies and other scavengers, and bits of the infected flesh carried to other farms. Dogs have also acted as carriers of the disease, and doubtless drainage waters have assisted in scattering the germs. All these cases should have been reported to the county agricultural agent, says H. T. French, state leader of county agent work, and he would have had the infected carcasses burned, thus preventing the spread. All swine ailments should be reported, since possibly they may have been caused by cholera germs. Nothing is gained by the individual farmer by keeping the facts secret, and great harm is done both to himself and to his neighbors.

HOGS LIKE CULL ORANGES.

To the Editor: In your issue of December 12, I noticed a query from a subscriber in Covina in regard to pigs eating oranges. Will say that during the past month we have probably fed a ton of cull oranges to our hogs. They will leave their slop composed of milk and cocoanut meal to eat the oranges. If allowed to run in the orchard they will pull the fruit from the lower branches.—R. D. Knickerbocker, Oakdale.

LARROWE'S DRIED BEET PULP

is becoming a standard portion of every ration in a rapidly increasing number of dairy herds. Its worth as a succulent, milk-producing, vegetable feed has been fully proven by large and small feeders.

The New World's Champion Cow—Tilly Alcartra

—whose milk record for the past year was over 30,000 lbs. —ate Larrowe's Dried Beet Pulp daily, and to this is attributed a large part of her splendid record.

YOU can increase the supply of milk from your cows at least 1 to 5 lbs. per cow a day by feeding Larrowe's Dried Beet Pulp. It is put up in 100-lb. sacks and can be had either plain or with molasses. Order from your dealer NOW.

FREE BOOKLET—"Profitable Feeding"—giving valuable information and feeding instructions will be sent to any address on request.

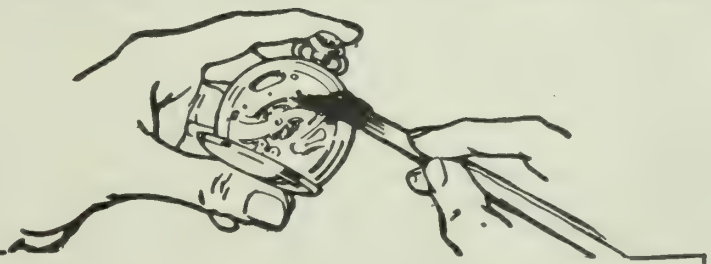
THE LARROWE MILLING CO.

607 CENTRAL BLDG., LOS ANGELES, CAL.

LARROWE'S DRIED BEET PULP TRADE MARK REG. U.S. PAT. OFF.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENT AGENCY PATENTS 911 Crocker Bldg.

Circulars containing 100 mechanical movements mailed free.



You Wouldn't Put Axle Grease on Your Watch

Isn't it almost as ridiculous to use ordinary farm oil on your cream separator? It's delicate mechanism demands a special oil. We make good harvester and gas engine oils, but we do not recommend them for separators. If your separator is to do its best work, you must lubricate it with

Standard Hand Separator Oil

It is made especially to suit the peculiar mechanism of cream separators. It is of just the right body. It does not "gum." It keeps the bowl running swiftly and smoothly—you get *all* the cream. There is no better oil —regardless of price. Dealers everywhere.

Standard Oil Company (California)

Redwood Tanks

I sell to the consumer. Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Moulding, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

With the Live Stock Men

According to reports from Butte county cattle rustlers have been busy in the section around Hurleton during the past month.

Blackleg is said to have made its appearance among some of the herds of cattle around Inwood, and a few calves which were not vaccinated have died from the disease.

The Santa Rosa Milkmen's association has announced a raise in the price of whole milk to become effective the first of the year. The following scale has been set:

1 pint, per month, $1.50; 1½ pints, $2.25; 1 quart, $3.00; 3 pints, $4.25; 2 quarts, $5.50; 2 quarts and 1 pint, $6.75; 3 quarts $8.00; 4 quarts, $10.50.

A report from Chico states that an eastern man who has recently located there will immediately start purebred herds of cattle and hogs. It is proposed to bring the animals from Louisiana.

Why not make a New Year's resolve to breed better stock and handle them in a more efficient manner than you did last year? You have nothing to lose from this resolve and everything to gain.

Announcement has been made by the secretary of the American Hereford Cattle Breeders' association that $15,000 will be offered Hereford breeders at the Panama-Pacific Exposition.

When buying purebred stock from our advertisers mention the fact that their advertisement was seen in the Pacific Rural Press. In that way you can aid us in improving the livestock department of the paper.

The Porterville Alfalfa company at Porterville are feeding about 1,000 head of steers this winter on alfalfa and barley. A report from that place says that one steer which has been fed in the corrals since September 5 has gained 295 pounds.

The highest price ever paid on the open market in Kansas City for steers was received during the past month by A. E. McGregor of Washington, Kansas, when his steers which had been fitted for the American Royal sold for $11.35 a hundred.

Over 600 head of Mexican cattle were received at Oakdale recently from Hereford Arizona. The recent rains have made plenty of grass on the ranges around Cooperstown and Oakdale and these cattle are to be fattened for the market in those sections.

Stock men from Illinois who participate in the livestock show at the Panama-Pacific Exposition will be offered prizes aggregating $17,480 by the State of Illinois. This money will be divided in such a manner that prizes will be awarded for dairy cattle, beef cattle, sheep, swine and horses.

What is said to be the largest herd of cattle ever taken through the Pacheco pass in San Benito county was a herd of 1,000 head which were taken from near Morgan Hill to Los Banos, from which point they were to be shipped to the Laveaga ranch in the southern part of the State.

Dispatches from Illinois say that there have been 400 herds of stock killed and buried in that State to get rid of the foot-and-mouth disease. The State veterinarian has, it is claimed, 125 assistants who are scouring the State making a final inspection and gathering data as to the spread and effect of the disease.

A dispatch from Lassen county states that contracts have been closed for the delivery of 1100 dairy cows to farmers in the Standish district and that this number will be added too till there are 2,000 head in that section. With the amount of good alfalfa land in the Honey Lake Valley, there is room for a good deal of development work along dairy lines there.

According to reports emanating from Woodland, Yolo county has not given up her plan of exhibiting a model herd of dairy cattle at the Panama-Pacific Exposition, and steps are being taken to have on display a dairy exhibit that will make visitors sit up and take notice. With the thousands of dollars that are being spent for feature exhibits by the various counties, it seems rather ridiculous that livestock has not received fuller recognition.

The city attorney of San Jose has prepared two ordinances at the request of the board of health, one of which will prohibit the selling of any veal calves weighing less than 60 pounds. The other would make it necessary for the owners of stables in which animals are kept to provide water tight receptacles for manure, which would have to be tightly covered at all times.

Another new cow testing association has been started in Yolo and Sacramento counties by dairymen in the vicinity of Clarksburg. The organization work was done by the Yolo county Farm Bureau, and J. F. Grass Jr., who has been acting as tester for the Yolo county association, will act in the same capacity for the new association. The new association started off with a larger membership than the old one at Woodland and it is expected that a big increase in membership will be experienced in the near future.

The cattle market at the Portland Union Stock Yards last week was active and the demand good, choice steers going as high as $7.75 and cows touched the $6.60 level. A very keen hog market started Monday with a run of nearly 6,000 head, tops bringing $7.50. This market has maintained its supremacy in price over all American markets for some time. The market on all classes of sheep was good and killers take all offerings readily. A material increase in sheep receipts could be made without any decline in the price.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

CORN BRAN FOR PIGS.

To the Editor: Kindly advise me through your paper the value of corn bran as feed for hogs. I can get corn bran for $20 per ton and rolled barley for $28. I would like to know which is the more profitable to buy. —J. J. T., Roseville.

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[Corn bran contains on the average 69.3 per cent of digestible components, against 77.3 per cent for barley. It is lower in both digestible protein and in mineral matter than this cereal and is higher in fat and fiber. Corn bran contains 11.9 per cent fiber, while barley contains 4.2 per cent.

It makes a good palatable pig feed when fed in a mixture with other concentrates. While it is a cheaper feed than barley at the prices given, better results will be secured by feeding both feeds, in the proportion equal weights of both, than by feeding corn bran alone. Being deficient in mineral matter and high in fiber, corn bran, like Indian corn, is not well adapted for feeding young pigs. These need a good supply of easily digestible substances and of ash materials in their feed, with a minimum amount of fiber, in order to make a more satisfactory growth and build a strong bone structure. At present feed prices in this State, corn bran and barley will make a more satisfactory combination than corn bran and any other concentrates adapted for pig feeding.]

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old; also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—14 mules, from weanlings up. One mammoth Jack and some Shetland ponies. Zack Tompkins, Sunnyvale, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. E. W. Abbott, Milpitas, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, write E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

FOR SALE—Registered Holstein Bull Calf, two months old from heavy producing cow. W. N. Totman, Emmaton, Cal.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Glnn & Son, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland, Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAllster & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento County, California.

70 HEAD DUROCS REGISTERED—Must be sold immediately. Breed sows and gilts, fall pigs, both sexes, and a number of yearling service boars. We are closing out everything. If you want a bargain, drop us a line. All mature stock. Cholera immune. Lindquist Bros., Turlock, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Call Building, San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

PURE-BRED Duroc-Jersey Swine. Prize winners. Limited number only. $10 each F. O. B. Western Hog and Land Syndicate, 919 Hearst Bldg., San Francisco.

BERKSHIRES REGISTERED—Young boars and bred sows and pigs of all ages. Brae Bourne Ranch, R.3, Box 69, Santa Rosa, Cal.

REGISTERED BERKSHIRES—Weanling boar pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and prices. J. L. Gish, Lava, Inyo county, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED DUROC JERSEYS from Eastern stock. Sows and boars for January delivery. S. S. Southworth, Napa Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in state. $30 up. M. Bassett, Hanford.

REGISTERED O. I. C. SWINE—Special sale of young sows. C. D. Conway, Lakeport, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera immune. W. D. Trewbitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

DUROCS from first prize winners State Fair. $15.00 up. Ed. E. Johnson, Turlock, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. E. J. Miller, Llewellyn Ranch, Lathrop.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

THOROUGHBRED Polled Aberdeen Angus Cow, six years old, for sale. J. H. Ware, West Butte, Sutter Co.

SHEEP

FRANK MEACHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal. Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

SHEEP WANTED—Shropshire ewes. C. A. Whittemore, Clay, Cal.

MISCELLANEOUS

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

Pure-Bred Livestock in 1914.

[Written for PACIFIC RURAL PRESS.]

A better understanding of the fundamental principles of livestock breeding, together with a dire necessity of raising more and better stock in the State, have been influencing factors in making the year 1914 a most conspicuous one in California's history in so far as purebred livestock is concerned.

Although the present importance of the purebred stock industry has been brought about largely through foundations started in previous years, a noticeable feature of this year's experience has been the availability of breeding animals with which to fill a large part of the home demand. With the increase, which has been steady and consistent in recent years, it was natural to suppose that the time would come when both male and female stock could be purchased from our home breeders; and it is gratifying to know that while the number of new breeders enrolled for the year have been in excess of any previous year, the majority of the foundation stock has been purchased from California herds.

As might have been expected from the small farm development which has been under way in previous years, the majority of these new breeders are situated on moderate sized ranches. This condition has brought about the breeding of dairy cattle and swine in far greater numbers than has been the case with horses, beef cattle, or sheep, and a resultant shortage in both beef cattle and mutton sheep for breeding purposes has been experienced during the year.

With the mutton breeds of sheep this under-supply has perhaps been more noticeable than in any other branch of the industry and leading breeders state that they have been unable to supply the demand from either their own flocks or from eastern breeders. As sheep are considered a small farm animal in most countries and as they are quickly and profitably raised to a breeding age in California, there would seem to be vast opportunities in this branch which are being overlooked by the breeding fraternity.

Breeders of beef cattle have experienced one of the most satisfactory years in history and while they have added to their herds and in other ways tried to keep up with the demand, buyers have kept the supply of breeding animals at a low point and in doing so have been compelled to pay prices which, a few years ago, would have been thought prohibitive.

This willingness on the part of buyers in paying higher prices indicates that the quality of stock being bred is satisfactory and that there is room for more breeders and larger herds.

Horses.—It may be truthfully said that the future of the purebred draft horse has not in recent years looked so promising as at present and in the main this is due to the efforts put forth during 1914 toward bettering the conditions of the purebred animal.

What appears to have been the biggest single achievement in this branch has been the organizing of the California Draft Horse Breeders' Association and the evident intention of that association not only to improve marketing conditions but also to carry on an educational campaign which will demonstrate to farmers the need of more and better bred horses.

As an added incentive to raise more horses, the European war, with its heavy slaughter of horse flesh, has made itself felt in every horse raising district; and while there will doubtless be thousands of horses sent from the State if the war continues for any length of time, the efforts of the above mentioned association will make it possible for our farmers to restock with heavier and better bred animals and in this way insure a better market for registered stock than has ever prevailed in the State.

Swine.—No matter how short we may be on pork products in this State it is evident that what we have are better than ever before and that we may look for still greater improvement in quality, for in all the different divisions of the breeding business, no class shows a more remarkable gain for the year than purebred hogs.

If a purebred hog census of the State were taken at this time, we have little doubt but that breeders themselves would be surprised in the increases that have been made during the year. Each breed has gained new supporters and the demand for breeding animals has been more than could be supplied most of the time. With this class of animals, the State is probably on a self-supporting basis at the beginning of 1915; as with our old and new breeders we have both quantity and quality in sufficient amounts with which to supply the future year's trade. The year 1914 has been good to the purebred hog and from the work done during the year much good should result.

Cows.—The steady growth made by the purebred dairy cow in years past has made its strength felt more forcibly the past year than ever before and greater headway has been made in advancing this branch by the co-operative efforts of breeders in establishing public sales, where the buying public can secure breeding animals of both sexes and of every age.

In looking over the year's work it is found that there have been five public sales of purebred dairy cattle, and in the main these have been California raised animals, which shows that we are getting to the point where it is no longer necessary to purchase from outside States for foundation purposes.

From a condition prevailing in previous years, which made it necessary for intending breeders to make expensive trips East in search of cattle, the beginning of the year 1915 finds many breeders with stock for sale and the official testing which has been done puts our home-bred animals on a plane of excellence equal to, if not superior to, most of the available stock in the East. With the rapid development of the dairy industry in most parts of the State it is certain that breeders of purebred dairy cattle will never lack a good market for their surplus animals.

In summing up the year's work and looking into the face of the new year it may well be said that "all's well with purebred livestock" in California.

Percheron Stallion at Auction

On Saturday, January 23, 1915.

AT THE FASHION LIVERY STABLE IN LIVERMORE, CAL.

we will sell at public auction for cash, the Imported Percheron draft stallion Calino, owned by the Altamont Percheron Horse Company. Calino is a coal black in color, with white star in forehead. He was sired by Fourire (46288) and his dam was Bichette (49278). Extended pedigree furnished on day of sale.

This horse is sound and right in every way—a good individual and a producer. Sold to close out partnership interests. Don't fail to attend this sale.

MURPHY & McDONALD,
AUCTIONEERS.

OATS AND BARLEY FOR SILO.

To the Editor: Could you give me any information in regards siloing a mixed crop of red oats and barley, and at what stage of its growth would it make the best ensilage. Would it make a palatable feed for milch cows?—T. N. C., New Monterey.

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[A good quality of silage may be made from the cereals by cutting the grain when the kernels are past the milk stage. The green grain is run through a feed-cutter with the least possible delay, and cut into inch or inch and a half lengths, the cut mass being elevated into the silo by means of a blower and carefully distributed and tramped down in the silo, especially along the wall. A cement tamper is a convenient aid in packing the green mass in the silo so that the air is excluded so far as practicable, which is a most important part in the making of silage. If the cutting of the grain is delayed till towards maturity, very satisfactory silage can also be secured by adding considerable water, either in the blower as the cut mass is elevated into the silo, or in the silo itself, after each load. The mass should be wet down so that it will contain approximately the amount of water found in the grain at the time the kernels are in the milk stage. Both oats and barley, as well as a mixed crop of these grains, siloed in the manner stated, will make a good quality of silage, of a light brownish color and pleasantly acidulated odor, which will be greatly relished by cattle and other farm animals; 20 to 25 pounds is an average feed per day for dairy cows or fattening steers.

With modern tall silos there is no difficulty in making good silage from the small grains that are run through a cutter and packed well in the silo, as suggested.]

GANDERS OR GEESE?

To the Editor: How can I distinguish the sex of Toulouse geese?—W. O. L., Sonoma.

[Answered by Geo. H. Croley, San Francisco.]

[It is very difficult. Put a suspected gander on one side of a tight board fence and the geese on the other. The gander's voice as he talks to the geese is a louder, coarser, honkier sound, while the geese are more musically voiced. Observing their copulation is a sure way to distinguish if the gander doesn't get mixed with the geese before you catch him. Reliable Publishing Co., of Quincy, Ill., sells a book, "Ducks and Geese," for 50 cents, the best publication we know on the subject.]

California

AND PACIFIC COAST

Nature's Exposition

AND

ALL-THE-YEAR

VACATION GROUND

San Francisco, Oakland, Berkeley and Bay Region
Sacramento and San Joaquin Valleys
Santa Clara, Pajaro and Salinas Valleys
Santa Cruz, Mountains and Big Trees
Del Monte and Monterey Bay Points
Byron, Paraiso, El Pajaro and Gilroy Hot Springs
Yosemite National Park
Mariposa Big Tree Grove
Lake Tahoe and Sierra Region
Kings and Kern River Canyons
Lake County Resorts and Springs
Paso Robles Hot Springs, Santa Barbara and Coast Country
Los Angeles and Its Beaches
Pasadena, Riverside and Redlands
Imperial and Coachella Valleys
Shasta Springs and Resorts
Klamath and Crater Lakes
Willamette, Umpqua and Rogue River Valleys
Portland, Tacoma and Seattle

For Fares,
Train Service and
Descriptive Booklets
Inquire
Flood Building, Palace Hotel,
Third and Townsend Sts.,
Ferry Station,
San Francisco,
or ask any Agent of

Southern Pacific

THE EXPOSITION LINE 1915—
FIRST IN SAFETY

Various Foods for Hogs.

Californians are manifesting great interest in things which go to diversify the porcine menu, with the idea generally of deciding what can be best used on an alfalfa foundation. At the last meeting of the Texas Swine-breeders, R. J. Nelson gave an interesting review of experiments made to determine what was best for the hog and his owner, and outlined the comparative standing of many foods which are grown in this State:

Feeding Value of Corn.—On an average a bushel of corn will make about 12 pounds of (live weight) gain. At the Iowa station with a ration made up of two-thirds corn, one-third oil meal, barley meal and bran, the gain was 17.3 pounds for a bushel of corn. This increase was obtained by feeding nitrogenous feeds. In other words, the use of this nitrogenous supplement made the corn about 40 per cent more valuable for pork production.

At the Michigan station hogs fed cornmeal made 15.9 per cent better gains for a period of four weeks than similar hogs fed the same amount of corn on the cob. Like results were secured by the New York station. The Kentucky station compared shelled corn alone with shelled corn combined with other supplements. On shelled corn alone the gain was .7 pound per day; two-thirds shelled corn and one-third soy beans the gain was 1.16 pounds; one-half shelled corn and one-half dried distillery grains one pound per day. When the ration was two-thirds shelled corn and one-third dried distillery grain the gain was .63 of a pound per day.

The hogs fed old grain-soaked corn at the West Virginia station required 385 pounds of grain to produce 100 pounds of pork. Another similar lot fed dry corn required 410 pounds of grain to produce 100 pounds of gain.

Kafir for Swine.—The Kansas station made extensive tests of Kafir in feeding swine. The grain was fed whole, ground, soaked, alone and in combination with corn, soy beans, alfalfa hay and alfalfa pasture. These tests showed that Kafir corn, pound for pound, does not equal corn for hogs. The hogs did not relish Kafir as well as corn, nor did they gain as rapidly. With pigs seven and a half months old red Kafir had a feeding value equal to 84 per cent of that of corn. With pigs six months old Kafir fed dry equaled in feeding value 93½ per cent of that of dry shelled corn.

But it must be remembered that Kafir often yields more than corn. In Kansas it was found that, notwithstanding the difference in feeding value noted above, an acre of Kafir at the station on an average produced 478 pounds of pork as against 410 pounds for an acre of upland corn.

The average yield of Kafir corn for 10 years at the Kansas station was 46 bushels per acre, while corn produced but 34½ bushels.

Hogs relished the Kafir at first, but soon became tired of it. It was found best to feed with some other feed rich in protein such as skim milk, soy beans or alfalfa. Grinding Kafir increased its feeding value in one experiment 3 per cent. In two other experiments there was a gain of 14 and 9 per cent respectively by grinding. Soaking for 30 hours resulted in a loss of 7 and 17 per cent respectively of its feeding value.

Soy beans with Kafir increased the gain where one-fifth to one-third of the ration was beans, from 14.6 to 96.4. The soy bean part of the ration saved fom 13.2 to 37.5 of the feed required to produce 100 pounds of pork.

When skimmed milk was used to supplement Kafir increased gain was made, over 169 per cent.

In another experiment the increased gain from the use of skimmed milk was 58 per cent.

Skimmed Milk for Pigs.—Skimmed milk is one of our most valuable feeds for swine, especially for pigs. Fed with corn or Kafir it is almost an ideal ration.

As a result of five years' feeding the New York station at Cornell concluded that the most economical results are obtained when skimmed milk is fed with corn meal.

After 19 experiments with skimmed milk for pigs the Massachusetts station recommends for pigs weighing125 pounds, four ounces of corn meal to each quart of skimmed milk; pigs weighing 125 to 190 pounds, six ounces of corn meal to each quart of skimmed milk.

In Wisconsin five pounds of skimmed milk proved equal in value to one pound of corn meal. The most economical mixture of skimmed milk and grain was one to three pounds of milk to one pound of corn meal.

Tankage as a Balance.—The Indiana station found that one part tankage to 10 parts corn meal or corn meal and shorts mixed, better and cheaper gains were made than when the meal was fed alone. The animals had a silkier coat of hair, fresher appearance of skin and keener appetites than when corn meal was fed alone.

Addition of tankage to the corn rations in Illinois increased the net profits over 34 per cent in one experiment and 7 per cent in another. In Nebraska in one experiment the cost of production was reduced 68 cents per 100 pounds by adding to the ration five per cent of tankage. Better results were obtained with younger pigs when 10 per cent of tankage was used. The tankage had a marked effect in increasing the strength of the bones of the animals as compared with hogs fed on corn rations. The hogs consumed more feed, made larger gains and were less easily put off of feed when tankage was added than when corn alone constituted the ration.

Tankage was found to be a good substitute for skimmed milk for young pigs from weaning time on at the Michigan station. It was also considered very valuable during the fattening period. One part tankage to 10 parts grain produced economical gains.

Alfalfa Pasture.—At the Arkansas station, alfalfa was ready to pasture 10 days before red clover.

The Oklahoma station pastured four pigs averaging about 62 pounds each on a field of alfalfa; they were given no other feed. In five weeks they had gained about five pounds

Don't delay buying a

DE LAVAL

Cream Separator

a single day longer

IF YOU ARE SELLING cream or making butter and have no separator or are using an inferior machine, you are wasting cream every day you delay the purchase of a De Laval.

THERE CAN ONLY BE TWO real reasons for putting off buying a De Laval; either you do not really appreciate how great your loss in dollars and cents actually is or else you do not believe the De Laval Cream Separator will make the savings claimed for it.

IN EITHER CASE THERE is one sensible answer: "Let the De Laval agent set up a machine for you on your place and SEE FOR YOURSELF what the De Laval will do."

YOU HAVE NOTHING TO risk, and over a million other cow owners who have made this test have found they had much to gain.

YOU CAN'T AFFORD TO wait till spring. Let the De Laval start saving cream for you **RIGHT NOW.**

WHY NOT START 1915 right with a De Laval and by spring it will have saved enough to go a long way toward paying for itself. Why not talk this over with the local De Laval agent? If you don't know him write to our nearest office.

DE LAVAL DAIRY SUPPLY COMPANY

165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE

50,000 Branches and Local Agencies the World Over

Breed 30,000 Pound Production into Your Herd by Securing a

Grandson of Tilly Alcartra

The breaking of the world's milk record by this wonderful cow has put California upon the dairy map of the world in a way that will benefit every breeder having one of her grandsons as a herd sire. It is bound to bring to California much of the trade that has heretofore passed by our doors. Your best bet, Mr. Breeder, is to get this blood into your herd as soon as possible. Buy one of these bulls and share the increased benefits of high production.

We are the only ones that can furnish you sons of Prince Alcartra Korndyke, best-bred son of Tilly Alcartra. Write us or call and see our herd.

J. S. Gibson Co., Box 97 Williams, Cal.

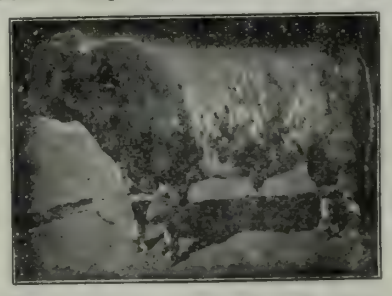
"The name Gibson insures quality."

Hillcrest Stock Farm

Breeder of Shorthorn Cattle, French Merino and Shropshire Sheep.

DAVIS, CAL. T. S. GLIDE, Prop.

At 1914 State Fair our Shorthorns took first prize in every class we entered except two, and in these were beaten only by stock of our blood. We took all the herd prizes, first and second prizes in produce of cow and first in get of sire.



KING LANCASTER, 3 times Grand Champion

Below is a list of our Grand Champion bulls for the last eleven years—a list that will stand for quite awhile:

1904—Hillcrest Hero
1905-1906—King Edward (Also Grand Champion World's Fair at Portland.)
1908—King of Greenwood
1909, 1910, 1911—King Lancaster
1912—Greenwood Knight
1913—Greenwood Knight
1914—Greenwood King

All except the first two of the list were bred by us. We have beaten a number of bulls that were bought in the East at prices ranging from $500 to $3000 and brought out here to beat us.

Range raised young bulls for sale, single or carload lots.

60 HEAD—POLAND CHINA PIGS FOR SALE—60 HEAD

Both Large and Medium Type

Ready for Delivery January 15. Ten weeks to three months old. Prices reasonable and will guarantee to please or refund your money.

W. A. YOUNG, LODI, CALIF.

each; during the next three weeks they gained a little less than two pounds each. Four other pigs averaging about 68 pounds each were turned into a field of alfalfa and were given at the same time full feed of Kafir meal and shelled corn. The first five weeks they gained an average of 50 pounds each, and for the next three weeks about 31 pounds each. It required about 2.2 pounds of grain with alfalfa to produce a pound of gain. Where the pigs were fed a supplement of grain, the field of alfalfa supported a half more stock than the other field where no grain was fed, and the alfalfa remained green and fresh.

At the Kansas station hogs without pasture required 371 pounds of grain per 100 pounds of gain. In another experiment, one acre of alfalfa pasture produced 776 pounds of pork.

Cowpea Pasture.—Hogs gained 229 pounds per acre on cowpeas. On a field in which cowpeas were about half matured and yielded at the rate of 13.2 bushels per acre, pigs required but 307 pounds of corn to produce 100 pounds of gain, while on corn alone, 586 pounds were required. At this rate it was calculated that an acre of cowpeas would replace 1,662 pounds of corn. The pork made on corn and cowpeas was as good as that made on corn alone.

Another test, pigs weighing 57 pounds were grazed 35 days on cowpea vines. No grain was given. A total gain of 51 pounds was made, an average of .48 pounds per day per pig. Considerable loss was sustained, as many of the peas were ripe and fell to the ground. The station recommends that peas be pastured a little before they are ripe, and a small amount of grain be fed.

Fourteen pigs made an average daily gain of one pound per day on 1.7 acres of cowpeas for 233 days, without grain, at the Mississippi station.

Peanuts for Pasture.—Peanuts are available for pasture from August to December, sometimes later.

In 17 tests at the Alabama station, hogs raised on peanuts and fed one-half the grain ration gained 333 pounds on an average per acre. When pigs were pastured on peanuts and given no other feed, the gain was 281 pounds per acre. It required 2.8 pounds of grain when fed with peanuts to produce a pound of gain. When pigs were herded on peanuts not quite matured, the increased growth was sufficient to give a value of $13.34 for the peanuts, valuing the pork at three cents a pound.

Pigs weighing 124 pounds were pastured 132 days on peanuts at the Arkansas station and the average gain was 73.5 pounds each. A similar lot pastured on soy beans made an average gain of 22.75 pounds; another lot on chufas 39.33 pounds. Hogs the same size gained 76.75 pounds when shut up and fed corn in a pen during the same time. Three hundred and thirteen pounds of pork was produced on one-fourth acre of peanuts. The yield of peanuts with 87 per cent stand was 90 bushels per acre. Pigs fed on peanuts alone made soft, oily pork, but when finished on corn or when corn ration was fed while on peanut pasture the pork was much finer and the melting point of the lard raised.

[We advise our readers to go light and experimentally on peanut growing for hogs. It may work out all right on some lands, but it depends upon lightness of soil associated with enough moisture during the summer—for the peanut is subject to frost.—Editor]

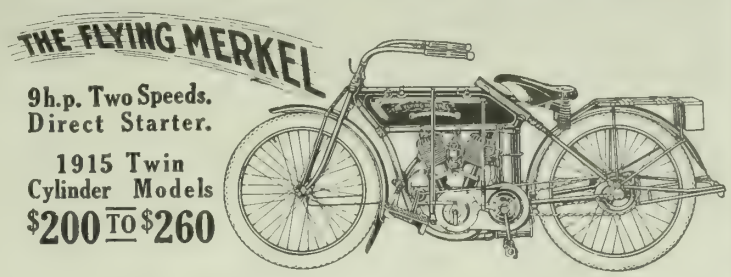
Is Beet Pulp Injurious?

To the Editor: Does dried beet pulp have any ill effect on the cows it is fed to? I bought a ton lately and several persons told me it would burn the lining out of their stomachs and that the chemicals used in making it were very injurious. Another said that the cows would improve in milk for a while but eventually it would dry them up. Please give me what information you can about this matter.—C. P. G., Parkfield.

[That your informants have been mistaken about dried beet pulp is certain from the experience of many of our progressive dairy men who have, almost without exception, found it to be a highly satisfactory feed for dairy cows in connection with afalfa for several years past. It would appear that your friends had wet pulp in mind instead of the dried product, as it is a matter of common knowledge in sections where wet pulp is available, that steers and sheep when fed large amounts of such feed for fattening purposes become, after a couple of months' time, what is termed "burnt out." This is primarily due however to the fact that such stock is being fattened for the market and are therefore fed much larger amounts than would ordinarily be given to milk cows. The Patterson Ranch company have fed dairy cows the fresh pulp for a number of years on their Oxnard ranch, and have never noticed any ill effects when fed in moderation. It is not fair to the dried to compare it with the wet pulp however, for the reason that the drying process elminates the dangerous factors and conserves the beneficial qualities of the pulp.

To give you some idea of the process used in drying the pulp we quote a description which appeared in these columns during 1912, in which the writer said: "The pulp is first run into a large press and is put under a pressure of about 600 pounds to the inch. This removes a large portion of the water and leaves the pulp in the form of a cake. To dry the cake it is necessary to reduce it to a fine state of division and the cake is sawed up into small shreds. These are run gradually through a large boiler and exposed to steam heat. The steam is enclosed in revolving plates which push the pulp along so that it comes out dry, ready for sacking." You will see from this that there are no chemicals used in the manufacture, it being simply a matter of eliminating the moisture in order that the pulp may be more easily transported and handled. According to Henry, one ton of dried pulp is equal to eight tons of the wet pulp in feeding value. We believe you will find it a very satisfactory feed in connection with hay. As for "injury from chemicals" used in making beet sugar, no material of that character is being used in the manufacture of sugar, except the lime used in purifying the juice and that does not interfere with the wholesomeness of the molasses for stock feeding properly prepared for that purpose.—Editor.]

Become Our Factory Agent
IN YOUR OWN LOCALITY AND SELL



9h.p. Two Speeds.
Direct Starter.
1915 Twin Cylinder Models
$200 TO $260

We Will Appoint One Agent
in each town or rural community where we are not already represented, to ride, to exhibit and sell the new 1915 Flying Merkel.
Our proposition is *entirely new* and is open to reliable hustlers who want to start a paying business of their own; no previous experience and very little capital or backing is required. We give you exclusive territory and show you how to make sales; you control all sales in your territory. You put in your spare time and make handsome profits with practically no selling expense.
The Flying Merkel is easy to sell because it is universally known as "The World's Best Motorcycle;" it has a dozen exclusive features that make it easy-riding, durable and speedy; it takes you anywhere and back quicker and cheaper than any other way; it is always on the job, always ready to speed up to sixty miles an hour or check down to five.
Get the agency in your territory before someone else gets in ahead of you. WRITE US TODAY!
THE MIAMI CYCLE & MFG. CO.
"America's Greatest Cycle Manufacturers"
1015 Hanover St. MIDDLETOWN, OHIO

GETTING COW WITH CALF.

[Answered by Dr. Robert Boyd, San Francisco Veterinary College.]

To the Editor: I have a fine young Holstein cow that calved a year ago. Occasionally for two weeks after calving she would discharge blood. Am unable to get her with calf again. Have been to many different bulls with her without success. Had a veterinarian and he tried to dilate her womb but that was a failure also. She has only had two calves.—A. W., Kingsburg.

[This animal was in all probability injured in the os uteri at the time of calving which would account for the discharge of blood. I should say that in all probability there has been a formation of "scar tissue" in the os which is not uncommon, and that this either closes the opening or contorts the neck in such a manner as to render fecundation impossible. Did not your veterinarian state what was the trouble when he attempted to dilate the os?]

Good registered Jersey bulls are the cheapest thing in the way of livestock that we know of in California today. There is no good reason for this, especially when we see hundreds of dairymen using an old scrub bull which would bring for beef about what a young purebred Jersey now sells for.

Every breeder of registered hogs should take enough pride in his place to have good buildings and keep them clean. Remember you are supposed to be the leaders in better swine practices and a run-down place is not much incentive to the dubious prospect.

"Pa, what is a comfortable income?"

"One that sits easy on the conscience, I suppose."—Detroit Free Press.

BRENTWOOD Irrigated Farms
"BEST IN THE WEST"
IN EASTERN CONTRA COSTA COUNTY, East of Mt. Diablo. 63 Miles from San Francisco
Soil and Climate Unexcelled
Suitable for Alfalfa, Fruits, Nuts, Dairying, Poultry and Hogs
PRICE $300 AN ACRE
Including Water Right.
Write today for illustrated folder, map, etc.
BALFOUR-GUTHRIE & CO.
350 California St. San Francisco

Oak Grove BERKSHIRES
Cholera Immune
Our herd is Cholera Immune, the only Immune Berkshire herd in the State
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit. We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

RHOADES & RHOADES
EXPERT LIVE STOCK AUCTIONEERS
Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Poultry for Profit

RAISING TURKEYS IN THE RIGHT WAY.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood.]

We have had several turkey talks during the past few weeks, but as this is a rural paper it is read by a great many who have acreage and would be glad of turkey information, so we think that all the space occupied is used to good advantage.

A few weeks ago we told of a most successful woman turkey raiser who did not credit all her success to what her neighbors termed "good luck." Here is the story in the lady's own words.

"We live on the edge of a large grain ranch and the turkeys have free range of the grain field on one side and of alfalfa on the other. Then we give them clean water, in clean, well-scrubbed dishes. The turks are kept clean and fed proper feed and that is all."

So here we have one successful breeder, who from two turkey hens alone, shipped at one time three hundred and thirty-six pounds and had a larger shipment to make a little later. She raised every turkey hatched, eighty-four in all. Some of them, at killing time, weighed close to 17 pounds each. Now there was just one item in Mrs. Richardson's letter that I kept for the last, that is the "Tom was entirely unrelated to the females." The great mistake of turkey raisers is that they do not make sure of this last item. This lady did. She was wise. It pays big dividends to make sure that your gobbler is not only unrelated, but that he is not inbred. In this southern climate, heat is the greatest drawback. The poults do not do well late in the season, unless under conditions similar to Mrs. Richardson's where they have a choice of a grain field and a good alfalfa run. Any place where such abundant shade and green feed can be had turkeys will surely do well in all seasons, but not every rancher has both of these good things for his turks, and if he has not, he must consult the season.

One turkey raiser writes me: "The alfalfa in my turkey run dried out this last year, so it took me about all my time to watch them so that I could ward off blackhead. Whenever I saw yellow droppings I kept watch until that bird was caught and took it right away from the rest. By giving prompt treatment I could have her back in the flock, well and strong, in 24 hours, while if she had been neglected it would have meant a dead poult."

Turkeys require, for the very best results, a dry climate, like ours, and if kept perfectly clean and dry, free from lice and fed only small amounts of digestible food, without cramming, I do not see why everybody cannot raise turkeys. A grain field, alfalfa field or even rough, hilly land where there is brush and some undergrowth, are all ideal turkey runs. If the young poults get wet early in the game, give a few drops of aconite in the drinking water, to keep the fever down.

Setting a Turkey Hen.—This appears a small thing to write about but it is of great importance to both the breeder and the turkey to have the hen set right. The first thing to find out is whether your turkey hen is in good condition or not; if she is not, pass her by. A month's job is no joke to undertake if out of condition to begin with. Besides the heat of the body loses with the condition, so if the hen is out of condition to commence the job of incubating, she has not the proper temperature for starting the eggs right. There has been many a valuable setting of eggs lost through this one mistake. So it is safer to find out first. Keep feed and clean water near the nest and be sure to dust the hen well about twice before giving her the eggs. She should then be left in peace in as retired a nook as possible; but if she stays on the nest over three days without eating, it is time to interfere and gently lift her off the nest that she can eat and drink. After that she will come to look for you to lift her off and generally stay on the nest until you come around. A half-hour run will do her all sorts of good and gives the eggs time to air, as the turkey is a very close setter. Feed cracked corn, oats and wheat mixed for setting turkey hens; too much corn gives them indigestion. Keep grit and shells handy and a little charcoal, so that she can help herself.

If you do your part faithfully in keeping her free from vermin and nourishing her body with a daily meal and exercise, the probabilities are that the young poults will come so strong that you will raise every one, and that without much trouble.

As the time draws near for the hatch to come off, the hen will have gotten so used to having you around that it will be perfectly safe to examine the nest and even take some of the young away if you think it necessary. Anyway there should be some sort of protection, so that the young ones cannot get away from the nest during the night. A three-cornered fence made of good wide boards is about as good as anything and this will prevent the poults rambling and give the hen liberty to take a little exercise.

Varieties.—Now a few words as to variety. The Bronze are the most popular, perhaps because they are more numerous, but for those who are short on range, the White Holland or Bourbon Red are the best, because more domesticated. Years ago I had Red and Yellow turkeys in Dakota and liked them as well, if not better than the bronze. The White Holland does not get as large as the bronze, but large-sized turkeys are no longer in great demand, so that is no detriment to them. They are much easier kept in control than the bronze and appear to be well liked as a table bird.

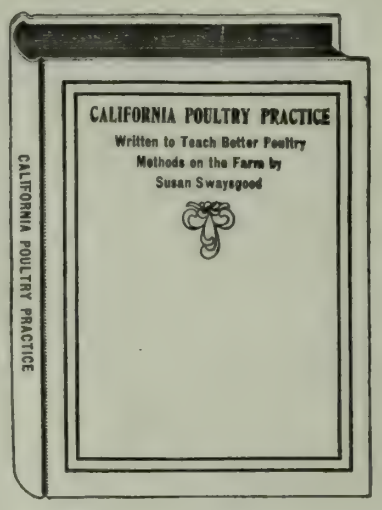
Next, or perhaps it should have come first, in domesticity, is the Bourbon Red. These beautiful birds are hardy, prolific and very domesticated. It is claimed for them that every egg can be found, as they are willing to lay them within reach of the poultry premises. This the Bronze turkey hen usually objects to, preferring to hunt a nest for herself, usually in a most awkward and unlikely place. So if one is just starting in turkeys it will pay to think these matters over before in-

CALIFORNIA POULTRY PRACTICE

Written to Teach

BETTER POULTRY METHODS

On the Farm



BY

SUSAN SWAYSGOOD

Contents by Chapters.

1 Some of the Advantages of California Poultry Raising.
2 When and How to Start in the Poultry Business.
3 Location.
4 The Colony Plan.
5 Open Front Houses.
6 Large and Small Plants for Eggs.
7 The Care and Management of Eggs.
8 How to Build an Incubator Cellar.
9 How to Run the Incubator.
10 Raising the Chicks.
11 Why Chicks Die in the Shell.
12 A Few Don'ts in Raising Chicks.
13 Brooders and Brooding Systems.
14 The Building of Brooder Houses.
15 Poultry Appliances.
16 Raising Broilers.
17 Feeding for Eggs.
18 Balanced Rations, What are They?
19 Feeding the Breeders.
20 Fattening and Preparing Fowls for Market.
21 Balanced Ration for Heavy Breeds.
22 The Mold that Injures Poultry.
23 Egg Foods, or Condition Powders.
24 The Value of Milk in the Poultry Yard.
25 The Management of Poultry During the Summer.
26 The Molt in California.
27 The General Purpose Fowl.
28 Capons.
29 Prepotency and Prolificacy.
30 The Mediterranean Class.
31 The American Class.
32 The French Breeds.
33 The Asiatic Class.

Just from the Press

Mrs. Swaysgood has spent a lifetime in raising poultry, mostly in California. This cloth-bound book of 160 pages, besides half-tone pictures, tells of the up-to-date methods now used on California poultry farms. Every reader of this journal should have a copy.

Price, $1.00 Postpaid

Pacific Rural Press

525 Market Street

San Francisco

vesting. Consider well how much range and feeding ground you can give over to turkeys, how far off is your nearest neighbor, because if too close they will most likely object to your turkeys; and if you choose the bronze they will surely visit. All these things are best considered first and then there will be nothing to regret later.

Mrs. Ferris, whose ad appears in our "breeders' directory," has a very nice flock of these red and white birds, and is most enthusiastic about their good qualities.

LOSS BETWEEN HEN AND CONSUMER.

[Written for PACIFIC RURAL PRESS by E. T. Lindley, Expert Tester of Eggs for Cold Storage.]

To Mr. Farmer: Have you read the warnings recently issued by the Federal government regarding the nation-wide necessity of eliminating preventable waste in getting perishable food products, particularly eggs, from farm to consumer; also have you paid serious attention to the latest appeal from the same quarter urging farmers generally to take immediate steps to raise more poultry, sheep, and pigs in an efficient and intelligent manner — particularly poultry and sheep for the reason that these two farm animals may be produced economically on almost any farm in small flocks as well as in large numbers, and they yield more net value in food in proportion to average cost of feed than any other animals raised for meat? What are you going to do about it; what action have you taken to respond to your country's call to help out in the impending meat famine?

Assuming that they have failed to awaken in you any patriotic sentiment or that you have "just let the matter slide" or decided to "let Bill do it," I will now take you by the ear and shout into said ear some facts in line with the things our people in Washington are trying to impress on you and I am going to be quite "sassy" about it too, because Uncle Sam will back me up in what appears in the statements that follow, and Sam is some Kid just now.

Lost Two Hundred and Sixty Million Dollars.—After several years of investigation into the results of the careless or inefficient methods of many farmers and their agents in marketing poultry produce the government at Washington estimates that the shrinkage in quality and value that occurs between the point of original production and the delivery to the ultimate consumer is $260,000,000.00 each year, about three-fourths being the loss on eggs and the remainder on poultry, etc.

California Loss Seven Million Dollars Annually.—Basing our calculations on the government estimates referred to, California farmers and exclusive poultry ranches lose, or fail to make—which ever way you wish to look at it—$7,000,000 every twelve months, that might otherwise be clear gain to themselves and their best friends, the consumers.

But this is only a part of the story of loss for I am certain that by taking into consideration the loss "before production"; if every shrinkage is considered; if in our estimate we include the results of improper feeding and lack of ordinary attention; neglect of developed opportunities and money and energy wasted through inefficient management in production of fowls and eggs on many farms, the sum of this enormous unnecessary waste would exceed in California more than double this amount, but in order to keep in line with the figures presented by the U. S. Dept. of Agriculture and to be sure of its endorsement of the statements we are making in this appeal to you we will stick to the conservative $7,000,000 estimate.

As a first step to remedy matters, we suggest that farmers obtain and read some practical book on poultry raising on the farm, apply to the State University, also Dept. of Agriculture at Washington, for free literature on the subject, but as a special and novel means of making the thing interesting we suggest the formation of a Thirteen Poultry Club in each neighborhood to comprise thirteen members, each of which is to set thirteen eggs, each member selecting a different variety, on Feb. 13th, 1915. This to be followed by meetings of the club once a month where, by comparing notes, they teach one another how to become proficient in this important rural and village industry.

Thirteen is considered by many people as the symbol of misfortune in all other pursuits but you should bear in mind that in any undertaking in connection with chickens it is the emblem of good luck.

As a further means of assisting, talk over with your neighbors the possible benefits to be derived from the Federated Poultry Association of California. This is the result of over thirty years of constant effort, on the part of half its active organizers, to build up the poultry industry of the

(Continued on page 31.)

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

TO THE POULTRY FARMER—We now have under construction a modern Hatchery, and are booking orders for BABY CHICKS from our heavy laying strains of S. C. White Leghorns and White Plymouth Rocks. We solicit your order for 1915 delivery, and know that you will be well pleased with the high quality of our stock. Write for prices on Sept. and Oct. hatched pullets, and year-old hens for breeders. Hopland Stock Farm, Hopland.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336 C. Phone S. J. 1889.

BUFF ORPINGTONS, BOURBON RED TURKEYS—Buff Orpington Ducks. Firsts and seconds in all varieties. Orpingtons won first and third cock, first and second pullet at recent Pasadena show. Breeding stock. Booking orders for baby chicks and hatching eggs. Ferris Poultry Ranch, R. 2, 144 D, Pomona, Cal.

BLACK MINORCAS!—The hen that lays the big white eggs and lots of them. Baby chicks, January prices, 14c, from heavy-laying vigorous stock—the kind you want to keep. Write for circular and delivered prices on any quantity. Hatching Eggs, $6 per hundred. Roofden Poultry Ranch, Campbell, Calif.

MAMMOTH BRONZE TURKEYS—Large reductions offered on old stock for short time only. Stock unsurpassed. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

ORDER NOW—Thoroughbred Bronze Turkeys from largest Turkey Ranch in Stanislaus county. Large Spring gobblers and hens for breeding stock. Address, Crow's Landing Turkey Ranch, Crow's Landing, Cal, Box 227.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

It's the Chicks You Raise That Count."

THE VICTOR BROODER RAISES EVERYONE

Our Brooder is perfect; so is our Incubator. Send for free catalogue.

THE VICTOR INCUBATOR CO.,
Decoto Alameda Co., Cal.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

RED BOURBON TURKEYS for sale. First prize winning birds. 3 pairs breeders 1½ and 2 years old and younger stock. Some fine young Toms and pullets. A. E. Balmer, Alhambra Valley, Martinez.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 373 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wychoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

WHITE ROCK BABY CHICKS.—Winnings at Modesto, 65 White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper, Ceres, Cal.

ENGLISH PENCILLED I. R. DRAKES — Splendid specimens. $2.50 each. Special prices for three or more. Hatching eggs for sale. J. H. Ware, West Butte, Sutter Co.

MAMMOTH BRONZE TURKEYS—Strong, vigorous, well-marked Toms and Hens from the best blood of prize-winning and utility stock. Prices reasonable. Geo. A. Smith, Corcoran, Cal.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

BUFF ORPINGTON cockerels, pullets. Purebred. Money back if not O. K. Customer writes: "Best I ever saw." W. D. Wasson, Mountain View.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

CLOVER LEAF FARM White Leghorns. Few as good —none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enoch Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

DAY-OLD CHICKS—WHITE LEGHORNS. Good stock. Selected for seven years. Circular free. H. A. Schlotthauer, Exeter, Cal.

TOULOUSE GEESE—direct from Philadelphia. Win everywhere. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

FOR SALE—S. C. Black Minorca, Buff Orpington and Rhode Island Red Cockerels. R. A. Holdridge, Box 282, Dixon, Cal.

RHODE ISLAND REDS—Winners at leading California shows. Hatching eggs. Fine cockerels, and pullets for sale. Wm. Larm, 746 Lincoln Ave., Alameda, Cal.

HAYWARD HATCHERY.—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE COMB WHITE LEGHORNS—breeding and foundation stock eggs for hatching. Rancho Del Martino, Mrs. E. B. Martin, Downey, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W. Stawetski, San Jose, Cal., R. 2.

DAY OLD CHICKS—Hoganized Egg Machines. We are booking orders for spring delivery. H. & F., Mortensen, Suisun, Cal.

INCUBATOR CHICKS—White Rocks and White Leghorns. High class stock. Send for booklet of prices. Mahajo Farm, Box 597, Sacramento, Calif.

MAMMOTH BRONZE TURKEYS—Early maturing, prize-winning stock; also Guinea fowls. Stock and eggs. John G. Mee, St. Helena, Cal.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

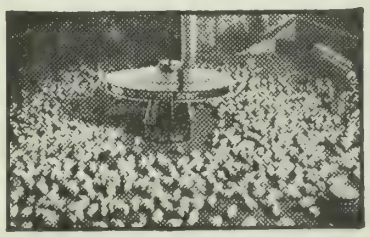
ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

LANGSHANS—Best on coast. Stock, settings booked now. Lohr, 689 Kansas St., San Francisco.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BARRED ROCKS—Prize winners stock and eggs. W. L. Kennedy, Fowler, Cal.

FOR SALE—1-year-old Buff Leghorn cockerels. Prize stock. Selected. P. R., care Pacific Rural Press.



The Fresh Air Brooder Stove

Our 1915 model is now out with splendid improvements and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it. It's free to you.

J. E. KRESKY
PETALUMA, CAL.

GET THE BEST
For Your Baby Chicks.
Coulson's POULTRY FOODS
SPECIAL CHICK FOOD
Write for Particulars to
COULSON CO., Petaluma, Cal.

FREE BOOK

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

F. F. SMITH & CO.,
1006 J St., Sacramento.

The Home Circle

CALIFORNIA POPPIES.

How got you those faces like morning,
O poppies of satin-like sheen,
The dustiest roadsides adorning
With brilliance of yellow and green?

Though exiled to neat garden borders,
'Mongst neighbors of scarlet and blue,
Where the shrubs look like dignified warders
In tunics of emerald hue,

You never are sulky or peevish,
Or hide in a corner or pout;
And the gold need make nobody thievish,
You lavishly scatter about.

I fancy the Sun, from his treasure,
Has lent you his very best rays,
And that may account in a measure
For most of your sunshiny ways.
—Annie Margaret Pike.

SWEET MARJORIE'S REVENGE.

By Mary Davis.

The three small Goodfellows and two little Jacksons sat mournfully on the stone wall opposite the schoolhouse.

"It's four o'clock now," stated Henrietta Jackson, solemnly.

"Too late to go down to the river," said roly-poly Tommie Goodfellow, with a tremendous sigh.

"I know one thing," said his older brother Jack, quite fiercely. "If Miss Forbes doesn't let Marjorie out in fifteen minutes, I'm going straight home to tell my father."

"Here she comes," squealed Tommie. "Everybody hide, quick!" The five dropped down behind the low wall and peered out roguishly as a slender little figure ran lightly down the steep steps. She flitted across the dusty road and a moment later jumped over the wall.

"I knew you'd hide there," she said briefly.

"Marjorie," scolded big brother, "what made you go and get kept in? We've been sitting half an hour on this old wall."

Marjorie shook her mane of red tangled curls, and tears came into her big brown eyes. "Jackie," she said, "you know that lovely little sketch-book that you gave to me Christmas and that I drew all your pictures in?"

"The one your mother is going to keep to show you when you're a really truly great artist?" asked Nora Jackson.

Marjorie nodded soberly.

"And I took it to school to show one of the girls, and Laura Bailey must have looked over her shoulder, for just as we were ready to go home she raised her hand and told Miss Forbes I'd been drawing funny pictures of her. I told her, and I told her," said poor Marjorie, "that I didn't draw a single one of them in school, but she made me stay, and took away my book, and said I was a naughty, naughty girl."

"Was it that picture of Miss Forbes where you got her nose crooked?" said Henrietta, thoughtfully.

"Yes," said Marjorie, innocently, "but the mouth was just right. She has a funny mouth, you know."

"Don't you mind," said warm-hearted Jack. "I'll get you another book if you won't take it to school, and I'll let you draw me whenever you feel like it. I wish that Laura Bailey was a boy. I know what I'd do to her."

"We'll get our revenge, don't you fear," said Nora Jackson, giving Marjorie an affectionate hug.

"I don't want my revenge; I want my book," said Marjorie, sadly.

"What is the matter with you, Tommie?" laughed Jack.

Tommie was feeling carefully in his pockets. When he had turned them all inside out, he suddenly pulled a very grimy little handkerchief from his sailor blouse, undid a very hard knot, and held up a nickel.

"This is for a chocolate soda for Marjorie," he smiled.

Marjorie's shining mane bobbed up and down as she flew off with the nickel. In a moment she was back with a bag of peanuts. She counted them very carefully and then gave each an exact share. The Goodfellows and Jacksons were all very good at dividing in school, because they had so much practice outside.

While they were all laughing and talking, and eating peanuts at a rapid rate, Marjorie's sharp eyes spied something coming down the road.

"What's that?" she laughed.

A moment later a little black dog came running by. He had something in his mouth, but he ran so fast that the children could not distinguish what it was.

"That is Bobby Blake's dog," squealed Tommie; "he's the worst dog in town, too. He pulled some clothes right off Mrs. Lowe's clothesline, and he ate up the minister's hat when he went to call on Bobby's mother."

"Here comes Laura Bailey," said Nora; "let's chase her home.'

"Let's, said Tommie, finishing his last handful of peanuts in a hurry.

"Five to one isn't fair," said Jack. "You run after her, Nora, and give her a good scare."

But Marjorie was off like a flash. "All of you wait here," she called. Laura Bailey ran back hastily when she saw she had approached too near to Marjorie's friends. Up the long, dusty road she ran swiftly, but Marjorie's small feet scarcely seemed to touch the ground, and she was soon up with her.

"She's caught her," laughed Jack.

"Good for Marjorie," shouted Tommie.

"She's coming back now," said Henrietta; "why, they're both coming back."

"We've got to catch that dog," called Marjorie, "it's very important indeed."

For the next half-hour everybody played "catch" with the roguish puppy. The children got hot and out of breath, but the small woolly black dog had the most delightful of frolics. When Marjorie stubbed her toe and fell over chubby Tommie, who in his turn tripped Henrietta, and they all fell headlong into the soft green grass, the little dog barked in the most insulting way.

"You needn't make fun of me, you old black dog," said Tommie, hotly.

He picked himself up and again dashed after the nimble puppy, who almost let himself be caught just to tease Tommie.

"I've got him," screamed Tommie, too soon.

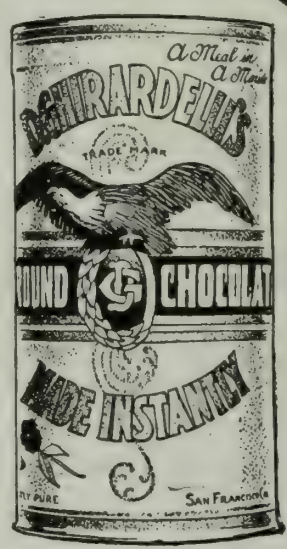
The Grocer

The Grocer, who is anxious to please, always carries a good stock of Ghirardelli's Ground Chocolate, because he knows his particular customers demand it. Those who are discriminating in their purchases for the table, always order this famous food-drink. It has become universally used, because of its purity, its unvarying goodness, and its unrivaled high quality. Get a can to-morrow.

In hermetically sealed cans.

Ghirardelli's Ground Chocolate is the only original ground chocolate. It has been used in Western homes for over a third of a century and its popularity is growing day by day.

D. GHIRARDELLI CO.
Since 1852 San Francisco



Our price to the dealer has not increased—his price to you should not.

GHIRARDELLI'S GROUND CHOCOLATE

Why You Should Buy STILETTO

—STILETTO— tools are keener and better tempered, —STILETTO— tools work better and last longer, —STILETTO— garden and farm implements are longer lived, run easier and more satisfactorily, —STILETTO— paint goes farther and wears better and that word —STILETTO— spells quality and confidence, first, last and always.

If you do not know where —STILETTO— goods are sold write us and we will give you the name of the nearest —STILETTO— dealer.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

"Where, where?" laughed the others, for the curly dog slipped adroitly out of Tommie's clutch and trotted to the other end of the field, where he sat watching them with bright, black eyes.

"Let's sit down, too," panted Tommie. So everybody sat down on the soft grass and tried to get cool.

"Marjorie," gasped Nora, "what has that dog in his mouth, anyway?"

"Yes, Marjorie, we don't know why we're chasing him," shouted all the other Goodfellows and small Jacksons as Marjorie got very pink and hung her head.

"I promised not to tell, on my honor," she muttered.

"Whom did you promise?" demanded Henrietta, suspiciously.

"I know," guessed Nora, shrewdly; "it was that Laura Bailey. She's waiting over by the bars now."

"Please remember, Marjorie, you have to get your revenge on that tell-tale," charged Jack, with an angry glance at the distant Laura.

"If that dog has anything of Laura Bailey's in his mouth, I vote we let him tear it up," proposed Tommie, counting his bumps and bruises savagely.

"Do you hear that, Marjorie?" scolded Jack. "Tell us now if he has something of that Bailey girl's."

"I think he's coming now," beamed Marjorie, who had been listening to a wagon rattling over the covered bridge. "I thought it was our butcher." she exclaimed, and started on a quick run to the road.

"Won't you please give me a juicy dog-bone?" she begged politely.

The butcher liked sunny-faced Marjorie, so he good-naturedly climbed down from his seat and picked out a beef bone.

The black puppy's nose told him that something interesting was happening, so he capered halfway across the field to meet Marjorie. "Please, please," he yelped in quick sharp barks. The parcel in his mouth tumbled onto the ground, and he was so much excited about that appetizing bone that the forgot to pick it up. So Marjorie pounced on it and tossed him the bone.

The crowd of Goodfellows and Jacksons clustered around Marjorie in their excitement to look at the parcel.

"It's Laura Bailey's sewing-bag," she explained, "and he's just chewed it a little; and look, he hasn't hurt her apron at all."

She pulled out a dainty white apron and looked at it admiringly. "She'll probably get a prize on this. Isn't it pretty?"

"Throw it into the mud," growled Jack.

"Give it to me," wheedled Nora, with mischief dancing in her eyes.

But Marjorie was off to the pasture bars. "Here's your apron, Laura," she called.

"Thank you," mumbled Laura. Then as Marjorie was trotting off she stammered, "Say, I have some lovely paints in tubes that I'll give you, and a camel's-hair brush, too."

Marjorie's red curls bobbed up and down, "Thank you, Laura, but you had better keep them."

"Please take them," begged Laura.

"No, I thank you," said Marjorie, primly, edging off toward her impatient comrades.

"O Marjorie," sobbed Laura, throwing herself down on the ground in a tempest of tears, "please, please take them, and I'll tell Miss Forbes that you didn't mean that for a funny picture. I was so provoked that you didn't show me your sketches that I went and told on you, and I'm sorry, honest and true I am."

Tender-hearted Marjorie threw her arms about Laura.

"Don't cry, Laura, and if it will make you feel any better I'll take your paints, and, oh, Laura, if you will tell Miss Forbes that I was just trying my best to make a lovely picture of her, I'll be much obliged."

"I'll do anything," promised Laura, solemnly.

"Well, Marjorie, you did get your revenge, didn't you?" said Jack as they went into their gate hand in hand an hour later.

"My revenge?" said Marjorie, in surprise; "why, no, Jack, I didn't want any revenge."

"You got it just the same," said Jack, stubbornly.—Christian Register.

MAIL-BAG KEYS

All over this whole great country, from Main to California, and from St. Paul to New Orleans, every mail lock is the exact counterpart of every other one of the many hundreds of thousands, and every one of these the key in any postoffice in the country, whether it be the smallest cross-roads settlement or the immense New York City office, will lock and unlock. Every key is numbered, and, though the numbers run high into the thousands,—the key which I last used was number 79,600,—a record of every one is kept by the government, and its whereabouts can be told at any time. Once in six or seven years, as a measure of safety, all the locks and keys are changed. New ones of an entirely different pattern are sent out, and the old ones are called in and destroyed.—St. Nicholas.

AN EXCEPTION.

It's a poor rule, they say, that won't work either way.
But there's one now and then that just can't, it is clear;
From Christmas to New Year is only a week.
But from New Year to Christmas is nearly a year.

POOR LIGHT INJURES THE EYES.

The advantages of education are many. But when acquired at the expense of health this advantage is defeated.

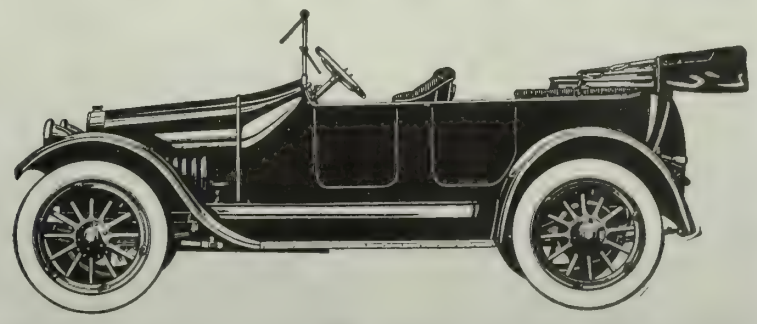
It is almost appalling to see so many young people of today wearing glasses. The cause can many times be traced back to evening study by improper light. Scientists tell us that weak and defective eyes frequently bring other ailments and nervous disorders.

Daylight is, of course, the best to read by, but as few can find time enough to read all they would like during the day, and as the children, particularly, must do some evening work, we should aim to provide a light that will compare as favorably as possible to daylight. That means a steady, non-flickering light and a white light. There are kerosene mantle lamps on the market said to meet these requirements.

MAKE THE TRIP
In Less Time
BETWEEN
Sacramento
AND
Oakland-San Francisco
FAST ELECTRIC TRAINS
Clean—Comfortable—Convenient
Baggage carried on all trains
Trains arrive and depart from Key Route Ferry.
SAN FRANCISCO, OAKLAND, ANTIOCH & EASTERN RY.

The Modern Fireside

All you need to complete the family circle is a
PERFECTION OIL HEATER
There's cheer in its glowing warmth.
Dealers everywhere
Write for booklet, "Warmth in cold corners."
Standard Oil Company
(CALIFORNIA)
San Francisco
For Best Results Use Pearl Oil

Mitchell
Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350

To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."
Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Dec. 30, 1914.

WHEAT.

Northern markets have reached new high records during the last week, and with only moderate offerings here, the local market shows a sympathetic advance. There is some doubt as to the stability of the new prices, but offerings are very closely held.

Cal. Club, Ctl	$2.07½	@2.12½
Forty-fold	2.15	@2.20
Northern Blue'm	2.25	@2.35
Northern Club	2.07½	@2.12½
Northern Red	2.10	@2.25

BARLEY.

There is a good demand on the spot, both for feed and brewing barley, and considerable business is being done at another sharp advance.

Brewing & Ship'g	$1.35	@1.40
Choice feed, per ctl	1.25	@1.32½

OATS

The northern market is quite firm, with considerable inquiry for export, but values here do not respond. While offerings are not excessive, the demand is very limited, and the old prices still prevail.

Red feed	1.45@1.50
Seed	1.65@1.90
Gray	Nominal
White	1.55@1.60
Black Seed	1.75@2.25

CORN.

There is little business in local grades. Eastern corn shows more firmness, and while local prices are unchanged, there is some expectation of an advance.

California Yellow	Nominal
Eastern Yellow	$1.70@1.75
Egyptian White	1.55@1.65
Milo Maize	1.65@1.70

BEANS.

No change has occurred in values in the last fortnight, as the market is seasonably quiet. There is some inquiry for shipment to the Atlantic coast, and an active movement is expected to be resumed early in the year. There is also some export business, but this is not of important proportions at present. While supplies on the coast are fairly large, the market is quite firm, and no reduction of values is anticipated.

(On Wharf.)

Bayos: Cal. per ctl.	$4.50@4.75
Blackeyes	3.75@3.85
Cranberry beans	3.75@4.00
Horse Beans	3.50@3.75
Small Whites	3.90@4.00
Large White	3.75@3.90
Pink	3.00@3.10
Limas	5.15@5.25
Red Kidneys	5.00@5.10
Mexican Red	4.75@5.00

SEEDS.

There is no demand worth mentioning in any line at present, values standing nominally as before.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3½ @ 4 c
Millet	2¾ @ 3¼c
Timothy	7½ @ 8 c

HAY.

The local market shows very little feature at present, offerings from the country being about as before, while the demand is extremely light at this season. Considerable difficulty is accordingly experienced in making sales, and values are inclined to sag.

Alfalfa Meal, per ton	14.00@15.00
No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	40@ 45c

FEEDSTUFFS.

There is hardly any bran here at the moment, and with light offerings from other markets the price has advanced. Rolled barley is also very firm, and will be higher if present prices are maintained on the whole grain. Other descriptions are dull at present, but steady as to values.

Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	29.00@30.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	39.00@40.00
Middlings	33.00@34.00
Rolled Barley	27.00@28.00
Rolled Oats	32.00@33.00
Shorts	29.00@30.00

VEGETABLES.

The week opened with a lively demand and rather scant supplies, and prices still show some strength. Mushrooms are now a feature of the market, and cultivated stock brings good prices, though the wild are cheap. A few peas also are appearing, while rhubarb is more plentiful and lower. Tomatoes are easier, most of the stock showing frost damage. String and lima beans are considerably higher, and eggplant also shows an advance. Celery and lettuce are in active demand, Delta celery being slightly higher, while southern lettuce has been marked up sharply. Sprouts are rather easy.

Mushrooms, lb	40c
Peas, lb	8 @ 15 c
Peppers, Bell, lb	4 @ 7 c
Chili, lb	4 @ 5 c
Carrots, per sack	30 @ 40 c
Tomatoes, crate	50 @ 75 c
Beans, Wax, per lb	5 @ 7 c
String	10 @ 12½c
Lima	6 @ 10 c
Cucumbers, lugs	1.25 @ 1.50
Eggplant	5 @ 8 c
Cream Squash, box	30 @ 50 c
Celery, doz.	10 @ 20 c
do crate	1.25 @ 1.75
Sprouts, lb	2 @ 4 c
Lettuce, crate, So.	1.50 @ 1.75
Rhubarb, box	65 @ 1.00

POTATOES AND ONIONS.

With lighter offerings from the river district, Delta potatoes are higher, though a good deal of stock is arriving from the north. Sweets also show a slight advance, while onions have eased off a little, with larger supplies in the state than usual.

Potatoes: Oregon, ctl	$1.25@ 1.65
Salinas, ctl.	1.40@ 1.60
River Burbanks, ctl.	1.25@ 1.40
Sweet Potatoes, ctl.	1.75@ 1.95
Onions: Yellow, sack	90c@ 1.00
Garlic, per lb.	12@ 15c

POULTRY.

A good many dressed turkeys are still coming in, and with little demand the price has dropped sharply. Geese are higher, with offerings pretty well taken up. Arrivals of chickens have been light, but there is little demand and values are inclined to easiness, with a decline in small broilers.

Live Turkeys, lb.	19 @21 c
do, dressed	21 @24 c
Large Broilers	20 @22 c
Small broilers, per lb.	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb.	17 @18 c
Hens, extra, per lb.	17 @18 c
Small Hens, per lb.	15 @16 c
Young Roosters, per lb.	17 @18 c
Squabs, per doz.	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	$5.00@9.00

BUTTER.

There has been little fluctuation during the last week, though the market opened a little lower than before the holidays, and has failed to recover any strength, as supplies are coming in freely.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	30½	..	..	29½	29	29
Prime	27½	..	..	27½	27½	27½
Prime	26	..	..	26	26	26

EGGS.

Further sharp fluctuations have taken place within the last week, owing to temporary variations of supply and demand. It would seem, however, that there is no particular scarcity, as every advance brings in liberal shipments from the country. Supplies of the better grades were scarce after the holidays, when extras went up to 53c., dropping to 40c. in two days afterward. Further shipments of Chinese eggs are coming in.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	50	..	..	53	46	40
Sel. Pul.	41½	..	..	43	38	34

CHEESE.

Flats and A.'s are now both quoted at 13c., the former having gained ½c., while the latter show a 1-c. drop. Monterey cheese is unchanged.

Fancy California Flats, per lb	13c
New Young America, fancy	13c
Monterey Cheese	17@18c

Los Angeles dairy prices.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	30	30	..	..	30	30
Eggs	45	42	..	..	45	43
Cal. Cheese	14	14	..	..	14	14
Flats	14½	14½	..	..	14½	14½

DECIDUOUS FRUITS.

Cranberries no longer find much demand, and have been marked down. There was a heavy local demand for apples the first of the week, but since then the market has been very dull, and prices have been reduced. It is estimated that there are over a million boxes in storage now, and considerable difficulty is anticipated in disposing of the stock. There are still some winter nellis pears in storage, and these find moderate demand at $1 to $1.50 per box.

Cranberries	$9.00@10.00
Apples, Newtown Pippin	50@ 95c
Belleflowers	50@ 75c
Baldwin	50@ 75c
Persimmons, box	40@ 75c

DRIED FRUITS.

There is more tone to the dried fruit market than might be expected during the holiday season, with an all-round firmness as to values. Apples are subject to more inquiry than for some time past, and some interest is also taken in peaches, causing quotable advances in both lines. There is also a firmer feeling in apricots, and the tendency in prunes is upward, while the Associated Raisin Company has announced an advance in its selling prices to take place Jan. 1. Packers report a generally active demand, as compared with the usual condition at this season. The demand seems to come largely from foreign countries, though the increasing firmness is also attracting attention in the east, and conditions are favorable for a very good movement during the next month. The New York Journal of Commerce says: "Although this is the season when few developments are looked for in the market for California dried fruits, developments are rather startling. Advices received in the trade here by wire report an advance in prices on Raisins, Apricots and the smaller sizes of Prunes. Operators here, while admitting that trade is dull in this section, hold that during the coming spring months everything in these lines will be much higher.

On Prunes 6c f. o. b. bulk basis seems to be the best that can be done on 40s to 90s and on smaller sizes the market is almost as high. On the spot here the trend of prices on the larger sizes appears to be in buyers' favor, but on the smaller counts the market is firmer and on sizes from 60s down to 90-100s is firm and commands better prices, as these are scarce and seem to be in most demand.

Peaches are rather firm on the coast as a result of the recently increased demand from interior markets. New York and other Atlantic coast buyers are showing little interest, only filling in where necessary. Apricots are said to be well controlled on the Coast, and while there is little demand at present from this section, at least the feeling among holders on the Coast is firm. Coast Raisins are steady, though without animation in this market. Seedless varieties are coming forward on each steamer via the Panama Canal, but as the bulk, if not all, of the receipts were contracted for before shipment and are being diverted into consuming channels prices on spot stock available for immediate delivery are maintained on the basis of quoted figures.

Evap. Apples, 1914	4½@5½c
Apricots, 1914	6 @9c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5 c
Prunes, 4-size basis, '14	5 @6 c
Peaches, new	3¾@4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels c.	4 @4½
Seedless Sultanas	5 c

CITRUS FRUITS.

The week opened with a fairly active demand at San Francisco, but but since immediate needs have been covered there is less activity, and offerings in most lines are rather large. Navel oranges are easier, with $1.75 the top figure on most offerings, though a few fancy lots still bring the old figure. Other descriptions show little change.

The eastern auctions for citrus fruits, especially oranges, have been very fair for the holiday season. Shipments from Butte, Tulare and the southern counties have been heavier so far than for the same period of a year ago.

On the New York auction, Monday, Dec. 28th, prices for navel oranges averaged from $2.85 down to $1.75 per box. All other auction points were a trifle lower that day. Lemons are still very low, though the Monday auctions were a trifle higher. New York paid $2 to $2.25 average per box, and other points were about the same.

Shipments up to Dec. 27th from southern California were 880 cars, from Tulare county 4050 cars, and from Butte county 431 cars. Florida has marketed over one-quarter of its orange crop, which is coming into the market in poor condition. The crop in that State is estimated at 10,000,000 boxes.

Oranges: Navel, box	$1.25@1.75
Tangerines, small box	1.50@2.25
Grapefruit, seedless, box	1.25@2.00
Lemons, box	1.50@3.00
Lemonettes, box	1.25@1.75

NUTS.

The demand has been a little slack for the last week, but renewed activity is expected in almonds shortly, owing to the limited supplies available. It is hardly possible, however, to effect sales at anything like the Association opening prices in either almonds or walnuts. The latter are quiet, but some demand is expected before long.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

Business remains very quiet, with large accumulations both here and in the country. There seems to be some expectation, however, of a movement for export within the next month or two, and if this takes place it should relieve the present pressure on the market.

Water White, extracted	7 @ 8 c
Light Amber	8 @ 9 c
Water White, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

HOPS.

Business has been hardly so active during the holiday period as immediately before, but values stand about as last quoted, and with offerings pretty well cleaned up, it is expected that buyers will readily be found for what remains.

1914 Crop	8 @13 c

LIVE STOCK.

Hogs appear to be stiffening up a little, with offerings hardly as large as they have been. Sheep are very strong and rather scarce, and some good sized sales have been closed lately at prices satisfactory to the sellers in several nearby districts. Lambs and calves are very firm, and beef cattle are steadily held at the old figures.

Steers: No. 1	7 @ 7¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @6½c
No. 2	5½@ 5¾c
Bulls and Stags	3 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
200 to 300 lbs	7 @7¼c
100 to 225 lbs	7½@7¾c
Prime Wethers	6¼@6½c
Ewes	5¼@ 5¾c
Milk Lambs	7 @ 7½c

DRESSED MEATS.

Steers	10¾lb@11½c
Heifers	10½@11 c
Veal, large	13½@14 c
Small	15 @15½c
Mutton. Wethers	11½@12½c
Ewes	11 @11½c

Suckling Lambs ....13½ lb14 c
Dressed Hogs .....12½ @ 13½ c

HORSES.

Nothing of special interest has arrived in the local market this week, and business lacks animation, as usual at the holiday season. Judging by the tendency of the last few weeks, however, the market is expected to develop more strength early in the year.

Heavy drafters, 1700 lbs. and over .....$225 @ 275
Light Dra's, 1500 to 1650 200 @ 215
Chunks, 1350 to 1500.. 180 @ 200
Wagon Horses, 1250 to 1350 ..... 125 @ 175
Green Mountain Range. .60 @ 1.00

Publisher's Department

In the last issue of the Pacific Rural Press, the editor rather "poked a little fun" at this "back step" department which he apparently thinks doesn't amount to much. Perhaps the view is better from the front veranda, but we know that the "back steps" are nearer and command a closer insight into the heart and workings of the farm. The front porch is where the company is received and where the outlook commands a view of the boulevard and the gasoline wagons, but in the rear of the house is where we get down to business. Here is where we keep in touch with the stock, the crops, the dairy, hogs and chickens—where the business end of farming is at home. That the location of the publisher's department of this journal is away from the distractions of the other side of the house has proven to be in the right place, we have only to look at the advance made by this journal during the past year. Why, last week we added 281 new subscribers to our list. Perhaps the front veranda crowd may have something to do with the holding of these new readers as subscribers year after year, but we know that the "back steps" crowd were largely responsible for getting them on the list. Of course there is a place in this world for the dress parade people, and many of us like to have the spotlight follow our movements at times, but on the "back steps" we can roll up our sleeves and really do our best work.

Our book department is growing in fine style. The past month has been one of activity in agricultural books. The newest of our books, "Califor-Poultry Practice," by Mrs. Swaysgood, is proving to be popular and a good seller. It is worthy of a place on your table, and the small price of $1 ought to place it there.

Work on the new book, "California Flowers, Trees, Shrubs and Vines" is progressing. Rather slowly, but still it is coming on. By next week we trust we will be able to give the date of publication.

To every reader of the Pacific Rural Press, we extend New Year's greetings and we trust that 1915 may prove very prosperous in every sense.

LOSS BETWEEN HEN AND CONSUMER.

(Continued from page 27.)

State, and now in this nation-wide crisis they call on you to second their efforts to obtain fostering consideration of this feature of agriculture by the State, which is so badly needed at this time.

Write to this Association giving the working members encouragement and also enable them to understand that you are at least interested in their work.

We have little time and inclination to write for publication and I do not relish the job, but if any genuine interest is manifested in this letter by the readers of this paper; if the publishers or the Federation get a few encouraging letters, we will, as my contribution to the movement to eliminate the causes of this great loss, write further articles going into detail as to the effect of feeding and handling on deterioration of eggs and state simple methods to use in avoiding same.

[Mr. Lindley's exhibitions at the San Francisco Poultry Show were startling to say the least. With electric-lighted testers be showed that absolutely fresh eggs of the same size, color, and weight often vary greatly in quality. He showed the differences due to incorrect feeding and to the drinking of dirty and alkali water. Cold storage eggs handled properly and improperly were shown in the light. This is one of the most practical educational exhibitions possible, considering Mr. Lindley's front rank among American expert egg testers.—Editor.]

JERSEY FUTURITY ENTRIES.

In a communication to this office, J. E. Thorpe, secretary of the California Jersey Cattle Club, says that there have been 30 entries for the 1916 Jersey Futurity at the State Fair. The following breeders have made entries: D. F. Conant, Modesto, 2 heifers; C. D. Hayworth, Modesto, 2 heifers; W. J. Hackett, Ceres, 3 heifers; S. P. Kelly, Ferndale, 2 heifers; N. H. Locke Co., Lockeford, 8 heifers; C. G. McFarland, Tulare, 3 heifers; Guy H. Miller, Modesto, 5 heifers; T. B. Purvine, Petaluma, 2 heifers; J. B. and J. E. Thorpe, Stockton, 2 heifers; R. L. Waltz, Hanford, 1 heifer. As the futurity idea is a new one to cattle breeders, the result of this work being done by the Jersey Club will be closely watched. From the above list it appears almost certain that Jersey breeders are recognizing the value of the show yard and this, together with the official testing that is being carried on extensively by the different breeders, should greatly aid in advancing the Jersey breed in this State.

CHICKEN QUESTION NOT DEFINITE.

To the Editor: I have a sick white Leghorn pullet four months old. Her legs seem to be paralyzed and she cannot stand up at all. Would you please tell me what to do for her? Is it anything that other chicks could catch? She has had it three or four days.—H. E., Ripon.

[With your brief description it is difficult for us to take such a long-range shot and be sure of our aim. If the pullet has received any injury, that may have caused the trouble. It may be from intestinal worms or from eating eucalyptus tree leaves, or from numerous large body lice that congregate near the thighs, or possibly it may be due to lack of proper grit for grinding the food or for want of bone building material. Feeding of crushed or granulated bone quickly cures in such cases. It is possible that some fibrous or stringy matter is wound around the legs under the feathers, which is stopping the circulation.—Editors.]

Skim milk is generally considered worth 20 cents a hundred pounds as a hog feed. When fed to highly bred hogs it is worth still more.

Classified Advertisements

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

160-ACRE MOUNTAIN RANCH, Tulare county, near Mt. Whitney. Power plant, mail service, school, plenty of water could be developed; enough oak wood to more than pay for place $1600 cash. Mrs. C. Clayton, Visalia.

200 ACRES FOR SALE, eight miles west of Lodi, joining Brack Station, 40 acres ten-year Tokay; 90 acres wine grapes, 7 and 10 years old; balance hay and pasture. $225 per acre. Terms. T. H. Beckman, Lodi.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg. San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS. 306-8 Howard St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living, send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Bellflowers, Newtowns, Langford Seedlings, Missouri Pippins. Prices on request. Edward A. Hall, Watsonville, Cal.

FOR SALE—Russian Wolfhound pups, sired by prize-winning imported wolfhound. Will rid place of coyotes, jackrabbits, etc. E. F. Behrens, Lindsay, Cal.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AGRICULTURAL HYDRATED LIME—Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

BELGIAN HARES.

THOROUGHBRED Belgians with or without pedigrees. Old Hickory Supply Co., Dept. 3, Capitola.

TREES AND NURSERY STOCK.

PEACH SEEDLINGS, twenty thousands, all sizes and prices. Must be ordered before the 20th of Jan., 1915, pay on delivery. One thousand pounds of Pollock strain of Rocky Ford Cantaloup seed. If you want profits, try it. A few of Burbank"s latest creations, Beauty and Formosa plums. Standard prune trees and scions for grafting. Grafted Walnuts and ten thousand black walnuts. All guaranteed to be as good as any at any price. A. P. Henning, Clements, Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS.—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

IT WILL PAY you to let me figure with you on large or small plantings of Apples, Pears, Apricots, Prunes, Peaches, Strawberries, Logans, Blacks, Currants, Gooseberries, etc. Send list of requirements. To secure mailing lists, 12 deciduous fruit trees for $2.50—your selection. 100 Strawberries for $1.00. All prepaid. H. A. Hyde, Nurseryman, Watsonville, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne. Box 461, Marysville.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

BURBANK'S THORNLESS BLACKBERRY—a very limited supply of this new wonderful plant, a new creation, fast grower and heavy producer of fine berries, for sale at $1.50 each, or $1.00 each for 5 or more. J. I. Jewell, Santa Rosa, Cal.

CALIFORNIA GROWN Sudan Grass Seed. I have a limited amount of this seed. Until sold, will fill orders less than ten pounds for $1.00 per pound; over 10 lbs, 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

PLANT RUSSIAN RIVER non-irrigated trees. More hardy. Better root system. Self-reliant; didn't have to be weaned. Got the go—you get results. Price list, all kinds, mailed on application. Miller & Gobbi, Healdsburg, Calif.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

TEPARY BEANS—10c per lb. Drought resisters. Grow in any soil. 2200 lbs. to acre under irrigation. Place orders now. Delivery April 1. No deposit required. Try them. Jas. McGoury, Mulberry, Cal.

APRICOTS, Royal-Newcastle, Pears, Apples, Peaches, Cling and Freestone, guaranteed, large trees. Don't buy until you get our prices, which are cheap. Newton & Cavanah Nurserymen, Hemet, Calif.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

FAMOUS ST. REGIS EVER-BEARING Red Raspberries, Strawberries, Blackberries. Postage paid. Old Hickory Supply Co., Dept. 3, Capitola.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

MOIR AND ELBERTA PEACH trees. $5 per hundred. N. M. Cunningham, Red Bluff, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

50,000 STRAWBERRY PLANTS—"Dollar" variety, $2.50 per thousand. F. B. Dyar, Loomis, Cal.

WANTED.

INDUSTRIOUS, responsible single man, wishes position on ranch or private home as caretaker in livestock. Good milker, thoroughly familiar with poultry-raising, generally handy with tools, practical with gardening work. Have clean records from last employer. Address R. 1, Box 140, Dos Palos, Cal.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

RESPECTABLE young man, abstainer, wants work on good ranch. Hand or machine milker. Also plowing, axework, etc. Please state salary when writing. Wm. Owen, 1917A Fillmore St., San Francisco.

WANTED—Position as superintendent. Advertiser has had many years of practical experience in orchard, dairy and alfalfa farming. Reference. Room 707, Hotel Alta, San Francisco.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., S n Francisco.

BEES AND HONEY.

BEE-KEEPING pays big.. Price list bees, instruction books free. Samples and prices pure California honey, ten cents. Spencer Apiaries Co., Box 12, Nordhoff, Cal.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

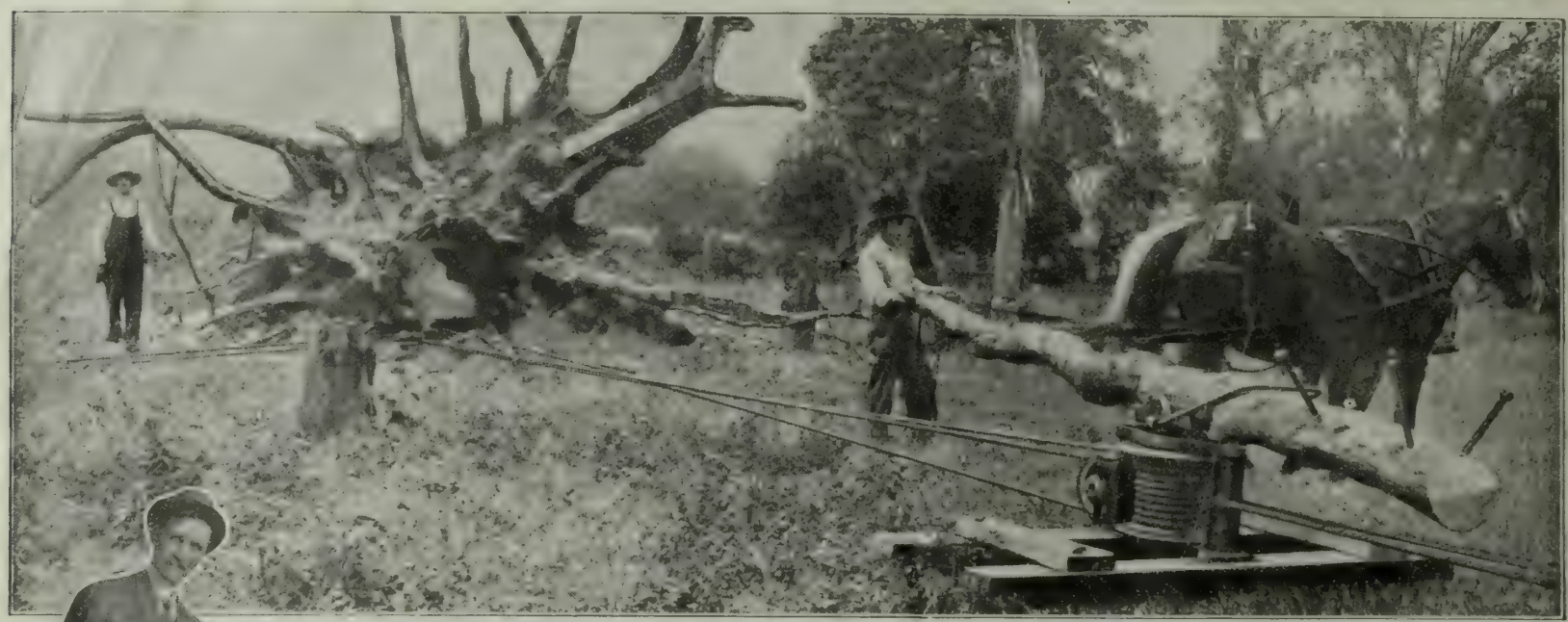
The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

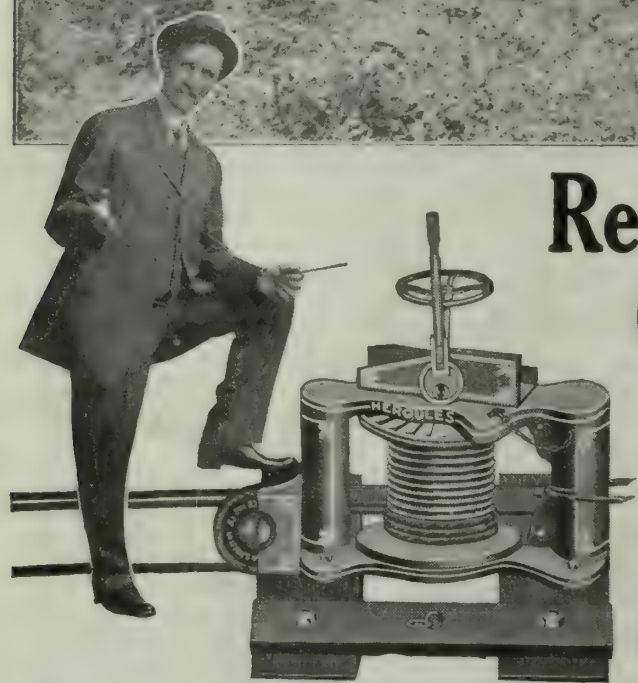
"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal





Read How Fortunes Are Made Quick By Pulling Stumps

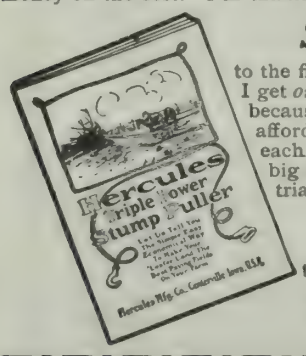
LET me send you my new, fine, free book at once. I want to show you *proof* of how you can turn each acre of stump land into a double profit the first year, in extra crops and added value of land —by pulling stumps with the Hercules All Steel Triple Power Stump Puller—and how you can make *big Money* in *your spare time* by pulling stumps for *your neighbors* or *by renting* your machine at a *nice fat profit*. My book shows *actual photographs* and prints, *actual letters* from many *owners*, telling of the remarkable feats of the Hercules—how it pulls *any size stump, green tree* or *hedge* in less than five minutes—how it easily pulls *an acre a day*. Read how one man increased his land value from $25.00 an acre to $125.00. Read why the Hercules is the *best investment* you can make now. The

Hercules ALL STEEL TRIPLE POWER Stump Puller

is the puller that has the single, double and triple power features, giving you three machines in one. There isn't a stump, green tree or hedge grown that the Hercules won't pull out without straining or breaking any castings. It's the low-down constructed puller that has self-anchoring and stump-anchoring features—the one with double safety ratchets, that insure the absolute safety of men and team. I want to send you a Hercules on

30 Days' Free Trial

so you can *see* how *powerful* it is and how *easy* it *works*. I want you to *know* for yourself that the all-steel construction means 60% less weight and 400% greater strength than cast-iron or "semi-steel." Besides that, I want to save you big money on the cost. I'm making a



Special Price Proposition

to the first buyer in 5000 different parts of the country. If I get *one* Hercules in each locality *more will surely follow* because of Hercules quality and efficiency. So I can easily afford to sacrifice my profit on the *first* machine in each locality. Take advantage of this big profit and big saving opportunity *now*. Besides my 30 days' free trial offer and money-saving price I give you a

3 Year Guarantee

that *means* something. The *all-steel construction, the triple power* feature that saves your team and gives a tremendous increase of power, the *double* safety ratchets and the careful *turning* and grinding of every part—all these things make it *safe* for us to *guarantee the replacement of any casting of a Hercules that breaks any time within three years, whether it is the fault of the machine or your fault.* Also portable hand puller for the man who has no horses.

This Free Book Tells All

Just simply send your name and address on the coupon or on a postal so I can send you the convincing facts about the superiority and efficiency and value of the Hercules Stump Puller. Only 5000 of these machines will be sold at this remarkable introductory price, so get your name in now. My new book is a beauty. See the real pictures of big stumps it has pulled out like you would pull weeds. Read the many interesting letters from farmers, lumbermen and land promoters. Stumps, stumps, stumps, pulled out quick, making fortunes for owners of Hercules Stump Pullers. I want you to know the facts. Just

Mail Coupon or Postal Now

I'll send the book and price by return mail. I'll tell you the best crops to raise on virgin land where stumps were before. I simply want to get my free book to you at once, so that you can read the remarkable facts about the Hercules All Steel Triple Power Stump Puller and how it does such a splendid work making big profits for owners everywhere. *Mail me the coupon or postal* right now, before you forget, or take down the name and address and write me as soon as you get a postal card. Address me personally,

B. A. FULLER, President

Hercules Manufacturing Company

812-23rd St., Centerville, Iowa

RUSH Coupon for Book and New Low Price

Mr. B. A. Fuller, Pres., Hercules Mfg. Co.
812-23d St., Centerville, Iowa

Dear Mr. Fuller: Mail me your free book and special price offer on the Hercules All Steel Triple Power Stump Puller.

*Name*_____

*Town*_____

*State*_____

*Route No.*_____

Vol. LXXXIX—No. 2 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, January 9, 1915 LOS ANGELES

A Successful Woman Orchardist.

[Written for PACIFIC RURAL PRESS.]

A vigorous little white-haired woman, 62 years old, with a bright Scotch blue eye and a little burr in her speech, the mother of three children, the owner of some fine prune ranches, in what she claims is the best prune section of Santa Clara, and a little bank account on the side, is Mrs. E. McLeod. We mention her orchards and bank account, because she came to the valley in 1878 with $1,000 and a world-wide stock of inexperience in fruit-growing. Her present comfortable circumstances are practically all due to her own foresight and industry. She says she is everlastingly pledged to the Bank of San Jose, to the Farmers' Union, and others, for credits extended during the uphill years of orchard learning and building, though we know that these business institutions could scarcely have extended large credits to one unworthy of trust. It is recorded of her that one time she had some barley to sell for money with which to pay a bill due at the Farmers' Union. But the price was low and she asked the Union to extend her time till the price should rise. The president told her he would come out and see. Now Mrs. McLeod learned prunes by doing them. Every operation of prune growing, from fertilization to marketing the dried product, has been done many times over by herself. In pruning, for instance, she used to prune one row of trees while a man pruned the next one, and she watched his work to-boot to see that it was done according to her ideas.

The Roses of California Are as Char acteristic as the Orchards.

Well, the president of the Farmers' Union found her up a tree when he came to investigate about the barley, and he told her to keep the barley—her credit was good. This is food for thought in these days of rural credits agitation along the lines of capitalizing character.

"I made it a rule and stuck to it," says Mrs. McLeod, "never to promise tto pay a bill and never to incur a bill unless I had the money in sight to keep my promise. And I always had the confidence of the business men."

Speaking of pruning, she knows every tree like her own children—there is never a year when the pruning is just like that of last season, and no two trees alike. She prunes according to how the limbs have grown; she considers also the soil and the liberal root pruning she does with the plow. She notices first the health of the fruit buds; she has watched the leaf growth on her individual trees. If any disease is found, it is thoroughly cut out or sprayed. The roots are examined for borers and they are fed with manure. The first five years of the tree's life her aim was to get all the wood growth and all the root growth possible. From sickly trees or limbs, more is cut to reduce possible fruitage and induce vigorous wood. She learned as she worked, and taught the men who worked for her so that after a time, when a pruner applied for a job to any of her neighbors:

"Ever done any pruning?"

"I've pruned for Mrs. McLeod."

"Go to work."

All of the older trees were plant[illegible] When she came to the valley, land and labor were ch[illegible] bought 50 acres of poor land at $50 an acre on partial payments and sold it in small lots at an advance which kept her going. Four years later she bought the home place of 50 acres, at $90 an acre. She got trees on time from John Rock, and set out ten acres of prunes and a lot of grapes and peaches. The soil was so rich and deep and moist that the grapes were watery and sold for $8 per ton, which was half price in that section at that time.

While the fruit was coming to bearing age, Mrs. McLeod raised potatoes and feed for the animals. She sold butter to keep things going. Part payment for the trees was made in the shape of a cow. The Farmers' Union gave her credit for house supplies for two or three years. When part of the orchard was three years old, she sold ten acres at $500 per acre, which cleared the load of debt on the place.

The peaches and grapes failed to produce the goods—she had to learn these things by experience. After six years, they were pulled out or topworked and the land has been reset to prunes.

The first prune crop looked like a problem. There was no equipment for dipping or drying, and she decided to sell them on the trees for $300. A buyer came to see, and he was so anxious to have her signature over an agreement to sell at that price that her suspicions were aroused. She told him she would call on him next day, if it seemed advisable. Overnight she decided to dry the crop. She sold it to New York commission merchants for $1,100, besides the cost of drying. In her inexperience the crop had been underestimated. And the prunes had dried only 2 to 1, as they continue to this day. Thereafter all the prunes were sold dried. One year she shipped eleven cars of twenty-two tons to one commission firm in New York and received satisfactory prices. Sometimes, when local buyers were bearing the prices down, she sold the prunes outright by the carload to another New York firm. When Mrs. McLeod went back to Scotland in 1891, the senior member of this firm entertained her during her time in New York.

"I got along and paid my way, but it's only the last ten years that I've been able to put away any money," says she. An example of how well her foundations were laid in the earlier years was seen in a business deal by which she unexpectedly and unwillingly pro-

(Continued on page 41.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertisng copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., January 5, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	1.40	16.77	17.93	66°	40°
Red Bluff..	.94	9.04	10.68	50	32
Sacramento.	.44	5.17	7.57	48	36
S. Francisco	.21	6.71	8.91	56	42
San Jose...	.53	6.12	6.63	58	34
Fresno	.38	2.73	3.86	52	34
Indep'nd'nce	.00	0.52	3.82	52	20
S. L. Obispo.	.34	6.55	6.64	72	40
Los Angeles.	.20	4.44	5.63	78	46
San Diego..	.14	4.16	3.41	70	46

The Week.

Secretary McAdoo—did it. It was a joyful noise unto the Californian, and harkening thereto will be of advantage to the nation. In a public address in San Francisco this week, the Secretary said:

"When I look at the work you have done here since the great fire, and when I see what you have done with this exposition, it gives me a great feeling of pride and renewed confidence in the undaunted spirit of the American people, and it ought to be instructive to the whole country during these years when there has been so much whining about conditions.

"There isn't anything the matter with the American Nation, and there isn't anything the matter with the American people, and what I should like to see would be the San Francisco spirit, the San Diegan spirit, diffused throughout my part of the country, where it seems that whining has gotten to be fashionable.

"I do not claim to be a prophet, but I am absolutely confident that this country is entering upon a career of prosperity and of exalted idealism of a practical sort which no nation has ever experienced. It seems to me that the hand of God has intervened to give this great Nation an extraordinary and wonderful opportunity, and if we do not seize it while we have the chance, then I shall be greatly disappointed in the evolution of the American citizen.

"If we could form a battalion of San Franciscans and San Diegans and other Western people into a flying squadron and turn them loose upon these whining pessimists we would soon rid the country of them."

There is a great fundamental truth involved in this picturesque language. To instantly convert a battalion into a flying squadron is an evolution for which the Secretaries of War and the Navy will provide tactics as soon as the Secretary of the Treasury returns to Washington. Meantime, the difference between the East and the West, in breadth and exaltation of spirit, will demonstrate itself to countless thousands, who come to study the outcroppings at San Francisco and San Diego, as Secretary McAdoo has done, and his commendation of their greatness and significance as a token of Western thoughts and ways will have wide influence.

Rural Credit Discredited.

While we are thus thinking about national affairs in their local relations, it must be noted that we have now to keep an eye on Sacramento rather than Washington as a source of inspiration on rural credits. It is telegraphed from Washington that, owing to pressing requests, President Wilson is considering the advisability of changing his plan to put the subject of rural credit legislation over to next December. Chairman Glass, of the House banking committee, told the President on January 4 it would not be advisable to take up the subject until time had been allowed for the working out of the farm loan features of the federal bank law. This accords fully with the forecast of the situation which we cited last week and which purported to be the announcement of the agricultural organizations at the East, which are urging rural credit upon Congress. The reason for delay cited by the bankers, viz., to wait and see what the Reserve banks can do, is no reason for delay at all; because, if these banks work at their best, they can only cover the crop-moving emergencies—which is a good thing, but less than half of the real thing which is needed, which is to finance farmers fairly so that they can use land and get something which will need moving. It seems to be very clear that the banking interest, so far as represented by those who are urging President Wilson to wait, still sees the commercial side of agriculture as the only side which needs financing—for crop-moving is a commercial aspect, not a producing aspect. This is natural for them and we are not blaming them for not being able to see over historic and traditional barriers. We hoped they could rise to the situation, but, as a body, they still seem to have too much coin in their boots to be buoyant. And so the first chance to get what is needed will be at Sacramento. We are writing before the legislature has received Governor Johnson's message, which is expected to contain suggestions along this line and which readers may see in the daily journals before this issue is printed. There will be plenty of plans for legislation on rural credits before the session which is opening this week, and we earnestly urge our readers to give close attention to them. It may be California will set the country's pace in this line.

Where California Did Get Over.

But even if we do not get all we hope for in this line there is one item of rural credit to California which has been fully realized, and that is the exaltation of Luther Burbank in a unique way. It is telegraphed from New York that gold medals will be presented by the National Institute of Social Science at its next meeting in that city, on January 15, to Miss Anna Morgan, Andrew Carnegie, Eugene Brieux, Luther Burbank and Myron T. Herrick. The principal address probably will be delivered by ex-President Taft. One of the last recipients of the Institute gold medals was Colonel George W. Goethals, who was last March decorated on account of his Panama canal achievement. This puts Mr. Burbank in good company, and all Californians will rejoice over his recognition in a national aspect. And this event has also a rural credit phase, for one of the distinguished group, Myron T. Herrick of Ohio, who has just closed a brilliant and invaluable career as Ambassador to France, is the author of a new book on Rural Credit in Europe, just out from the press of the Appletons, which all interested in the subject should study. Mr. Herrick's prolonged study of the subject and the broad humanitarian ground upon which he has pursued it, demonstrate that the adequate financing of agriculture is a corner-stone of modern statesmanship.

Other Honors to Agriculture.

It seems to us two things are fundamental to all agricultural development. One is the industrial self-consciousness of farmers which shall impel them to ceaseless contention for fairness to their industry in all commercial and financial affairs. The other is prevailing public sentiment that fairness to agriculture is not only just to the farmer, but is essential to the prosperity of all other interests of mankind. This sentiment is advanced by the participation by the representatives of agriculture in the highest councils of science, industry and statesmanship. It is a very significant fact to that end, that, at the meeting held in Philadelphia last week, agriculture, its ever-increasing importance and its basis in science, were recognized by the members of the American Association for the Advancement of Science, when a separate section, for the first time in the 66 years of the association's history, began its work of considering topics related to that science. Dr. Charles W. Eliot, president emeritus of Harvard, the president of the association, in introducing Professor L. H. Bailey of Cornell as vice-president for the newly created section, declared that America has fallen far behind other countries in agricultural methods and results. "Many reforms are needed in the teaching of agriculture and more time should be devoted to the teaching of natural science in the schools," said President Eliot. "Our race can not endure urban life. Country life development is one of the greatest of the present-day humanitarian movements."

These are surely great national questions, and it is of much local moment that the first meeting of this newly constituted Section of Agriculture, at which it will present a program of its own, as such, will be held in California in connection with the general assembly of the Association for the Advancement of Science, as one of the congresses of the Panama-Pacific Exposition.

Sweet Oranges.

But the foregoing is rather weighty matter: the sugar in an orange is more refreshing. But it is very necessary that the sugar should be there. The story comes from Porterville that an old trick elephant was standing in an alley in the rear of a theater in that town on Monday, solemnly pondering the political outlook for 1916. A man came along peeling an orange. The orange was sour, so he passed it on to the elephant. With a snort the elephant promptly

wound its trunk about the man and hurled him headlong into a pile of packing cases, thirty feet away. The man was unconscious when he was dug from the wreckage and two surgeons worked for nearly three hours patching him up. While it may be disputed whether the elephant still stands an emblem of political power or not, there can be no doubt he does represent the popular will on the sweetness of an orange, and that consumers will pay more for a certificated orange. The Tulare county districts have had an unusually good year, both in volumes and values, and the County Protective Association announces that the work of chemically testing shipments of oranges through a system of inspectors, and the issuance of certificates of maturity under supervision of Federal officials, has cost the orange growers about one-fifth of a cent per box. A local dispatch says: "This is the cost to the orange men of a protective system which has admittedly been the salvation of the early orange industry."

But even that has a commercial "tang" to it, from which it seems hard for us to escape. Take this, then, for sweetness unalloyed: In a packing house at Lindsay, with an orange grading machine as an altar, Walter Van Deusen and Miss Violet Bird were married before 2,000 witnesses. A pile of orange boxes was used as a platform for the spectators. Motion pictures were taken of the novel ceremony, and showers of rice were rained on the orange grader.

But here we fail again to down the commercial spirit. The whole thing was probably a scheme to advertise the new California rice crop.

All for California.

We have never sympathized overmuch with the local protests against California shippers buying good stuff for the outside world wherever in the State they could find it, and sending it out under the names and addresses of their business houses. It is a little aggravating, perhaps, to find Sonoma or Sacramento valley prunes going abroad under a Santa Clara business-house label; but is it not a greater consideration for the State that prunes are being pushed into profitable consumption? If a business house puts its time and capital into establishing a line of trade, it must buy where it can and publish its own local habitation for self-protection. If any locality objects, let it co-operate and establish its own brand. This old issue arises afresh from San Jose in this way: "Hansen's place, situated in the frostless belt along the eastern foothills of the valley, will produce potatoes in February. These are the first potatoes produced anywhere in the United States, and are grown within forty miles of San Francisco. The early tubers are quickly bought up by Los Angeles producers and shipped East under the label of Los Angeles. These new "Los Angeles" potatoes, served to the ice-bound Easterner, awake in his mind visions of the incomparable climatic conditions of "sunny Southern California."

We apprehend there is a little inaccuracy in this statement. We doubt if Los Angeles producers are doing it, though we see no reason why they should not—if it is a real trade and not an advertising fake. The Los Angeles region has a good early potato produce and trade, and if it can extend it by buying good stuff elsewhere in the State, why not? The Los Angeles region has places with just as good temperatures as the uplands east of the San Jose branch of the Bay District, but the early rains are scanter, and planting has to be deferred until January sometimes, and then the northern region has the advantage through the possibility of fall planting. But why worry? If a place has not enterprise to do its own business, is it not a blessing that some one else will do it?

Good for the Grain!

The rainfall to January 1 is below the normal to that date, but this year the whole of it is in the ground, and the amount we have will make more grain than the normal—of which much usually flies away in dry air. And fortunately much grain is going in. Eight hundred thousand acres of Tulare lake bottom lands have been sown to grain this fall—an increase of almost 50 per cent. Already the grain is from four to six inches in height, and there is every indication of a bumper harvest. In the Sacramento valley on one ranch there are ten tractor outfits at work: six steam tractors and four caterpillars, and they work day and night, plowing some 4,000 acres a week. The tractors carry powerful headlights at night, and last week some 20,000 acres had been plowed. The land is being seeded with wheat, barley and oats, and they are putting in from 800 to 900 acres a day.

And what was such work as this for? Well, take the figures of A. B. Haslacher, manager of the Oakdale Milling Co., who looks for a still higher market with the demand for grain due to the war. He says that the warehouses in the Oakdale section are still full, and farmers will secure the benefit of the higher prices. There has been an advance of $6 per ton since the opening of the season. The barley crop in the Oakdale section is estimated at 30,000 tons, so that the advance in price represents an increase in value in that little section alone of $180,000.

We must commend these things continually to those who are prone to think nothing is being done for California unless a man plants a thousand acres of olives. California can beat the whole country at dry farming, if it is done right, and much of the future of the State depends upon just that sort of thing!

Queries and Replies

Querists must give name and address.

Plowing Summer-Fallow and Harrowing Grain.

To the Editor: I have about 500 acres to summer-fallow this season, and the land has not been farmed for five years. How deep shall I plow, and when would be the best time to plow? I farm with mules. I have my crop in now and can start the teams at most any time. Some of the land mentioned is a sandy loam and some is adobe and red land.

I would like to have your advice on harrowing my wheat. Would it be advisable to harrow summer-fallow wheat? I also have one section of winter sowing. Would it harm the wheat to harrow it?—R. T. M., Delano.

As your land has been idle so long and natural processes of soil-opening in operation, it is not essential to plow as deep as though you had plow-pan to break up. You need only plow deep enough to lay a good foundation for this summer's working for moisture-conservation, harrowing, or disking to kill weeds and breaking up clods. Six inches deep, measured on the landside, would seem to us about right. In summer-fallowing for moisture, it is better to plow less deep and summer-work well than to plow deep and let her go after that.

Value in harrowing grain in California depends upon whether the surface is badly crusted, because in this State the grain is growing during the rainy season and therefore gets ready to mature early. Where the winter is cold and nearly all the growth has to be made after the rain or snow stops, harrowing is more important. Still if you get a dry spring and the surface is crusted, start your harrowing surely, on any kind of a sowing.

Why the Mission Olive?

To the Editor: I am about to plant quite an acreage of olives, and am at a loss to decide between the Manzanillo and Mission varieties. Would prefer the former, owing to being a little earlier in ripening and larger in size, but everybody is saying, "Plant the Mission," but seem unable to give any good reason for this advice, and what I want to know is, "What is the matter with the Manzanillo?" I fully realize that the Mission is a standard variety, but is it the only thing that ever happened in the olive line? Isn't it possible that there might be other varieties worth considering?—Planter, Orland.

The Manzanillo is discriminated against partly because it is believed to be more apt to go bad in the processing. The Mission leads in favor because it is a more regular bearer as a whole and suits picklers better. Still there are some who approve the Manzanillo and the Sevillano, and a few other varieties. The olive to plant is the one which yields best and sells best in your locality.

Handling Peach Pits.

To the Editor: I have about 50,000 peach seed in stratification to be planted next spring. Would you advise me to plant them in a seedbed and transplant to the nursery rows later, and if I do this would you bud them before or after transplanting? What shall I do if the seed begins to sprout before it is time to plant it?—Subscriber, Belmont.

Plant them in nursery rows right from the stratification. It will be perfectly safe to plant wherever the soil is in good shape. It is not likely that your sprouting will go too fast. "Next spring" is already here on all well-drained soils. The only chance for you to get stuck is by a continuous cold storm on heavy, sticky soil, and you ought not to have a nursery on such soil. The sprouts can be considerably out without interfering with putting in nursery rows. Of course you will not bud until the seedlings have made considerable growth in the rows.

Grafting Olives.

To the Editor: When is the proper time to graft olives?—G. W. P., Banning.

After the coldest weather of the season is over and the new growth is about to start. It can also be continued later in the spring and during the growing season. Even fall grafting will work if the sap is active enough to knit the scion to the stock. Olives are like citrus fruits: as evergreens they have a longer grafting season than deciduous trees and great difference of opinion will therefore be found among growers as to which is the particularly best time. It is easier to fix the worst time, and that is when the tree is nearest to dormancy.

Train Himalayas Annually.

[Written for PACIFIC RURAL PRESS.]

To the Editor: Last spring I set out some Himalaya blackberry vines, and they have made a growth of about nine feet each way. I would like to know the best way to train and prune them. Can a good many of the runners be cut off so it will be easier to train them?—P. S., Patterson.

[The best system we know is to use a couple of horizontal wires about two and four feet above the ground, fastened securely to plenty of stakes, for the load will be heavy. Any time this winter will be good to hang the vines to the wires by means of short pieces of wire, which will last three or four years, after which they may be cut with pliers and the old vines taken out. Hang them instead of twisting around the wire, for they are vicious vines to handle, and we know of one plantation near Watsonville where it was so much trouble that the task has long since been hopeless. The mess of vines harbors insects and disease and rotting cane growth. It is far less satisfactory than to keep control of them every year.

Habits of Growth.—The past season's new canes, thus hung up, will continue to grow in length until you pinch off the tips. The roots should not be closer than 12 to 16 feet apart each way, and not over half a dozen canes should be left on each.

Next summer these canes will throw out fruit spurs which will bear 30 to 75 berries each, the tip berries ripening first, along in July. These spurs will be less than a foot apart and project outward from the trellis so that picking is a cinch. But the vines will also throw out laterals among the fruit spurs, and these laterals will grow several feet in the season. Those nearest the base will be longest, but all would be serious hindrances for pickers; so just before the first picking, don a pair of leather gloves and a stout set of overalls and jacket, begin at one end of a row with pruning shears, and mow off all the laterals close to the main vines. Handle the prunings with a big fork or a specially big crooked rake, piling them out of the way. This will not interfere with fruiting next season, and it will leave the berries where the pickers need scarcely touch a vine. If the laterals were fastened to the wires or wound around them, they would take strength needed by the ripening berries and choke off the fruit spurs, besides being egregiously in the way.

Next summer too, there will be new runners from the roots and one of these should be saved and directed each way along the ground under the wires by means of little stakes, for the first season. Keep the rest pretty well cut off at the root. Repeating this year after year will renew the wood continuously as it gets too old to bear well, which is after the fourth or fifth year.

They will also send up new plants between the rows and these will be good for transplanting. Whether used or not, they should be rigidly grubbed out every winter or you will have the experience of T. R. Fiala, of Sonoma county, who took a patch of 120 vines some years old and in his first season with them grubbed out tips and suckers just six times.

Terrific Yield.—From these 120 vines in one season, Mr. Fiala picked a fraction less than two tons which he sold at the cannery for $92. At that, he simply got tired of picking and left several chests on the vines. This was done without irrigation too. Where water is available, berries may be picked till after Thanksgiving, as experienced by one grower in Santa Clara valley.

Good in Other Ways.—Peculiarly enough, the Himalaya berry, though it has only very minute seeds, is a good shipper, holding its form several days without refrigeration. Mr. Fiala left some loose in boxes on his place once for three days, then took them to town and sold them in perfect condition. His patch is picked twice a week only. The berries are peculiarly fragrant—a crate or two in a car will scent the whole car. The odor of the fresh berries is disagreeable to some, but is agreeable to most people. It is not noticeable in the jelly and jam, for the making of which the Himalaya is superb. This is one of Luther Burbank's importations from the Himalaya mountains, and is a great addition to any garden or berry farm, but does not stand the extreme cold of the Eastern States.]

PEARS ON QUINCE ROOT.

To the Editor: I bought a ranch near San Jose set out by Will Pickstone (deceased), manager of the A. Block Fruit Co., Santa Clara. There were about 800 three-year-old Bartletts on the quince root. I soon found that the union was imperfect and they were breaking off. I dug them up and as it was late in the season the only tree I could get on the quince root was the Beurre de Anjou. The nuseryman recommended them as doing well. They have made very little growth in two years. Could you advise me if this tree usually does well on the quince root, and if slow growth is a characteristic of this tree? If it doesn't do well I shall dig it up without further loss of time, and replace it with what will do well.—V. T. McC., Santa Clara.

[Our best recommendation is to dig them up, and if no disease is found on the roots, set out Bartletts or winter pears on pear roots. The Block Fruit Co. probably has Anjous on quince and could give you their experience. That variety has a good market demand. See article on dwarf fruits.—Editors.]

POLE BEANS ON WIRES.

[Written for PACIFIC RURAL PRESS.]

Pole beans on a wire trellis to save the trouble of poles, may be seen on the ranch of Rosasco Bros. of Sonoma county in the growing season. Instead of the usual unsightly wilderness of crooked poles more or less upright, subject to being blown down by the wind, always to be set up in the spring and pulled, hauled, and stacked in the fall, always to be renewed about every four years, they set six-foot posts about a rod apart through the beanfield and string a small wire over the tops of them above the rows of beans. The end posts are braced. A common white cotton string is hung from the wire to the ground at each hill of beans, 15 inches apart.

The strings support the vines till they reach the wires where they make a neat hedge effect with just room between the rows for pickers.

Wilson Trees Recognized the Standard

IF YOU WANT RELIABLE NURSERY STOCK

well grown and otherwise first class, write us.

Our New Catalog is the talk of the Pacific Coast. This Book gives description of all commercial varieties of Nursery-stock, and in addition it contains valuable Planting Methods and other expert advice. Send for it. IT'S FREE FOR THE ASKING. Submit a list of your wants for quotations. Special prices named on large orders.

SPECIAL OFFER All orders placed with us before Jan. 1st, 1915, calling for 500 Trees we donate a Family Orchard of 20 Assorted Fruit Trees.

SPECIALTIES: Deciduous Fruit Trees, Citrus Trees, Olive Trees, Fig Trees, Grape Vines, Hardy Ornamentals.

Address us Box 615 M, Fresno, Cal.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS

525 MARKET ST., SAN FRANCISCO, CAL.

Publishers

OUR SERVICES ARE FREE

We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.

We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.

OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.

Write for Booklet.

CALIFORNIA FERTILIZER WORKS, 444 Pine Street, San Francisco

Martinez Nursery

Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.

MARTINEZ, CAL.

Trees Dwarfed by Pruning.

To the Editor: What fruit trees can be grown as dwarfs? What root stock is used? Is it advisable to plant dwarf fruit trees for commercial purposes?—A. J., Upland.

[Written for PACIFIC RURAL PRESS.]

[The State used to be pretty well sprinkled with dwarfed fruits of several kinds, but the practical experience in California has resulted in their removal. The general advice of all commercial fruit-growers is to plant farther apart than you want to. There are exceptions, however, which will be noted in the article below.

Leonard Coates of Morgan Hill used to have a fine place near Napa in which he had several varieties of apples on the dwarfing Paradise stock. They began bearing nicely at three years and were satisfactory to him. The advantages, as pointed out by Mr. Coates, are that such trees are more easily pruned, sprayed, and picked. With Bartletts on quince, he and Tribble Brothers of Elk Grove point out the superior color of the fruit, but neither of them mention the comparative yield, nor the fact as stated flatly by the manager of the A. Block Fruit Co. and W. F. Randolph of Butte county, that Bartletts make a very poor union on quince.

The Biggest Dwarf Orchard.—The Block Co's orchards include 200 acres of some thirty varieties of pears, mostly on Angiers quince roots. They were originally set eight and twelve feet apart, but in later years "the mules had to get down on their knees" to cultivate and the trees lacked vigor, so alternate rows of the trees planted eight feet apart were pulled out. Those that remained showed a quick response to the increased light for the tops and feeding ground for the roots, and are now superior to those left twelve feet apart.

The soil on this ranch is three to six feet deep, underlaid in general by a porous, limy formation that does not hold moisture well, and which leaches fertilizer to some extent. On account of these conditions, which are combatted by heavy fertilization and big pump irrigation, quince root is preferred here, but emphatically not advised by the management for any other conditions. The quince spreads out more than the pear root horizontally, nearer the surface. It forces many suckers in this orchard, thus renewing the lower parts of the trees. This feature would make it dangerous in sections subject to blight. The suckering may be due, however, to the heavy fertilization and irrigation in connection with the pruning, which keeps the trees dwarf-sized. Pears on quince stock will grow as large as standards, if allowed the room, and perhaps would sucker more if on standard roots, with the treatment noted; though the Block Co.'s orchard seems to show that quince roots show quicker response to irrigation. The quince stock, however, permits dwarfing by pruning, to better advantage than standard stock, because the trees can be cut back more severely without inducing excessive wood growth.

While the Block orchard is one of the best increasingly paying pear orchards of the State, its manager claims that the quince root is not the cause of any larger yield per acre, greater size of fruit, or better shipping qualities. He also says that the Bartlett and Clairgeau varieties do not make good unions at all, and wishes to be distinctly understood as not recommending the quince stock to anyone.

Why Need Dwarfing.—It would seem that of all fruits and nuts not needing a dwarfing, those would be foremost which do not require hand-picking or much spraying and pruning. This idea has led Frank Leib of Santa Clara valley to graft black walnuts on the fast-growing Paradox root, and then Mayettes on the black, so he will get big trees. But it is becoming more common than of old to both prune and spray walnuts. The spraying is especially for aphis, having proved of negligible value for blight according to horticultural commissioner C. W. Beers of Santa Barbara county.

When walnut pruning and spraying become more common, "it will make a very great difference whether you get 25 pounds a tree from 50 trees or 50 pounds a tree from 25 trees per acre," just because, as Rudolph Wiltz points out, it will require more labor to care for the bigger trees.

Summarizing the experience noted above, we should say that for fruit that must be regularly pruned, sprayed, and hand-picked, smaller sized trees are more desirable from the standpoint of economy. Whether the size should be dwarfed by use of certain root stocks depends on whether those stocks are suited to the particular conditions. California experience indicates that the favorable conditions are not very common in the State.—Editors.]

GRAIN OR HAY NEXT YEAR?

To the Editor: I have 20 acres of land, which is checked and easily watered. This land has produced two and a half tons of fine oat hay per acre, and in years that it has been in Egyptian corn it has produced over a ton of corn per acre. I want to put it in either oats or barley, with the idea of making grain, as I expect the hay market will be dull. Which do you think would make the most money—oats or barley? I expect to follow the grain with a second crop of beans. Farmers advise me to put in oats while the warehouse people advocate barley.—E. B. D., Ceres.

[Your conditions seem to be good for oat growing, so the market demand is the question. During the past year the demand has been uniformly light, but the prices per cwt. have been higher than for barley all through. While oats make the best horse-feed for summer work, they may also be turned into high-priced, much-demanded hay if the grain market promises poorly. Barley hay is neither so desirable for feed nor so much demanded. Personally, we would prefer the chances with oats rather than barley—but our editorials urging wheat rather than either of these have been written with the profound conviction that wheat grain will make more money than other grains if properly rotated, in the next few years. With this as with oats, hay can be made if the grain market seems undependable, and the price per cwt. has been uniformly higher through the past year.—Editors.]

Armstrong Nurseries
ESTABLISHED 1889

---before you buy or plant

OLIVE TREES

Write for a Free Copy of My Booklet on the Olive. It contains Much Valuable Information and Is Free.

Every planter should first be thoroughly informed on every phase of the Olive industry and get started right; follow up right principles. By so doing you will be well paid for your efforts; otherwise you may fail.

---ask for my 1915

TREE BOOK

Catalog and Price List Combined

—illustrating, describing and pricing everything to plant for your orchard, home grounds, parkings and avenues. IT'S FREE.

Send Me Your "Want List" for Rock-Bottom Prices.

John S. Armstrong, Prop.
406 Euclid Avenue.
ONTARIO, CALIFORNIA.

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

Write for this Nursery Catalog

MISSION AND MANZANILLO OLIVES.

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

ETTERSBURG STRAWBERRIES

These are the varieties bred largely from our native species and other wild species. They are new and different from the regular varieties, exceeding them in vigor, productiveness and HIGH QUALITY They are wonderful berries here, and they will be for you, too. Write to ALBERT F. ETTER, Briceland, Calif., for catalog and price list.

DO IT NOW

Re-constructing a Lemon Orchard.

[Written for PACIFIC RURAL PRESS by J. E. Adamson, Pomona.]

What we may have to say in the matter of making over a lemon grove will be actual experience either of the writer or of some one whose efforts have come under the writer's eye. Whatever of theory there may be in it has been forced to the front by results of practical efforts and are therefore entitled to the place among the other results of our work which they may be given in this paper.

The particular lemon grove coming under the practical experience of the writer was made up mainly of 20-year Villa Franca lemon trees with a few Eurekas and a very few Lisbons scattered here and there throughout the planting. There were the conditions found prevalent in all poorly tended groves. The trees grown to long limbs and numerous suckers, in some places so overhung from the tendency of these long branches to fall down under the weight of even a little fruit, that it was difficult to get a team through. A goodly number of the ever present enemy, the pocket gopher, were in evidence, and the work of those who had gone before was evident in numerous vacant spots where trees had been killed. There was also a fair percentage of what Dr. Shamel calls trees "good only for shade," but as a whole the trees were a fair average of the older orchards as to bearing qualities, as is seen from the way they are coming back after a fair chance.

The land was bought at two different times and was operated in accordance with our experience in two slightly different ways, though both were to the same end and both have brought good results.

The first attempt was marked by considerable moderation in the extent to which the pruning saw was used, contenting ourselves with getting out the suckers and broken limbs, cutting back the bearing limbs very little the first year, allowing the trees to retain much of the bearing wood, and only cutting back the branches which were in the way or ran up very high. The immediate results seemed to justify this moderation as under the impetus of better irrigation and tillage the trees came back with a fine crop. We soon found however that the long branches were unable to bear the load put upon them, or to provide for the rapid sizing of a large crop so far from the trunk.

The second piece started on two years later was treated in a more radical manner as to pruning, the limbs being cut back to a point where they could support a load of fruit and carry it to maturity in the minimum of time. Aside from this, both pieces were given the same care and as to fruit both are giving good results.

Tillage.—One of the first items of care in the reconstruction of this property was a good breaking up of the soil with the plow, followed by the liberal use of the disc harrow. The plowing was done as late as April and a good crop of weeds was turned under, the improvement from this treatment showing in the better irrigating qualities during the following summer. This has been followed since by two crops of vetch, one of buckwheat, and one of cow peas, making a total of five crops plowed under in less than three years, including the crop of weeds which were put under the first year. The results in soil improvement are very marked in the ease with which both irrigation and cultivation are carried on and in the manner in which the water is retained in the soil. No fertilizer has been used on this property except about 20 pounds per tree each year of superphoshates running twenty per cent phosphoric acid, and about 5 pounds per tree each year of medium grade tankage.

The trees have now all the fruit they can carry and are picking each month, the best sizing up tendencies being apparent in the trees which were cut back heaviest on the start. The trees are mostly on a rich sandy loam running in some places to soil showing slight adobe tendencies. The soil is deep and rich and our reliance on the power of legumes to turn inert matter to account is the reason for not applying more commercial fertilizers.

The effort to rid the premises of the gopher pest was one of the big jobs of the first year, but it has now resolved itself to the constant watching and quick elimination of the new comers of the tribe as fast as they make their appearance. We place reliance in the trap as the best and only sure way of combating the gopher nuisance.

Scales.—The scale pest was restricted mainly to the black scale with a small infestation of longelus, and as the property was isolated by streets from adjoining groves, fumigation has shown fine results.

The results of the scale fight here offer a splendid proof of the value of the block system in the fight against scale pests. Streets seem to offer a considerable barrier to the spread of the pest, and it should be the effort of growers and inspectors alike to include all orchards inside the street boundaries of a given area, in the work to be done at any given time of fumigation.

Results of No Follow-up.—There comes to mind another lemon grove of trees much like those mentioned above where the pruning was done in a manner quite as thorough as in the first case, but the work was not followed up by regular care of the tree. The suckers were allowed to grow until they crowded out the growth of fruit wood; and when later they were cut out, the tree was not far in advance of where it had been after the first pruning. The lesson in pruning that would seem to come to us from our experience in these and other cases is, that the limbs and laterals of a fruiting lemon tree should be shortened back to where they can support the load placed on them without much resort to the prop. The suckers which will surely follow the heavy cutting needed to shape a neglected tree properly must be kept out so that the fruit wood may have air and light to develop, not only themselves, but the fruit they carry.

We used to think that constant tillage by means of the various tools for cultivation was an essential, but from some later experience it would seem that there is more to tillage than stirring the soil with tools. There came to our attention the past year a lemon grove where the trees had been pruned in a somewhat limited fashion, but most of the other items of care were left out. Last spring the ground was left without any plowing or irrigation until nearly June 1, at which time the caretaker was changed. After as good an irrigation as could be made without a chance to make furrows, the soil was treated to a heavy disk harrow each month, until the end of September. By that time the crop of weeds and grass had been worked into the soil, and a crop of vetch was sowed. These trees carry now a fine crop of fruit, and the sizes have been such that early pickings have been equal to those of places where early plowing had been the rule. The plant roots had done for the soil what had been left undone by the hand of man, and who shall say they did not do as good or better work?

AMERICAN SOURCES OF FERTILIZERS.

Present agricultural practice prescribes the use of three chemical elements as a "soil amendment," a "stimulant for plant growth," or a "plant food," as it is variously put. These three elements when applied to the soil in which a crop is growing have been found by practice to

Farming as a Business.

The farmer is learning to get the results from scientific demonstration by experts.. He is finding out that under certain conditions the soil will produce more than under different circumstances.

For instance, animal fertilizers put back into the soil those things taken from it—nature's way.

Animal fertilizer releases in the soil those life germs which are absolutely necessary to the growth of crops.

GOLD BEAR is the brand name for the animal fertilizer made in our government-inspected plant, under the most favorable conditions.

GOLD BEAR fertilizer has proved its worth in the fields of California in the growing of more and better crops to the acre—it has been tried and tested and found to be the one great help needed by the farmer who conducts his farm as a business.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

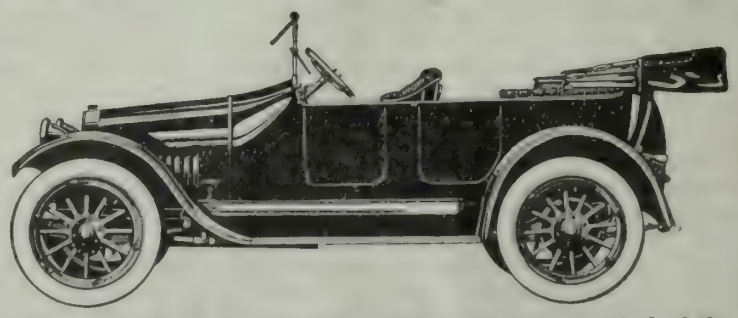
Send for the Gold Bear Booklet.

Western Meat Company

704 Townsend St., San Francisco

Mitchell

Light Four	$1250	Special Six	$1895
Light Six	$1585	Six de Luxe	$2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

afford an increased crop yield. They are phosphorus, potassium, and nitrogen, spoken of by the respective trade terms of phosphoric acid, potash, and "ammoniates."

In the commercial fertilizers phosphoric acid is found in the form of calcium phosphate, which is bone phosphate or rock phoshate, usually treated with sulphuric acid to render it soluble. Potash is found as a salt or salts of potassium, either sulphate or chloride, and the "ammoniates" as the inorganic salt of ammonia, ammonium sulphate, the inorganic salts of nitric acid, sodium nitrate, and inorganic compounds of nitrogen, calcium cyanamid, or the organic compounds of nitrogen, contained in animal or vegetable refuse matter, cottonseed meal, abattoir tankage, or fish scrap.

The usual commercial fertilizers contain these three elements and have the designation of "complete fertilizers." These are sold under various brand names, the various brands frequently being recommended for particular crops. The proportion of the three essential ingredients is varied; as a usual thing that of the phosphoric acid is considerably higher than the other two, which are present in about the same proportion. Thus, for example, a "6-2-2 mixture" contains 6 per cent phosphoric acid (P_2O_5), 2 per cent ammonia (NH_3), and 2 per cent potash (K_2O). Its selling price in the retail market is based on its analysis. Little attention is paid to the source of these ingredients so long as the essential compounds are "available," or readily may be decomposed or made soluble for the use of the plants.

The Nation's supply of these three common ingredients of fertilizer may be summarized as follows: Of phosphoric acid there is an abundant supply in the large deposits of phosphate rock in Florida and Tennessee, and the enormous deposits of Idaho, Montana, and Wyoming.

Of potash, now obtained exclusively from the German mines, there is little known in this country outside of the desiccated residues in Searles Lake, Cal., and the giant kelps of the Pacific littoral. In the latter there is much more than enough to supply the present demands of the fertilizer trade of the United States, the present annual consumption of potash being about 1,250,000 tons, of varied composition. At present the kelps are not supplying any of this, since it has not been determined by actual experimentation on a commercial scale that they can be used economically as a source of potash. Estimates based on costs of similar operations indicate that they can be so used.

Of "ammoniates" there is a large source in the ammonia produced as a by-product in the distillation of coal for the production of gas or coke, or both. This source is but partially developed, as by the methods most commonly practiced in this country this possible by-product is not recovered. The amount of ammonia now going to waste is almost large enough to supply all of the "ammoniates" now demanded by the fertilizer trade. The abattoirs supply a large amount of tankage and dried blood of high fertilizer value; but of these possible by-products there is still an enormous loss through the lack of organization and co-operation in the small-scale slaughter of animals for food.

YES---there is good profit in OLIVES

---if you plant Roeding's True Trees

"See that crop of olives."

THE enthusiasm of Mr. H. G. Johnson, who planted his twenty-acre place near Clovis in 1902, and who was wise enough not to put all of his eggs into one basket, is infectious.

Careful attention to details was responsible for this profitable orchard, and only furnishes another apt illustration of the profits to be derived from a small acreage where the question of labor only cuts an important figure when the crops are to be harvested.

Neither you, nor I, nor anyone else, could resist the magnetism of Mr. Johnson when he caressingly stroked his olive trees with their load of magnificent fruit, and dwelt on the profits he was receiving from his orchard of four hundred trees. Here are his own words as to what his returns were:

Mr. H. G. Johnson of Clovis, Cal., Showing a Sample of His 1914 Crop of Olives. (Note the size of the Olives compared with hand in oval on right.)

"Harvested my first crop of one ton per acre when trees were four years old and sold the fruit for $50 per ton. In the fifth and sixth years my crop averaged about one-half ton per acre, and from the seventh to the ninth year it varied from a ton to one and a quarter tons per acre. The price and demand have been improving right along, for in 1912 I picked three and one-half tons to an acre, which I sold at $100 per ton, delivered in Clovis, and in June, 1913, two and one-quarter tons to the acre, which were sold at $130 per ton, and shortly after the delivery of this crop I made a contract extending over a period of five years at this figure for olives averaging 11-16 in. and up. This year my crop, as you can see for yourself, is enormous, and the olives will grade up into the largest size. At the very least calculation, I will have sixteen tons of olives, and you can readily understand why I am proud of my olive orchard."

TREES

The Largest and Finest Assortment of Fruit and Ornamental Trees, Vines and Plants on the Pacific Coast.

No matter what you figure on planting this season we can supply your orders fully and with first quality trees. Send us your list for prices and suggestions.

OLIVES All Varieties **PEACHES** Hale's Early Elberta, Etc. **ORANGES** Navel & Valencia

Apples, Pears, Prunes, Apricots, Walnuts, Almonds, Pecans, Lemons, Pomelos, Limes, Guavas, Loquats, Chestnuts, Figs, Cherries, Grapes, Berries, etc.

ORNAMENTAL TREES, VINES, PALMS AND ROSES

We have growing a magnificent assortment of ornamental stock of every kind and description. Our roses are field-grown and comprise all the best domestic varieties as well as many imported.

NEW 1914-1915 ILLUSTRATED CATALOG, NOW READY

Our new catalogue, fully illustrated and containing prices of all the stock which we have for this season's planting, is now ready. If you wish a copy send us your name and address and it will be sent you promptly—free.

Fancher Creek Nurseries, Inc.

Geo. C. Roeding, Pres. and Mgr. **Paid Up Capital $200,000**

BOX 18, FRESNO, CAL.

Saving Trees From Mice.

A clean, tidy place harbors few mice, and so it should be with our orchards. See to it that tall grass, weeds, and other annual growths which become lodged about the trunks of trees are removed. They make an excellent harbor in which these little animals like to spend the winters.

Cover crops are inductive to the habitation of mice, especially clover and alfalfa, where they are sown in solid blocks throughout the orchard and allowed to grow to a considerable height. A good plan is to mow down the grass for three or four feet around the base and rake it back, leaving the ground clean next to the tree. Another plan that works well where mice are numerous and liable to do damage is to mound up earth around the body of the trees to the height of six to ten inches. This should be removed in the spring after all danger of attack is passed.

Border fences of rocks, shrubbery, and hedges are excellent harbors for mice. Here they can find shelter and a safe breeding place. The only method to pursue in this case is to plan for their destruction by the use of poisons or repellent washes put on the trunks of the trees.

Destroying Mice.—Wash the trees with some persistent substance in which is placed Paris green. Maynard recommends the use of Portland cement the consistency of common paint for holding the poison, and applying to trunks of trees with a stiff brush.

Strychnine is the most satisfactory poison for field mice. Although a deadly poison and dreaded by many people, yet with the proper caution it can be safely used. Various baits can be used with it, such as wheat, cornmeal, oatmeal and bran. The bait should be soaked over night in a poison syrup which may be prepared as follows:

Dissolve an ounce of strychnia sulphate in a pint of boiling water, add a pint of thick molasses syrup and stir thoroughly. A few drops of oil of anise may be added to scent the syrup. While hot, pour over one-half bushel of one of the above mentioned baits and mix thoroughly; if too wet, add a little more of the dry material to take up excessive moisture; if not wet enough, add warm water until the mixture is all wet. There should be moisture enough to wet every particle and yet not enough to make sloppy and cause dripping. Let the poisoned bait stand over night. Then apply in small bits with a spoon or small paddle in obscure, sheltered places where the farm animals and birds can not get it. C. B. SPRAGUE.

Washington Expt. Sta.

CHEAPER APPLE PACKAGES.

That a good deal of low grade fruit ordinarily permitted to go to waste might profitably be sent in larger and cheaper packages through the canal to eastern markets, suggests itself to Professor C. I. Lewis of Ore. Agr. Col. as a possibility worth investigating. He is not ready to say that the success of the plan is assured, since experimental data is wholly lacking. He does believe, however, that it offers a possibility that in this way third and fourth grade apples may be made to bear a portion of the production cost of the crop, leaving the best grades a better chance to return a profit after paying the remainder of the cost.

"The greatest care should be taken," said he, "to guard against the inferior fruit competing with the box products. Since ordinarily the low grade fruit would appeal to an entirely different trade, it should not be difficult to avert this competition. The cheaper fruit would find its market among the thousands of the poorer classes found in every large city, who never eat fresh fruit at all now. The fruit market would be greatly extended by thus supplying fruit to the non-users, while those who eat fruit as a luxury would hardly be tempted to buy the third and fourth grades.

"Eastern growers who formerly used the barrel package exclusively have now adopted the box for their best grades while retaining the barrel for the low grades. They put their box products into competition with ours, while we have nothing to put into competition with their barrel fruit. In this competition our great handicap is heavier transportation charges, which would be almost entirely wiped out by all-water route shipments. Since our barrel packs here would cost considerable less than theirs cost there, while the carrying charges would be but little greater, it would seem that we might enter the market with our cheaper fruit practically on even terms with theirs."

TAMALE SHUCKS.

[Written for PACIFIC RURAL PRESS.]

A rather unusual crop is raised in Los Angeles county by J. Grant. King Phillip or Spanish flint corn yields for him 3,000 pounds shelled per acre and $20 worth of shucks for tamales. This variety has a shuck that is tougher, thinner, wider, and longer than most varieties. Buyers come to the farm to pay $.10 a pound for them and the price is higher this year. The grain weighs 10 to 15 pounds more per sack than dent corn, and brings 10 to 15 cents more per hundredweight. The kernels are small and are fine fed whole to chickens. In the coast sandhills to the south of Inglewood, they raise 1500 to 2,000 pounds shelled per acre without irrigation.

Cultivation is the same as for other corn. When the cob is dry, the ears are snapped, and if you don't want to husk your corn, there are people who will do it for the shucks. Mr. Grant's son makes $5 per day doing this. With a curved pointed pruning knife, he cuts the shucks around the butt, being careful not to split them, and pulls the ear out. They should not be too dry, on this account. They are put up with a hand baler into forty- to fifty-pound bales, watching not to leave them so damp that they would mold.

Mr. Grant expected to cut $100 worth of shucks from his three acres last year. There is no danger of overstocking the market; for a large amount of tamale shucks has been shipped into Southern California from Texas.

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS

REMEMBER
When you purchase
Silva-Bergtholdt Trees
you buy from a firm who are fruit growers and shippers as well as nurserymen.
Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree.
Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue
giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

The best varieties are selling rapidly. Don't wait too long.

ALMONDS
Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS
Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.
Franquette - The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES
California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.
Tuscan—Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.
Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.
Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

OLIVES
Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES
Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS
The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES
The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS
Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

Burbank Plums Thinned Annually.

[Written for PACIFIC RURAL PRESS.]

Not only are Burbank plums favorites in Placer and Solano counties, but many are grown about Los Angeles and a large block is to be planted in Tulare county.

G. O. Trapp has about 200 trees, six years old, which have never failed to bear a big crop since the season after they were planted. He has some trees set out in the spring of 1912 from each of which, in July, he picked nearly a bucketful of marketable plums. The buckets his pickers use hold four or five gallons. They are made comfortable to carry on the arm while picking, by slipping a piece of rubber hose over the bale.

"I prune for fruit," says Mr. Trapp. "Some people in San Fernando valley and other places prune to save thinning. I myself trim most of my trees and I do it every year. I leave six to twelve inches of new wood on the outside and keep the centers open to light and air. I always figure on thinning the fruit by hand. The biggest mistake people make in raising Burbanks is in not thinning them enough. I took off four-fifths of mine, leaving only the best ones, in the most favored positions, none crowding the others. You see these that we haven't picked yet (July 22) are bending down under their load. The fruit is all prime, and it weighs about as much as the total crop of little ones I would have if I had not thinned them.

"Right after the fruit sets, there is a month or six weeks when it does not grow noticeably; but the tree does. Then the fruit starts to swell and grows quick. Just before it starts to swell, we know that the plums still remaining are very likely to 'stick.' The men thin them at this time. It looks like a waste, but it is one of the best paying jobs in raising Burbank plums.

"My soil is rather sandy, but if we have good winter rains, I do not irrigate until the fruit begins to swell. I water them again about ten days before picking. What cracking of fruit occurs is negligible.

"We can reach all our Burbanks from the ground. All that is ripe, we pick in the morning and haul it by truck to town that night."

In Placer county most everyone has a goodly proportion of Burbanks because, as one said, "You always have something to sell if you have Burbanks, whether there is any crop of other varieties or not. They always ripen up on the way east and arrive on the market in good condition."

This is about the only commercial plum grown at the altitude of Bowman, above Auburn in the Sierra foothills. H. H. Bowman, the county horticultural commissioner, planted two of the trees there in 1888, probably the first to be tried in that county. He now has some acres of them. "There has never been a failure of the crop. They are tremendous bearers," says he.

The writer on a trip east last June tried all the varieties of California plums he could find on the markets. The most eatable of all was the Burbank, with Tragedy a close second. Still, it must be remembered that at present Burbanks bring a lower price per crate, due to their color more than anything else.

EFFECTS OF GYPSUM.

To the Editor: I need advice on the application of gypsum to alkali soil. How much to apply, how and when, and other pertinent information.—Mrs. H. J. M., Tulare.

[Written for PACIFIC RURAL PRESS.]

[We presume you have read Prof. Headley's article in Pacific Rural Press of December 12, and have found black alkali, for which he prescribes the gypsum treatment. For black alkali, the gypsum should be applied at the rate of 300 to 2,000 pounds per acre. The quantity depends on the amount of alkali in the soil. This will be determined by the University of California if you send them at Berkeley a large, well-mixed representative sample of the soil, taken from all the depths from the surface down to six feet. This can be done best with a soil auger.

To apply the gypsum, a drill is far more satisfactory and economical than broadcasting, because it spreads the material more evenly and thoroughly.

The effects of gypsum, as told by Prof. C. B. Lipman, in Circular 111 of the Cal. Expt. Sta., are of several kinds.

In clay or adobe or soils run together by black alkali, the gypsum has the same action as lime, both of which "have the power of shrinking clay and making it more pervious to water and air by making a large number of crumbs from large sticky masses." This crumbling action prevents baking and cracking, and makes the soil better physically for plant growth.

Gypsum neutralizes sodium carbonate or black alkali, changing it into the relatively harmless, sodium sulphate and calcium carbonate. These are readily soluble and may be washed out by flooding and subsequent drainage, for the soil is made more penetrable by the same gypsum.

Gypsum stimulates soil bacteria, too, probably by opening the soil to air, and thus greatly stimulates the growth of plants, particularly the legumes. But it does not correct acidity of soil.—Editors.]

A SUCCESSFUL WOMAN ORCHARDIST.

(Continued from page 33.)

duced $20,000 to buy another prune orchard on short notice three years ago, besides having built her large new house, a big barn, modern packing shed and equipment, and a big tank to supply water for the ranch.

And to this day, this aged lady, whose own forethought and industry have made her well-to-do and highly respected by her neighbors, still loves the old prune trees and takes some of her greatest pleasure working among them.

General: "I see here's an article on 'Revolution in the Mince Pie.'"

Colonel: "That's the kind of revolution you like to put down, I suppose General?"—Yonkers Statesman.

ESTABLISHED REX 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Blight Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS Have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.
WRITE FOR BULLETINS

California Rex Spray Co.
BENICIA, CALIFORNIA

ORANGE
LEMON
GRAPE FRUIT
LIME

TREES

WE are digging our citrus stock now and the trees are splendid. We never handled or grew finer trees. They are of large caliper, well branched and absolutely free of all insect or fungus pests. We have about 75,000 trees to dispose of during the coming season which accounts for the low prices at which we are offering them: Oranges, Navel and Valencias; Lemons, Eureka; Grape Fruit; Limes. These are not "cheap" trees. They are first class in every particular, but we are overstocked. The trees can be seen any time at our Nursery Salesyard back of the big store.

We also carry a full line of ornamentals, parking and street trees, roses and fruit trees. We invite your inspection.

Please address Department R

Germain Established 1871 SEED & PLANT CO.
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

FREE Book on RHUBARB Culture
WRITE FOR IT TODAY —

Now is the Best Time to Plant
RHUBARB
BERRIES AND SMALL FRUIT.
If planted now, you should derive good results
J. B. WAGNER - Pasadena, Cal.
The Rhubarb - Berry & Cactus Specialist.

GYPSUM LAND PLASTER
Gypsum neutralizes alkali; Cures Gum disease, root rot, varigated leaf; mellows gumbo soils; binds sandy soils.
WRITE FOR BOOKLET "LIMING OF SOILS"
CONSOLIDATED PACIFIC CEMENT PLASTER CO.
611 San Fernando Bldg., Los Angeles, Cal.

To Study Soils and Plant Diseases

[Bulletin of the University of California.]

Everybody in California will reap benefit from the work which the University of California is planning to carry on at the site about to be bought at Riverside for its new Citrus Experiment Station and Graduate School of Tropical Agriculture.

Now that Riverside has been definitely chosen as the site, after many months of discussion as to where the great work can best be done, several hundred acres are to be bought, of as representative orange land as there is in the State. For this will be spent the $60,000 given by the State, added to by the people of Riverside. An irrigation system and farm and laboratory buildings will be provided, and experimental plots planted.

Here are some of the burning problems to be attacked:

"How can land be cultivated best under irrigation?"

"How can land in California be kept permanently at its present fertility?"

"What are the best varieties of fruits and plants now available, and how can still better types be created?"

The valuable results already achieved by the University of California in the seven years it has maintained a citrus experiment station at Riverside give an idea of the possibilities the future holds.

For instance, the University has found out how to feed orange and lemon trees. Seven years ago twenty plats were planted with six navel orange trees, six Valencias, six Eureka lemons, and six Lisbon lemons. Each of the twenty plats was fertilized differently. Now, after seven years, it has been shown that nitrogen fertilization is exceedingly desirable. Of all the commercial fertilized used, dried blood gave by far the best results. Phosphoric acid, from bone, was found useful. On the Riverside soil in question potash was found unnecessary. It was concluded that fertilization from the time citrus trees are planted is probably necessary.

Mottling was found to be least on plats fertilized with, first, manure and raw phosphate; second, dried blood.

There was practically no mottling on plats kept covered with a cover-crop, such as vetch or Melilotus clover, a considerable portion of the year, this crop then being plowed in. This is one of the most important discoveries made in these extremely valuable experiments at Riverside, experiments which are regarded as the most valuable fertilizer investigations ever carried on for citrus fruits.

Cover-crop experiments were performed on twenty different plots. After five years it was proved that crops of corn or potatoes following Melilotus clover and tangier peas turned under have much exceeded in yield crops grown on land where rye had first been grown and plowed under plus 1080 pounds of nitrate of soda. A good leguminous cover-crop plowed under was shown equivalent to 1080 lbs. of nitrate of soda per acre. Moreover, such treatment introduces humus into the soil and also greatly aids the action of the farmer's invaluable friends, the tiny nitrifying bacteria in the soil.

Besides continuing these very valuable experiments as to fertilizers and cover-crops and as to the factors which cause mottle-leaf, the University of California will continue at the new station in Riverside another great work—investigations in plant-breeding.

The modern farmer breeds his cattle with great care, and by the Babcock test as to the butter-fat content in milk and by records of milk production eliminates the cow which is unproductive. Following this example the University of California wants to enlist in horticulture the great force of heredity for the service of the people of California. It is planned to plant at Riverside great numbers of varieties of many of the standard fruits and other crops of California and by selection of the best individuals and strains, and also by work in the great field of hybridization, to raise up for California new and improved varieties of the greatest possible productivity and the highest and best quality. Not only will new fruits and plants be introduced into California, but it will be endeavored to develop improved types of each, so that California shall not merely grow Florida oranges and Hawaiian avocadoes, but California oranges and California avocadoes, ideally suited to the climate, soil, and economic and transportation conditions of California.

The study of frost-protection methods is another field of work which is planned. Means will be sought for curing or preventing various plant diseases and for getting rid of various insect pests. There will be at the Riverside station experts in plant chemistry, in entomology, in plant pathology, in plant breeding, and in various other great fields of agricultural research. The large staff which is being organized for this Citrus Experiment Station and Graduate School of Tropical Agriculture will devote their whole time to scientific and economic investigations and to the training of graduate students.

In charge of the work at Riverside will remain Dr. H. J. Webber, Director of the Citrus Experiment School of Tropical Agriculture, and Professor of Plant Breeding, one of the most distinguished living authorities on the problems of citrus fruits and also of the great modern science and art of plant-breeding.

One-half of the tree for wood growth, the other half for a heavy crop, is the system approximated by J. S. Rhodes of Stanislaus county.

GENUINE FRANQUETTE

The best commercial Walnut; also San Jose Mayette. All trees grafted on California Black Walnut root. 6 to 10 inches above ground. Sizes from 3 to 10 feet. Prices reasonable.

SUNSET NURSERY,
525 San Carlos St., San Jose, Calif.

SEED POTATOES

If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.
WRITE FOR PRICES.
Alfalfa Seed a Specialty.
VALLEY SEED CO.
510-512 Jay Street, Sacramento, Cal.

APPLE TREES

With Roots That Insure You a Fine Growth From Planting.

You will note the even size of the trees and the long roots. Then consider that Mr. Kirkman has long practised bud selection to improve yield and type, and you can appreciate their value. That's why we say

KIRKMAN'S

Reliable Trees and Vines.

You will find that we will help you in any way possible. Any advice or information is at your disposal.

PLANTING TIME IS HERE. HAVE YOU ORDERED OUR TREES? If not, write us about what you will need, and we will quote prices on your order. Our catalog on application.

KIRKMAN NURSERIES
2523 Tulare St. Fresno, Cal.

Regular 4-6 Ft. Apple Trees. "Kirkman's Reliable."

Increasing Rhubarb Yield.

[Written for PACIFIC RURAL PRESS.]

"Most any nitrogen fertilizer is good for rhubarb," according to J. B. Wagner, a specialist in that line in Los Angeles county, "but don't use any potash, for that tends to make the plant go to seed. And don't use phosphoric acid under any ordinary conditions. I've tried a great many nitrogen fertilizers. Nitrate of soda has proved best, cheapest, and most easily applied in my case. Grape pomace is better than horse manure. I have found bone meal and ordinary commercial fertilizers not worth their cost.

"If you want a rhubarb crop, you must feed the plants—with nitrogen. If you feed them well, you may let the roots enlarge as much as they will, the new eyes will produce big stalks. If you starve the plants of course you must cut off the new eyes or all the stalks will be spindly. Let the root get big—the bigger the better—set your plants close together—1½ feet apart in rows 4½ feet apart, 6,000 per acre—and give them plant food. When they are crowded close together, they occupy less land, they send up straight stalks that pack well, the leaves shade the stalks from sunburn, they shade the ground reducing evaporation, and, hence, irrigation, the soil does not bake and reflect the summer heat up to the stalks. The thickness of the leaves shades the stalks so they color well up to the end. When frost comes, the leaves protect the stalks again.

"Everything in my experience is in favor of setting the plants close together and letting them get as big as they want to. I have one plant here, the crown of which is 1½ feet in diameter. I picked 60 pounds from it last season and it has 35 pounds on it now. Each stalk weighs ¾ pound.

"But it must have plenty of nitrogen. I apply it in the fall when the ground is moist either from rain or irrigation in a furrow plowed as close to the plant as possible and covered at once.

"Close planting raises the yield per acre. A planting finished in June, 1911, furnished 15 tons per acre before May, 1912. Just before Thanksgiving, I picked about 10 tons per acre from the same patch. This netted $295 per acre after paying labor of picking, cartage, transportation, commissions, and boxes. The freeze of last winter spoiled a large part of the next picking, but on June 1, I finished harvesting another $300 worth per acre. I shall pick no more till cool weather. It is too cheap in summer, and I want to protect the crowns and let them lay up plant food."

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

Est. 1880
STRAWBERRY PLANTS
true and tried variety only--large, jucy fruit, good sellers, demand always great--35 years of reliability
New Catalogue Free
J. A. BAUER, 7
Judsonia, Ark.
Strawberry Specialist

50¢ POSTPAID!!
To introduce our guaranteed trees and plants we offer you any or all of the following at 50 cents delivered to you. 12 apple, 12 peach trees, 12 rhubarb, 100 strawberry, 6 gooseberry, 12 raspberry, 12 blackberry plants. Write for price list. Offer good only 30 days. Dept. No. 10.
ARKANSAS NURSERY Co GREENLAND, ARK

WOULD KNOW RAISIN ACREAGE.

To the Editor: Your articles in recent numbers describing the California Associated Raisin Co. and its success (now fairly established) in controlling prices, have been interesting. The effect will be to give growers a fair price for their product (a little above cost of production), and will not increase the retail cost to the consumer.

I think the C. A. Raisin Co. should go a step further. It has one danger ahead, that is, an overproduction of raisins which it would be impossible to market. The result would be either selling a portion for stock feed, or quoting prices below cost of production, with its attendant miseries to the growers. We who have been long enough in California have seen the resultant misery of overproduction of articles that are more or less luxuries. Prune growers suffered for years. Apple growers are now suffering, with attendant loss of values of real estate and income.

Orange growers must watch for it. Over production has many friends and few enemies. The real estate brokers, owners of lands for sale, railroad companies and merchants generally, never mention it, and the real sufferer is only the grower. There were 20,000 acres of raisin vineyard removed some years ago, due to overproduction. Another friend to overproduction is the nurseryman, who has vines, roots and trees to sell.

Now a growers' company like the Cal. Asso. Raisin Co. should protect the grower and the industry from these by getting careful statistics of the amount of raisin vineyard planted, probable increase of crop, and particularly of Thompson's seedless, of which many thousand acres have been planted in recent years. Then, if necessary, growers and newcomers should be warned against planting vine land, with the probable loss of money and ruin to those already depending on the industry.

Dinuba. ARTHUR SHARMAN.

[We do not agree that the vines were pulled out a few years ago, due to overproduction. The trouble was poor distribution, because the marketing agencies were not co-operating with each other. This year's crop is the largest ever raised, except one, and on New Year's day they raised prices. But you make a good point in that up-to-date statistics of raisin-planting, acreage, and crop conditions would be desirable. The Raisin Exchange stands ready to do this as it did it once before, whenever the cost of the work is forthcoming. But all forecasts, based on present supply and demand, leave out of consideration the probable increased demand of the future.—Editors.]

THE OCCURRENCE OF RIPARIAN RIGHTS.

To the Editor: I have a water right on a creek that flows through my land. A neighbor above me, who has never filed a water right, claims that he is entitled to take water from the creek from the fact that he has been taking water from it for a good many years prior to my filing a water right. Is he right?—S. W. T., Loomis.

[Answered by A. E. Chandler, of Symmes, Means and Chandler.]

[As the facts are so generally stated in Mr. Taylor's letter, a few well established legal principles are given herein, rather than a direct answer for his particular case.

From the statement that the creek flows through the land, it is assumed that all of the land lies along the bank of the creek and is, therefore, riparian thereto. As a riparian owner you are entitled to a reasonable use of waters of the creek in common with all other riparian owners.

A riparian owner, or an appropriator above you may have secured a better right to the water by using it to your detriment for a period of five years—thus acquiring a so-called prescriptive right. There are a number of elements entering into the determination of a prescriptive right and the one so claiming it must submit proofs.

It is therefore certain that where an upper owner has within the past five years started to divert the water from the creek and use it upon his land, he has no greater right to do so than any other riparian owner below him.]

DISTANCE FOR THOMPSONS.

To the Editor: A short time ago you published an article in reference to a man near Fresno who staked his Thompsons on high stakes. As I am about to put out a few acres I would like to know how far apart to put them in the row, and how far the rows should be apart.

My soil is a good sandy loam of a good quality, that has a nice gradual slope to the east so that my rows will run east and west. Will irrigate well.—S. L. W., Hughson.

[In Fresno county they used to set Thompsons 8 x 8 feet or 9 x 9. One pioneer we know has recently set out some Thompsons after growing them and other varieties over 30 years. He has kept up the fertility by means of farm manure, having raised stock largely for that purpose and bought much fertilizer from the city. He planted some Thompson rooted cuttings last spring, seven feet apart in the row and the rows 11 feet apart, on land well enriched with hog manure. Part of the patch was too rich. "I didn't scrape off enough of the top dirt," says he, "and my cuttings didn't grow well on those spots." He of course expects to stake them. Six by twelve feet would probably be just as good and would get more vines per acre as well as leaving more room for the sun-drying and brush-burning.—Editors.]

Before You Plant
CITRUS TREES
Meet the Five Essential Requirements of Success.
Here they are: Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.
These five things are fundamental and he who ignores any one of the five invites failure.
Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true Citrus land—you cannot afford to miss the opportunity to
PLANT CITRUS TREES
Place your order NOW for spring delivery. You will perhaps never have another chance to buy QUALITY TREES at so reasonable a price. Even the so-called CHEAP TREES (which might better be called EXPENSIVE TREES by the man who expects to receive an adequate return on his investment), are quoted the same or very little less.
We were founded twenty-five years ago and have been improving the grade ever since. Buy TEAGUE QUALITY TREES, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.
Write today for prices and particulars. No order too large or too small to fill. All correspondence promptly answered.
Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.
THE OLD RELIABLE
San Dimas Citrus Nurseries
San Dimas, Cal.
Citrus Trees Exclusively

Maxwell's Nurseries, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

Raising and Breeding of Rabbits.

[Written for PACIFIC RURAL PRESS by Mrs. B. H. Gilkey, Santa Rosa.]

[Mrs. Gilkey has had remarkable success raising rabbits in an amateur way and has made a considerable income from the three varieties mentioned. Her entire rabbitry is home-made, mostly by herself, and her article is the result entirely of her own several years' experience. It is interesting to note the points of likeness and difference between her experience and Mrs. Swaysgood's, as published Jan. 2.—Editors.]

To succeed with rabbits or any domestic animal, one must love, or have a kindly feeling for the creatures in our care and then not neglect or mistreat them in minute details. Just what constitutes care, neglect or mistreatment we shall endeavor to make plain.

Having secured good, healthy stock to begin with, the next is to keep them healthy and increasing in numbers. To do this, proper housing and well-balanced rations are first; and judgment in breeding, second.

All rabbits require about the same general treatment, there being no special need or requirement for one variety more than others.

First as to housing: Rabbits in winter enjoy good, snug, light, warm hutches with glass windows and good ventilation, but no direct drafts. However, the windows may be dispensed with, provided they are well closed at night. In summer the more openings the better, but all hutches must be strongly made to prevent the depredations from dogs. Fine chicken-wire also, is very essential, to prevent rats from entering the pens and killing the young, and not only the young; a big rat will often kill good-sized rabbits. This much about housing.

Next, plenty of clean, sweet straw or dry leaves must be given for bedding and to keep the bottom of the pen warm. All offal will be deposited in one corner, so by merely cleaning out that part, the rest may remain undisturbed a month or more.

Now as to Rations.—I feed all kinds of green stuff to my stock except cabbage, when I can get it; and straw, or any kind of hay when green stuff is not available. It will surprise one how much may be utilized as green stuff; in fact to bar out the forbidden diet is easier than to enumerate the succulent herbs and grasses, weeds and the like, which rabbits delight in. So then, avoid cabbage and dog fennel and the coast is clear so far as I know, unless it be poison oak. I don't believe I'd try that. All refuse from the grocers, such as cauliflower, carrot-tops, beets, lettuce and celery, provided it is not decayed, is excellent feed. Filaree, bur clover, sweet clover, mallows, milk-weed, etc, etc. If one were to mow young weeds all about the place in spring and cure the green stuff carefully, a great deal of choice feed may thus be stored, minimizing the cost and increasing the profit. Rolled barley is all the grain I feed and my rabbits are always healthy. By feeding morning and night and keeping plenty of clean drinking water handy, rabbits will thrive, provided the house is right. By that I mean warm, clean and ventilated for winter and cool and sanitary for summer.

Breeding Age.—As to breeding, a young doe should not be bred under six months; a buck should not be used before seven months. Care along this line will insure fine, well-developed stock. The doe should not be left with the buck after she has been bred, but placed in her own pen and left to meditate the joys of motherhood. About ten days before the young arrive she will begin to carry straw and fix her bed for the babies. She should be given a good box, having one side removed, in which to fix the babies' nest; but this box must not be too small or she will not have room to "kindle" (a term used when the young are born). Whenever this nest is fixed, do not disturb or move the doe to another pen, as she will be apt to scatter her young all about, and they will die of cold, even in fairly warm weather. Baby rabbits are tiny, naked, helpless little creatures, but if the mother is left to her own devices she will cover her young all snug and warm with wool pulled from her own breast.

Some say not to touch the babies, but I always examine the nest and remove all inferior-sized young or dead. Six or seven fat little ones are better than a dozen ill-nourished starvelings, although I have had does raise eleven in one litter; and have been surprised with fourteen at a litter. By breeding more than one doe the same day one may divide the young; or if you have a fancy doe, the young of a common nurse doe may all be destroyed and divide the classy stock between the two. You will be repaid by finding sale at fancy prices.

Pure strain stock is better than mongrel, and a pure strain buck by all means, as the young will always type from the sire in color.

The amateur is apt to demand young of the doe as often as every two months. This will work, but one will receive better results if three months be the rule.

I always leave the young with the mother after she has been bred until she begins to carry straw for the coming babies and then take the young away, giving her the peace and seclusion desirable at this time.

Don't Pick up by Ears.—To pick up a rabbit by the ears is cruel and often results in causing the ears to lop and thus disfigure the animal for life and for the breeding market. The proper and kindly way is to grasp the ears and the nape of the neck in one hand and support the hips with the other. In removing the young they may be placed in a lug box and carried so, as they are not like chickens, apt to "fly the coop," but will remain side by side, very quietly.

Hares or Rabbits?—The term, Belgian hare is a misnomer, as all our domestic hares are not hares at all, but rabbits.

The Belgian is a beauty, as is also the New Zealand Red, but the Flemish Giant commands the top price for breeders.

Not long since I sold a pure strain Flemish Giant buck, three months old, which weighed seven pounds, for five dollars. Raising rabbits for stock is the most lucrative, but merely for market pays a fine little dividend, provided the bulk of the food may be secured at small cost. If raised merely for your own table, you will secure a delicacy excelled by no other domestic animal.

If It's STILETTO It's All O. K.

You don't need to ask a question—your dealer need not even talk—the name STILETTO upon a farm implement of any kind—a razor for yourself, or a kitchen knife for your wife—or any piece of cutlery or hardware—is all the assurance needed that it is absolutely right. A great deal of time, money and skill have been expended so as to make every article stamped STILETTO the very best of its kind.

Write us and we will give you the name of dealer in your locality.

Pacific Hardware & Steel Co.
701 Townsend St.
San Francisco, Cal.

STILETTO REG. U.S. PAT. OFF.

"Jackson MADE"

"Jackson-Made" pumps are long-lived pumps. They do the work they were designed for—better, for a longer period, at a less cost, than other makes.

Jackson "Heavy Duty" direct connected Vertical Pumps are pumps that you can forget—they will never forget you. Any time you want water just throw in the switch and your "Jackson" will deliver the maximum quantity—it will need no attention after installation because no matter how much the head may vary, the *Jackson Patented Balancing Device* automatically takes care of the pressure.

These pumps are economical in the use of current to such an extent that this, combined with the saving in repairs soon pays the cost of installation.

Write for Catalog No. 47H

If you need a pump you need a "Jackson."

Our expert engineers will aid you to select what is best for your use. There is no charge for this service.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.
TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

FREE 1915 SEED CATALOG
OF INTEREST TO EVERY RANCHER
1,000 QUESTIONS ANSWERED
200-page, handsome illustrated seed catalog. Surpasses all previous editions. Complete listing of seeds. Poultry Hints. Valuable to ranchers. Write for it.
AGGELER & MUSSER SEED COMPANY
6th AND ALAMEDA STS. LOS ANGELES, CAL.

LIME FOR LAND
HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

The Fuel Value of Wood.

[From the Forest Service, U. S. Dep't. Agriculture.]

The fuel value of two pounds of wood is roughly equivalent to that of one pound of coal. This is given as the result of certain calculations now being made in the forest service laboratory, which show also about how many cords of certain kinds of wood are required to obtain an amount of heat equal to that in a ton of coal.

Certain kinds of wood, such as hickory, oak, beech, birch, hard maple, ash, elm, locust, longleaf pine, and cherry, have fairly high heat values, and only one cord of seasoned wood of these species is required to equal one ton of good coal.

It takes a cord and a half of Douglas fir, sycamore, and soft maple to equal a ton of coal, and two cords of cedar, redwood, poplar, catalpa, Norway pine, cypress, basswood, spruce, and white pine.

Equal weights of dry, non-resinous woods, however, are said to have practically the same heat value regardless of species, and as a consequence it can be stated as a general proposition that the heavier the wood the more heat to the cord. Weight for weight, however, there is very little difference between various species; the average heat for all that have been calculated is 4,600 calories, or heat units, per kilogram. A kilogram of resin will develop 9,400 heat units, or about twice the average for wood. As a consequence, resinous woods have a greater heat value per pound than non-resinous woods, and this increased value varies, of course, with the resin content.

The available heat value of a cord of wood depends on many different factors. It has a relation not only to the amount of resin it contains but to the amount of moisture present. Furthermore, cords vary as to the amount of solid wood they contain, even when they are of the standard dimension and occupy 128 cubic feet of space. A certain proportion of this space is made up of air spaces between the sticks, and this air space may be considerable in a cord made of twisted, crooked, and knotty sticks. Out of the 128 cubic feet, a fair average of solid wood is about 80 cubic feet.

It is pointed out, however, that heat value is not the only test of usefulness in fuel wood, and since 95 per cent of all wood used for fuel is consumed for domestic purposes, largely in farm houses, such factors as rapidity of burning and ease of lighting are important. Each section of the country has its favored woods and these are said to be, in general, the right ones to use. Hickory, of the non-resinous woods, has the highest fuel value per unit volume of wood, and has other advantages. It burns evenly, and, as housewives say, holds the heat. The oaks come next, followed by beech, birch, and maple. Pine has a relatively low heat value per unit volume, but has other advantages. It ignites readily and gives out a quick hot flame, but one that soon dies down. This makes it a favorite with rural housekeepers as a summer wood, because it is particularly adapted for hot days in the kitchen.

The fuel qualities of chestnut adapt it particularly to work in brass foundries, where it gives just the required amount of heat and it is therefore in favor. Coastwise vessels in Florida pay twice as much for Florida buttonwood as for any other, because it burns with an even heat and with a minimum amount of smoke and ash.

The principle disadvantage of the resinous pines is their oily black smoke.

BALING WIRE VS. BERMUDA.

[Written for PACIFIC RURAL PRESS by J. C., Mining Engineer, Riverside.]

It is a well known scientific principle that, whenever two nuisances are brought together under the proper conditions of temperature, pressure and aridity, they tend to exterminate each other.

An endeavor to verify this principle empirically, and make it of some practical application, has resulted in the use of baling wire versus Bermuda.

Granted that baling wire and Bermuda grass both occupy prominent positions in the world of horticultural pests in many localities of the State, it was only necessary to recognize the underlying law of mutual extermination, in order to evolve the mechanism.

A cultivator is used, having eight 1½ inch shovels, in triangular or diamond formation. Flattened links from an ordinary tie chain are placed on the three rear shovels, between shovels and shanks, and held in place by the shovel bolts.

Total spread between outside rear shovels is 30 inches.

The extra heavy spread bars (1½ inch by ⅜ inch) are bent at right angles two inches from the ends and clamped to all the shanks to serve as a brace, whenever the wire is accidentally used as a stump-puller.

Two wires only are twisted and strung tightly between chain links on both sides of center shovel. The wires usually last a couple of days and require but a moment to replace.

This contrivance in no way interferes with the normal work of the implement and can be adjusted to cut at depth desired, and tends to conserve moisture by leveling the surface of the soil.

OLD APRICOT TREES.

Near Watsonville is an apricot tree planted on black loam soil 75 years ago by Isaac Williams. It has never been irrigated, according to C. G. Redman, former secretary of the Chamber of Commerce, who vouches for the statement that it still averages a ton of fruit per season. In Placer county is a 40-year apricot, sole survivor of an orchard that was mined out for gold, according to H. Reinecke, whose father quit his job baking bread in San Francisco at $175 per month to mine gold in Dutch ravine in the early '50's. He made $18,000 in six weeks, so it is no wonder that even orchards had to go.

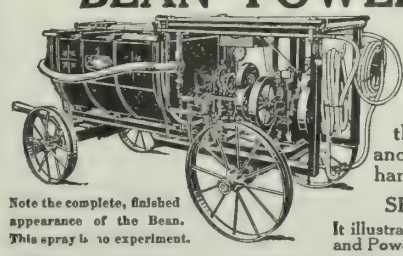
CALIFORNIA GROWN
J. H. HALE PEACH
For sale, seven thousand dormant buds. Price 20c each. $15 per hundred.
Robert C. Morrison, Nurseryman
KING RANCH, LOOMIS, CAL.

RELIABLE TREES
Get them from the most complete nursery in the world.
SEND FOR CATALOG A.
CALIFORNIA NURSERY CO., INC.
NILES, CALIFORNIA

Fruit Trees
ELMER BROS. NURSERY
AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

Ground Phosphate Rock
The Natural Plant Food and Permanent Soil Builder.
1000 lbs. per acre once in each four years will cost about $1.00 per acre per year. At Penn. State College $1.05 invested in Rock Phosphate gave increased yields of $5.85—over 500%. At Maryland Ex. Station $1.96½ gave $22.11—over 1000%. At Ohio Station each dollar paid for itself and gave $5.68 profit. At Illinois Station $2.50 gave the same return as $250 invested in land.
Each ton contains 280 lbs. of phosphorus, not rendered available artificially by high-priced destructive acids, but so finely ground as to become available in nature's own way.
UNITED STATES PHOSPHATE CO., Salt Lake City, Utah
Write for literature.
"Perfection of fineness in grinding," our motto.

FINEST
NURSERY STOCK
IN CALIFORNIA
20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to
TUSTIN PACKING CO.
TUSTIN CALIFORNIA

BEAN POWER SPRAYERS

—drive the material on at high pressure and have non-rusting ball valves, porcelain-lined cylinders, Bean patented pressure regulators and many other distinctive advantages. On account of their low-down, compact, perfectly balanced construction they are as easily handled on hilly ground as on the level.
Note the complete, finished appearance of the Bean. This spray is no experiment.
SEND FOR CATALOG 28-A
It illustrates and describes the entire Bean line of Hand and Power Sprayers and Pump Accessories. Send now.
BEAN SPRAY PUMP CO. 211 W. Julian St., San Jose, Cal. Also Lansing, Mich.

Citrus Trees With Pedigrees
Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
Balled and on the cars, 40c.
Write for special prices on quantities.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

CONSIDER

The AMERICAN Centrifugal Pump

in various types

Horizontal, Vertical and Deep Well Turbine.

THE Z-S DISTILLATE ENGINE

All Z-S Engines are equipped with oscillating type magnetos and no batteries are required.

IRRIGATION

Send us the data and our Engineering Department will submit you estimates FREE.

Write for Booklet, "Economical Irrigation by Pumping." (72 pages of information.)

California Hydraulic Engineering & Supply Co.

68 Fremont Street, San Francisco.

N—O—W

Absolute Protection Against

FROST DAMAGE

BOLTON ORCHARD HEATERS

One gallon size 20c
Two gallon size 27c
F. O. B. Your Station
Write for our new booklet C. C.

The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

Co-operative Corporations

[Extracts from address by Charles W. Holman of the University of Wisconsin.]

Not long ago it was my good fortune to make a survey of the fruit industry of the southwestern States, the Rock Mountain region, and the Pacific coast region. The object of this survey was to find out to what extent farmers have made progress in getting down to the business side of this question, and whether the word efficiency means anything to the farmer.

During the half year or more that I was in the field I talked to hundreds of farmers, business men, and bankers, as well as agents in producing centers, commission men, jobbers, and brokers in receiving centers, retailers, wholesalers, railroad men, and refrigerator men. The object of this was to find out just why the farmer was not organized for the successful handling of his farm products; why the business methods we expect in any legitimate business concern have not been applied in the case of the farmer; and why the farmer can not always sell at a profit, when distributors in other lines, such as the manufacturers, are able to do these things.

Why Marketing Associations Fail.—I studied the local history of many association failures. I talked with the managers of some stock companies that were succeeding, with people interested in other stock companies that had failed, with those who were trying to put the principles of pure co-operation into practice, and with those who had failed. Almost invariably the cause of failure was resolved into several causes, of which some are the following:

1. A wrong type of organization for farmers. 2. The failure to pay good salaries and expect efficient service. 3. A half-hearted feeling among the producers, which led them to follow false gods of antagonistic interests that were combining for the purpose of disrupting the local organization. 4. Failure on the part of the local associations to federate with each other to obtain strong selling power and to develop strong purchasing power. 5. Failure to provide for proper inspectional and auditing services. 6. Failure to guarantee the product and protect the guarantee by the credit of the organization. And, 7. The spread of tenancy through some 26 states of the union.

An analysis of the various forms of organization into which farmers have gone reveals some very important points that can not be overlooked by a gathering of this nature. Whether it be a Grand Junction or at Hood River, the joint stock company has been a fruitful cause of trouble, because through it the farmers have not been able to to retain permanent control over their affairs. Wherever you hold out the bait to any community of a dividend above the cost of operations you extend a temptation to outside individuals to come in and get control of your organization and wrest it from your hands and rob you of its benefit.

I could tell you of scores of associations that are today in trouble because they organized a few years ago on the joint stock plan. They were charged with the duty of obtaining profitable prices for their clients and also of declaring dividends upon their operations. The original owners of stock sold their orchards and their farms to other individuals and at the same time retained the control of their stock in the selling corporation, thus inevitably developing that particular organization into a private middlemen's institution rather than an organization representing the interests of the growers. Try as you may, it is almost an impossible task to keep control of your organization when you give this as an incentive.

Other groups of growers delude themselves into believing that they have formed associations when in reality they are merely clusters around some private sales agent and their associations are associations in name only, without credit, without organization, and without the elements of permanence. When their agent gives up the work for any cause these associations fall to pieces This is too prevalent a form of organization in the Southwest.

The non-profit making corporation, such as we find is organized under the laws of the State of California, and can be organized under the laws of the State of Wisconsin, is a form of corporation that gives the growers the three fundamentals of power—(1) the power to manufacture, (2) to sell, and (3) to buy any product connected with or necessary in the carrying on of a legitimate business enterprise. The only two States to my knowledge that have these laws are the States I have mentioned.

A few years ago the California Fruit Exchange suddenly had the price of box shook raised on them from 12 1-2 cents to 22 1-2 cents by what they call out there the box shook trust. That meant several hundred thousand dollars' loss.

What did they do? The law of California allows the growers to manufacture, buy and sell, utilizing the power of the non-profit making corporation, which is the greatest instrument in the hands of the grower that I can conceive of. They formed a subsidiary purchasing corporation, which is against the law in the State of Texas.

They found a sawmill up in the northern part of California that needed money. There were 30,000 acres of timber land. They made a 50-year lease. On that proposition they took over that sawmill. They made some cost tests and they found tha they could produce box shooks at 13½ cents at a fair profit. And the price of box shook today is about 13½ cents.

The first thing that we must do in a national campaign, is to make it possible for growers in every State to organize with the power of protecting their own interests by such action as I have here described.

As long as there is land there will be an increase of farmers in any industry where the farmers are getting enough money to excite such an increase. The reverse is also true, which is the reason why thousands of acres of fruit trees in the United

FREE COURSE IN TRACTIONEERING

Jan. 18 to Feb. 13, 1915

Every owner of a Caterpillar, a Holt Gas Harvester, a Caterpillar Harvester, or a Holt Harvester Motor is invited to come himself or send his operator to a four weeks' free course in tractioneering to be held at Stockton between the above dates. Every man attending should plan to stay the entire four weeks, but those who come for only a week or two will be well repaid.

PROF. F. L. PETERSON,
Asst. Professor of Farm Mechanics, University of California,

leaves his position January 1, 1915, before continuing important work as Irrigation Engineer of the

U. S. Dept. of Agriculture,

will organize and conduct this course. Prof. Peterson handled the big tractor demonstration at Sacramento last May, has taught the scientific side of farm mechanics at Berkeley and practical tractor farming at Davis, and is the strongest man we could possibly secure. He will be assisted by our big service staff and outside lecturers, and will have the entire facilities of our big plant and laboratories at his disposal.

Lectures and Demonstrations.

The work will be divided into lectures, demonstrations and practical operation. Here are some of the subjects:

Electricity, Magnetism and Magnetos.
Carburetors and Carburetion.
Elements of Thermodynamics.
Lubrication and Lubricants.
Chemistry of Fuels.
Cooling and Radiation.
Business Management.
Scientific Irrigation.
Scientific Dry Farming.
Tillage Implements.
Uses for the Tractor.

Round Table Gatherings.

Several evenings a week Prof. Peterson will hold round table talks with groups of students on any subject connected with tractors or scientific farming, in which a considerable number may be interested. This chance to exchange experience with other top-notch men is alone worth all the time and expense of attending the course.

Practical Operation.

Rain or shine, you'll have plenty of practical work in handling the various Caterpillar models. We have arranged for plenty of room to work engines under cover if the weather is bad. This is the best way to put in your slack time and learn the latest kinks in operating.

Caterpillar Service.

This school is simply part of our plan to see that every Caterpillar owner gets the best results out of his investment. During the year we keep our service men constantly on the go, visiting every Caterpillar frequently, simply to assist the owner and operator in getting results. No other tractor concern in the world builds so nearly perfect a machine in the first place, nor takes such pains to see that it is kept in good shape afterward. This service and this free school are things you can't buy with any other tractor.

Tuition to Non-Owners.

While this school is for our customers first, we will admit a limited number of others at $25 for the full course only. This tuition will be refunded to any purchaser of a Caterpillar, Holt Gas Harvester, or Holt Motor before June 1, 1915. Application should be made at once and tuition must be paid in advance.

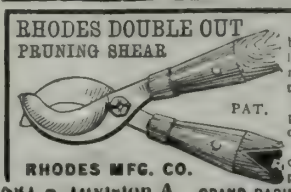
Board and Room, Etc.

We are making arrangements with the help of the Stockton Chamber of Commerce to list available board and room so all students can be made comfortable at the best possible rates. Write to-day for a folder of information and ask us to reserve a scholarship for you. Address

Dept C Caterpillar School,
THE HOLT MFG. CO., INC.,
Stockton, Calif

CATERPILLAR
Reg. U.S. Pat. Off

RHODES DOUBLE CUT PRUNING SHEAR



Cuts from both sides of limb and does not bruise the bark.
We pay Express charges on all orders.
Write for circular and prices.

RHODES MFG. CO.
651 S. Division A, GRAND RAPIDS, MICH.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product.. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE
and
SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St.,
San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO.,
258 Market St., San Francisco
CALIFORNIA SEED CO.,
151 Market St., San Francisco
SUNSET NURSERY CO.,
92 41st St., Oakland
VALLANCE BROS.,
31 Glan Ave., Oakland.

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds at our prices, but our seeds you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our Slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

WEST COAST
The Cut Rate
Seed House
116-18 East 7th St.
LOS ANGELES, CAL.

INOCULATE TREES & SHRUBS

And immune them from Blight, Anthracnose, Gummosis, Powdery Mildew, Mildews, Scab, Curl Leaf, Woolly, Green and all Aphids with JOHNSON'S IMMUNES. Clean, easy work; no spraying and 100% more efficient. Gives trees new life. I guarantee to immune trees from any of the above diseases or money refunded. JOHNSON'S IMMUNES are results of life work and study in scientific and practical horticulture. Price prepaid. 10 for 50c; 100, $4.00; 1000, $30.00. Remit by M. O. Specify disease.

EDWARD G. JOHNSON,
Scientific Horticulturist,
LAKEPORT, CAL.

Halliwell Seed Co.

258 Market St., San Francisco, Cal.
SEEDS PLANTS TREES
Write for our 1915 catalogue.
SPECIAL OFFER OF FRANQUETTE WALNUT TREES.

States are being cut down.

The co-operative corporation offers no incentive to the speculator; provides automatically for the buying of stock and the taking up of stock; is non-exclusive in that it will take in any member; cannot restrain trade, because in a perishable fruit industry the stuff must sell, and sell fast; allows farmers the most satisfactory way of transacting their affairs by either the one man one vote or the acreage vote basis; finances its operations by levying upon the packages as they move; adds a new element of credit to the community by giving the co-operative corporation the power to borrow money upon the joint security of all the land represented in the organization; adds to the community wealth because of the greater profits that come through such an organization, does not try to fix the prices of products, but seeks an even distribution to avoid glutting any market and to prevent an overstocking of all markets.

Have a High Water Tank.

[Written for PACIFIC RURAL PRESS.]

The newspapers recently told of the burning of a farmer's barn and the loss of several high-priced horses. About the same time, the death of a farmer's wife in middle age was recorded. She had probably carried water for the washing, for the table, for the kitchen, and to wash the milk cans. Perhaps the hard overwork that made her subject to the disease that took her was supplemented by unhealthy surroundings due to lack of proper sewage disposal.

A water tank, properly mounted, would have furnished pressure to fight the fire and would not have cost more than one of the burned horses was worth.

A water tank would have made possible a running water system in the house and saved the wife the extra labor which made her succumb to the disease. Probably there would have been no disease had a sewage system, made possible by a water tank, been installed to keep the premises clean and healthy.

A windmill tank house as good now as when it was built fifteen years ago, with a 3500 gallon tank high enough to furnish pressure at any point of the farm buildings, with pipes leading through the house and barns and barnyard, is to be found on the farm of H. G. Comstock in Sonoma county.

It is thirty feet from ground to eaves, twelve feet square at the tank floor, increasing in size to the ground. The tank is close under the shingle roof; the whole building is covered with weather boarding and painted.

The tank platform is a floor on eleven 3x12s, twelve feet long, which rest on three 6x8s edgewise. The ends of the 6x8s rest on 6x6 caps supported by 6x6 corner posts and two 6x6 mid-posts. The mid-posts on the other two sides are 4x6. There are four 2x6s also, in each side. These are divided midway up to the tank floor by a 4x6 sash brace around the four sides. A 4x6 exbrace from top to bottom of each side further strengthens the building. The whole structure stands on 6x6 sills resting on 3x12s laid on the cement foundation. There is a window beside the tank and two others which would light both the rooms if a floor were put in at the sash brace.

The tank and tank house cost $250. The pump in one corner of it is run by a steel windmill at present.

But Mr. Comstock is nearly prepared to utilize a spring in the hills two miles away, so there will be no outlay for power or dependence on the wind. For forty years this spring has been running plenty to supply the farm. From the spring to a 5000 gallon tank conveniently placed in the lower hills, water is piped, and thence to the tank at the house, 10,000 feet of pipe being used.

Gravity will furnish a never failing source of power. The spring has never failed, even in three successive dry seasons.

PUMPS FOR WORLD'S FAIR.

Irrigation experts all over the West have been watching with much interest the development at the San Francisco Fair in the water supply problem. After much testing and trying the officials of the big exposition have at last given contracts to the Krogh Manufacturing Company for ten pumps which will supply practically all of the water for the event. The machinery installed for supplying the water will be an exhibit of exceptional interest, as the demonstration will be the most practical. That this equipment should go to a strictly western organization is worthy of special mention.

The order included five 11-in. deep well turbines, three 6-in. horizontal turbines, one 10-in. low pressure pump for filtration plant, and one 3-in. vertical pump for filtration plant.

PEAS AND WHEAT TOGETHER.

To the Editor: Is it possible to sow Canada peas (inoculated with nitrogen bacteria) and wheat on the same land and cut with binder to save both wheat and peas? If so, how?—C. W. C., Chico.

[We fear the peas would all shell out. It might work for hay. It is getting rather late to sow wheat for grain, except in the north coast regions. The peas would fail if planted in spring because they are sensitive to drouth and need to make a good start in the rainy season. Have any of our subscribers had experience?—Editor.]

PRESERVING REDWOOD STAKES.

To the Editor: I am about to put in a considerable number of six foot redwood grape stakes and I would like to know whether it would pay me to use an artificial preservative. —F. C. L., Fowler.

[There is no economy in treating redwood stakes, though other kinds of wood except cedar should be dipped thoroughly in oil, creosote, or other preservative.—Editors.]

A New Yorker has bought a ten-acre orange grove in Butte county and intends to live there.

HARDIE SPRAYERS

The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc. Write for Catalog.

POINDEXTER & SNITZER, State Agts.
320 Market St., San Francisco.

TREES

Grown on Sandy Loam Soil

No Spike Roots.
Almonds on Almond & Peach Root.
All Varieties of Fruit Trees for sale.
Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of water.

RIPON NURSERY and IMPROVEMENT CO.
J. F. STUART, MGR.

FRUIT TREES

"HEMET GROWN ARE BEST"

Apricots, Peaches, Pears, Apples, Olives, Walnuts, Plums, etc., etc.

Send a list of your wants and I will quote you special prices.

Julius Mayr
"TREE GROWER"
HEMET CALIFORNIA

APPLES, PEARS, CHERRIES, PLUMS, PRUNES, APRICOTS, PEACHES, NECTARINES, FIGS, QUINCES, OLIVES, ALMONDS,

WALNUTS,

AND CITRUS STOCK.

Before placing an order for any of the above stock let us figure on your order.

Send for price list.

The Delano Nurseries
Delano, Cal.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

Mechanical Power on the Farm.

MOTOR PUMPS AND PIPE.

[Written for PACIFIC RURAL PRESS.]

To the Editor: I visited the Yuba Dairy, near Marysville, last summer. They have two large direct-connected motor-driven pumps and large ditches to receive the water right from the pumps. These ditches were constructed on the same principle as a railroad is graded—on a straight line irrespective of uneven ground. It is absolutely perfect. To undertake to irrigate the same tract with piping above ground would be utterly impossible.

You will notice that the ditch runs half a mile in a straight line along the edge of the alfalfa field, then turns at right angles and discharges into checks 31 feet wide and half a mile long.

Now, all the Yuba Dairy Co. has to do is to turn the switch and open up a few of the outlets to the checks and then go off doing something else. Now with surface piping, they would have to have two men out in the patch unjointing the pipe as the ground became irrigated, and I can assure you it would not be thoroughly irrigated. The pipe is always in the way of cultivation. If you have three knolls you have to change it every time you want to irrigate, which would be pretty often in this hot, dry climate, you would have a good summer's job.

Underground Pipe the Best.—But it would be fun if you had underground concrete piping that would be perpetually there and out of the way and in good condition, barring an earthquake. It wants to be understood that if you have a long underground pipe, you don't want to figure on pumping into it direct. The water friction would necessitate much greater power on the pump. Run it into a box or standpipe high enough so the water will gravitate through the pipe to the highest point to be irrigated.

Yuba City. B. R. HARWOOD.

[Surface irrigation pipes are not claimed to excel underground pipes except in economy of installation, nor are they most efficient or economical of labor when asked to accomplish the impossible. We disagree, however, in regard to the impossibility of distributing the water on the Yuba Dairy ranch by pipes. Using power for pumping, we very much doubt the economy of grading up levees in which to build ditches to convey water over uneven ground. Even the first cost might easily be cheaper to lay pipe on trestles or on the ground to convey the water the same as underground pipes would. Sure, the surface pipe wouldn't be in the way of cultivation as much or as permanently as the ditches, and sure again, they wouldn't waste so much water by seepage and evaporation. Even a wooden or steel flume would be much better than dirt ditches to convey the water that half mile to where it enters the first checks. And sure again, there wouldn't be the constantly recurring loss of water when crops are suffering for it, by the breaking of ditch banks. Do the irrigators on the ranch in question really "go off doing something else," after switching the pumps to work? They could if the water were conveyed via pipes or flumes.

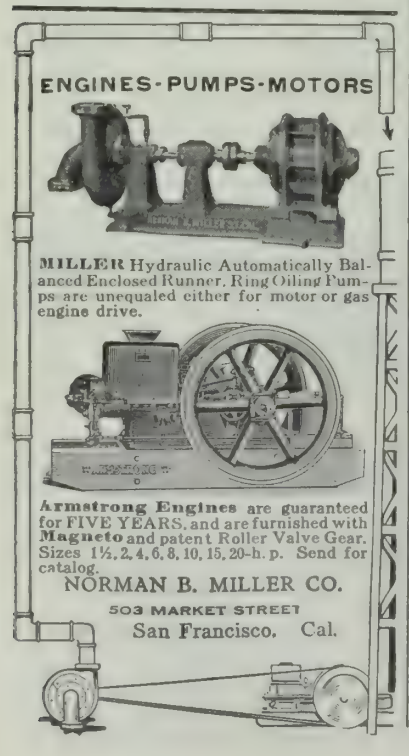
But supposing that alfalfa were on rolling land that had not been leveled before planting. What would the open ditches amount to? There would sure then be much "not thoroughly irrigated."

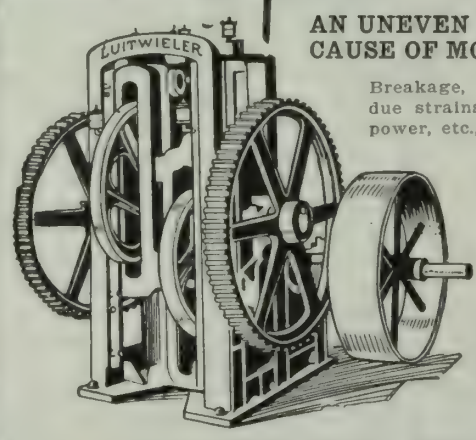
Here is the province of surface pipe. Take the many cases where capital or time, or both, are lacking, either to level the ground before planting whatever crop is to be raised, or to install the more efficient underground system. It is relatively very convenient and efficient to pipe the water by disjointable pipes to the high points and let it spread over the slopes until it reaches the lowest depressions. It can be run in whatever direction is desired to soak a whole "knoll," and then extend over uneven ground without grading or trestle work to the top of the next knoll, and thence to the third one. When the next irrigation is due, the joint on top of each knoll could be loosened from the next one and no need for moving a great deal of pipe on a hot day.

E. J. Steele, of San Joaquin county, has a vineyard, melon patch and orchard of twenty acres, onto which he retired from town not so long ago. He uses eight-inch surface pipe with considerable satisfaction. It carries the water from a pump, which throws a stream about four inches in diameter at the outlet. The pump, with a direct-connected motor, is in a concrete pit, 4 by 8 feet and 12 feet deep. The motor is 7½ h.p., for which the charge is $6 per year per horsepower. This outfit is the outcome of a two horsepower motor, first installed for pumping the water necessary about the house and house garden.]

The automobile city, Detroit, seems to have word on authority of an English army officer that the allies are going to place an order for 3,000 motor trucks, valued at $6,000,000.

Bad as a fault may be, it often happens that the effort to conceal it develops something worse than the fault. It is better to eliminate a fault than to cover it up.





AN UNEVEN WATER LOAD IS THE CAUSE OF MOST PUMP TROUBLES.

Breakage, crystallization of rods, undue strains, excessive consumption of power, etc., all arise from this cause.

The Luitwieler Pump.
(NON-PULSATING)

—delivers an even, steady stream with absolutely no jerk, jar, or vibration. Less power required. Pump troubles eliminated. A greater water delivery. No pit needed when electric motor is used. Pump absolutely guaranteed.

Write today for Catalog No. 11.
LUITWIELER PUMPING ENGINE COMPANY
707-13 N. Main St., Los Angeles, Cal.
San Francisco Agents: Simonds Machinery Co., 117-21 New Montgomery St.

Second Hand PIPE Screw Casing
ALEXANDER PIPE COMPANY
— 254 No. Point Street, San Francisco, Cal. —
501 Clarence St. Los Angeles, Cal.

REDWOOD
TANKS—SILOS
Water troughs, tank frames, and towers. Steel and Wood Windmills. Prices the lowest.
BROWN & DYSON
640 So. Center St. Stockton, Cal.

Blake, Moffitt & Towne
Dealers In PAPER
37 FIRST STREET, SAN FRANCISCO.
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the west.
WEISSBAUM PIPE WORKS,
160 Eleventh St., San Francisco

SMALL VS. LARGE TRACTORS.

It is easier to make a mistake in getting too small a tractor than too large a one. The cause of such a mistake results largely from looking first at the question of the cost of the tractor rather than the question of the results to be secured from its use.

The size tractor that every farmer needs is not the tractor that will enable him to do his work in the way he is now doing it, which in the majority of cases is not the way in which farming should be done to raise the biggest crops, but the size tractor which will enable him to do all of his work in the right way and at exactly the right time in order to raise the largest crop possible.

Definite experiments have been made which show that to increase the depth of plowing from one-half to double the usual depth will greatly increase the crop. Deeper plowing results in a better root bed for the plant. It increases the food and water supply. Probably the most accurate tests of the importance of deep plowing have been made by the Kansas State Agricultural College. By increasing the depth of plowing from 3 inches (which they say is common practice among farmers) to 7 inches, it was found that the increased depth gave an increased yield of 6 1-3 bushels per acre in a three year average.

Experiments made by the University of Wisconsin show that to double the depth of plowing requires an increase of 70 per cent in power. Plowing in the early summer when the ground is hard likewise demands more power.

These facts should be given first consideration in determining the size of tractor which will be the profitable one to buy. One should select a tractor of sufficient size to be able to plow in hard ground and plow deep, and not a size with only enough power to do the work in the way it is now being done. It should also be able to do all of the disking, clod crushing, harrowing, and other preparation of the seed bed at once when it should be done.

Furthermore, it is not only important to have sufficient power to plow in hard ground and to plow deep, but to have enough power to do all of the farm work quickly at the time when it should be done, which is often too short by ordinary means.

This question of raising bigger crops by doing the work at the right time and in the right way is after all of much more importance than the question of reducing the cost of raising the crops. President J. H. Worst of the N. D. Agricultural College says: "It requires approximately $7 per acre to grow a grain crop. By adding an additional dollar's worth of labor to each acre there is little question but that the average profit would be doubled. In other words as much profit should be realized from one additional dollar's worth of labor as is now realized from the $7 worth of unavoidable labor and investment."

It is important to remember that over-loading a tractor is a serious mistake, just as is over-loading a horse. In the first place where a tractor pulls only the load which it is designed to pull, the slippage is but small, but when it is over-loaded the slippage increases at a rapid ratio. The tractor should be one which will pull the machinery which is required to do the work in the right way at the right time, and do it with practically no slippage of the wheels. Furthermore, overloading not only rapidly decreases the pulling power, but also rapidly increases the liability of breakage, resulting in serious loss of time, while the tractor with the normal load for which it is intended will be able to keep working steadily at it right along; and in the end will do far more work than an over-loaded tractor.

There are three factors to be borne in mind in choosing the size tractor that will result in your getting the most increased profits—first, get a size that will produce enough power to do the work in the best possible way. Second, get a tractor that will produce enough power to do all your work at the time when it should be done. Third, get a tractor with enough power to do the work in the right way and at the right time pulling a normal load and not an overload.

"BEST ON THE SURFACE OF THE EARTH"

"AMERICAN" Surface Irrigation PIPE

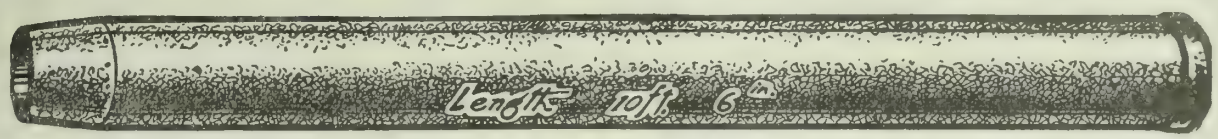
The pipe with the original double-locked turned seam — stronger — more durable — more convenient— more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character. In lengths 10 feet 6 inches.

Let our irrigation engineers solve your problems—FREE.

Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.

AMERICAN STEEL PIPE & TANK CO., 354-56 Pacific Electric Building LOS ANGELES

Branch: 1228 "H" St., Fresno.



BELT TRANSMISSION.

There are three principal factors that govern the power which a leather belt will transmit. These are: Speed of the belt, thickness and width of the belt, and the pull of the belt per inch of width. The arc of contact, or the surface of the pully in actual contact with the belt also serves to govern the power transmitted by a belt of given dimensions.

Considerable variation exists among engineers as to the value to be assigned to the pull per inch of width of a belt. If this value be too high, the belt rapidly wears out. On the other hand, if too low a value is used, the width of belt for a given horsepower will be excessive. Perhaps an average value of belt pull is 45 pounds per inch width. This value will insure a reasonable life of the belt.

If we let:

D diameter of driving pulley in inches.

V velocity of belt in feet per minute.

N number of revolutions of pulley per minute.

S effective pull of belt in pounds per inch of width of belt.

W width of belt in inches.

Then the horsepower that a belt will economically transmit is represented by the following formula:

$$H.P. = \frac{S\ D\ N\ W}{4 \times 33{,}000}$$

The speed of the belt should not exceed 4500 feet per minute. In a majority of cases in practice the speed will be under this value.

This formula for horsepower is for single belts.

Double belts are twice as thick as single belts, but the power they will transmit is less than twice that transmitted by single belts. The ratio is about 10 to 7. This decrease is due largely to the increased resistance to bending in the double belt.

Col. Agr. Col. L. D. CRAIN.

BALKY GAS ENGINES.

While many a farmer who owns a gas engine knows that it not only enables him to enjoy the modern conveniences of an electrically lighted home and an adequate and convenient water supply, and aids him in solving the hired help problem, he also appreciates that it can be the most obstinate piece of machinery on the farm if it is not given the proper attention.

The agricultural engineering department of the University of Wisconsin offers the following suggestions upon gas engine troubles:

"Popping" in the carburetor may be due to too weak mixture or to a sticking inlet valve.

Explosions in the muffler are always due to "missing." This may be caused by the governor not operating, by the vibrator sticking, by loose connections in any part of the wiring system, by dirt or water in the gasoline, by a sticking valve, by water in the cylinder or dirt on the timer.

Pounding is caused by pre-ignition, a loose cylinder, bearing or fly-wheel.

Black smoke at the exhaust shows that the mixture is too rich, while a blue smoke indicates an excess of lubricating oil.

Carburetor troubles may be caused by a water-logged float, a sticking float valve, an improperly operating air valve, ice in the mixture passage or an air lock which prevents the fuel from floating into the carburetor after it has been emptied.

Plan for High Priced Market

INSURE biggest and best crops by planting *accurately* with the Aspinwall. Just the driver required. Planter opens furrow, drops seed—any size—covers, marks next row, and and if desired sows fertilizer—*all in one operation.*

Aspinwall Potato Planter

Attachment for corn, peas and beans. World's Oldest and Largest Makers of Potato Machinery. Will answer personally any questions on potato growing. Send now for free booklet.

ASPINWALL MFG. CO.
480 Sabin St., Jackson, Mich.
Cutters, Planters, Sprayers, Diggers, Sorters

---delighted!

You will be delighted with

The Commercial Engine

Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.
2416 PORTER ST., Los Angeles
Branch, 1228 "H" St., Fresno.

200,000 FEET CHEAP WATER PIPE

Just received several car loads of new and 2nd hand Water Pipe, Oil Well and Water Casing. In ½, ¾, 1, 1¼, 1½, 2, 3 inch and many other sizes. O. D. Casing 2, 3, 3½, 4 in. Riveted and surface irrigation pipe. Big Stock. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS.
2030 Bay Street,
Los Angeles, Cal.
Phones Brdy. 1264—F1917
(Under entirely new mngmt.)

Easy to own an Engine Now

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Portable Engines Proportionally Low.

WITTE Engines

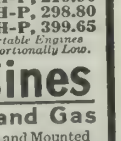
Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Long-wearing, separable, semi-steel cylinders and 4-ring pistons; automobile ignition; spark shift; vertical valves; variable speed; and other merits without which no engine is now high-grade.

Liberal 5-Year Guaranty

Cash or Easy Terms. Why pay double price for any good engine, or take a poor one, for any price, when the WITTE costs so little and saves you all the risk?

New Book Free. Tells you the "inside of engine *selling* as well as *manufacturing*. Get the facts whether you buy from me or not.



Ed. H. Witte, Witte Iron Works Co.
2866 Oakland Ave., Kansas City, Mo.

Agricultural Review

CITRUS FRUITS.

Tulare county's orange crop has exceeded 5000 carloads this year.

Orange jelly can now be made from cull fruits, according to the method devised by the University of California.

Lemon trees are being planted on one hundred acres in Oxnard where walnuts have been grubbed out this season.

The orange season has closed in all northern California. The prices on the last shipments of northern California oranges were comparatively low because of cool weather in the East.

As forecasted in a recent article in the Pacific Rural Press, the U. S. Department of Agriculture has quarantined all citrus nursery stock, prohibiting its importation from foreign countries, to prevent the further introduction of citrus canker.

A fruit auction for California citrus fruits in California was opened this week in Los Angeles. This will probably help along the marketing of the crop, as the auction is modeled after the fruit auctions of the East, which now handle a large part of the California fruit.

Florida citrus fruit has been a drug on the market where California fruit was selling well. This is due to poor quality of fruit sent early in the season, and is similar to the experiences of California in previous years. California's present season of good prices is largely due to the standard of maturity adopted in the North. The orange inspection for maturity is costing about 1-5 cent per box, and has returned many thousand per cent in profits to the growers.

In November, 1913, Lindsay shipped 775 carloads of oranges. In November, 1914, she shipped 536, a material reduction due to delay for more sweetening and for greater weight. In December, 1913, Lindsay shipped 890 carloads, while December this year totals 1600, showing that even with the smaller crop this year the market has held up wonderfully well. It has allowed a far larger shipment of oranges late in the season than it did when green oranges spoiled the Easterners' taste for California fruit.

DECIDUOUS FRUITS.

A fruit growers' association has been organized in El Dorado county at Placerville. They expect to market at least 100 carloads of pears, plums, and peaches next season through the California Fruit Exchange.

The packing of Emperor grapes in sawdust has suggested that California Bartletts might be preserved for the late trade in the same way and it has been tried this year with considerable success.

Apricots and cherries are the leading varieties of the fifty thousand fruit trees, which have been planted in the Hayward district. A large number of the cherry trees will replace those hurt by the drouth the past two seasons.

In Yolo county, olive, peach, and prune plantings are leading, while in Butte county, prunes are in the majority, with almonds coming along slowly. Almonds may total more at the end of the season because they may be planted later. Peaches are in poor favor. However, in Sutter county a Nevada miner has planted 5,000 peach trees for the canneries.

GRAPES.

Sutter county is planting many Thompson Seedless grapes.

The large planting of grapes in Yuba county also is confined almost exclusively to Thompson Seedless.

The sale of California raisins for two mince meat manufacturers is beginning heavily this year and promises to open up a large market.

About one-half of the 1914 raisins have already been shipped out of California. This amounts to about 12,000 tons more than for the same time in 1913.

A petition has been filed with the Interstate Commerce Commission requesting a re-hearing of the cases involving refrigerator rates and the minimum carload weights.

The demand for raisins at this time of the year is holding up exceedingly well, largely due to the fact that consumers can depend on the cleanliness and the quality of raisins as packed by the Associated.

Owing to the announced increase of raisin prices on January 1, the last week in December, saw large buying from the Associated Raisin Company by the eastern jobbers. One New York firm bought one thousand tons; another 500 tons, and another 750 tons.

OLIVES.

According to E. W. Ehmann of Oroville, the buying of olives early in the season started out briskly; but dropped when the war pressure was felt. Mr. Ehmann, however, expresses great confidence in the future in spite of the large acreage now being planted all over the State. The fact that his company is prepared to make ten-year contracts with Shasta county olive growers at profitable prices backs up his forecast. He estimates that the pack for 1914 will have been a million gallons of pickles and three-quarters of a million gallons of oil for California. Most of the pickles were of rather smaller size than in 1913; but the total quantity is about the same.

GRAIN AND HAY.

About 500,000 bags of rice were grown in the 15,000 acres in northern California the past season.

The Fresno Irrigated Farms Co. has received an offer from a South Carolina rice grower to buy its recently harvested rice for seed purposes.

Rice factories are being pushed to keep pace with the increased acreage and it is likely that one or two will be established in the San Joaquin valley in the near future.

In Tulare county much more grain is planted than in any recent year. Much of the land which has not been plowed before is being sown. All this will help to supply the demand from Europe for food next year.

Fresno county farmers near Dinuba have been grading land so that it may be irrigated in case of further dry seasons. Alfalfa will be planted quite extensively, the estimate being for 500 acres in this vicinity during February.

A rice mill to have a capacity greater than all others in California combined is being built in Sacramento at a cost of $175,000. Rice by-products of a dozen kinds will be manufactured from the eight carloads of rice which will be handled daily.

The growing of rice for seed might easily become a very important industry since rice free from water-grass seed is very hard to obtain. A company has been working the past two or three years in Butte county raising rice from purebred strains developed and furnished by the Plant Experiment Gardens at Chico.

Oakdale barley warehouses are full and the farmers are still holding for higher prices. Late reports indicate $1.10 per cwt. for barley f. o. b. Oakdale. The barley crop in the Oakdale section is estimated this year to be about 30,000 tons. The advance in price since the crop was harvested will make a nice little nest egg for the growers.

VEGETABLES.

Largely owing to the war and in spite of the reduced tariff, beet planting is to be increased largely.

Early planting of sugar beets has been urged in the past few years by the factory men; but it was usually rather hard to get sufficient acreage signed up in time; so that some partial failures have been caused by late planting.

In the Manteca section 395 acres have been signed up and a total of 700 are expected. Manteca expects to have 500 acres of tomatoes surrounding her next season. The cannery has furnished a large amount of seed, which is to be planted next month. They expect to enlarge their plant this season.

It is estimated that the chile pepper crop of Orange county will bring in about $350,000 this year. About 800 tons of dry California chiles have been produced and about 100 tons of dry Mexican chiles. Pimentos are also becoming popular on account of their canning qualities and the demand for them. Pepper growing has been greatly stimulated by the troubles in Mexico. There are about 200 acres in the neighborhood of Garden Grove.

More Potash Coming

American crops and soils are still as hungry for Potash as before the outbreak of the European War, which curtailed the Potash shipments.

Some of the Fertilizer Companies are trying to induce farmers to buy the one-sided low Potash or no Potash fertilizers of a generation ago. This means a fertilizer that is profitable to the manufacturer, but not the best for the farmer. When the Syndicate in 1910 started the direct sales of Potash to dealers and farmers at reasonable prices, Potash sales increased 65 per cent. in one year, a clear proof that farmers know that Potash Pays. They know that Potash gives good yields, good quality and resistance to plant diseases.

Many of the Fertilizer Manufacturers are willing to meet the farmer's wishes and sell him what he thinks he needs. These manufacturers are now willing to furnish as much Potash as they can secure. They offer goods with 5 per cent, and even in some cases 10 per cent. Potash, if the farmers insist on it.

Shipping conditions are improving, more Potash is coming forward, although the costs of production and transportation are higher. The higher price of fertilizers is not due wholly to the slightly higher cost of Potash. Much of the Potash that will be used in next spring's fertilizer had reached America before the war started.

There is no substitute for Potash.

We can no more return to the fertilizer of twenty years ago than we can return to the inefficient farm implements or unprofitable livestock of that period.

H. A. HUSTON.

Landscape Gardening a Specialty

Immense stock of
ORNAMENTAL SHRUBS, TREES AND PLANTS,
including
75 Native Californian Species.
also
FRUIT, NUT TREES, ETC.
Pedigreed French Prunes.

LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

California Native Plants

Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.

THEODORE PAYNE,
245 S. Main St. Los Angeles, Cal.

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. Mailed Free

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Morse's Seeds both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

IRRIGATION AND DRAINAGE.

A Siskiyou county irrigation project to reclaim 8000 acres is now under way.

Imperial Valley is seeking a Federal appropriation of $300,000 for a levee to prevent the overflow of the Colorado River next spring. There is a good chance for the appropriation to be allowed.

A Tulare Irrigation District is being pushed for the country about Lindsay. About 5000 acres have been signed up at 25 cents an acre for organization expenses. Some of the largest property holders are being signed; but it will require about 10,000 acres more before the district can be organized.

Another irrigation project in Butte county for rice is planned; 20,000 acres between Oroville and Biggs are involved. This calls to mind the fact mentioned in the Pacific Rural Press recently that better drainage is going to be absolutely necessary for the growing of rice within a very few years, because there is now no way of getting ahead of the water grass.

Farmers of Butte county are complaining that the Pacific Gas & Electric Co. is delaying construction of irrigation improvements, doing only enough work on their dam sites to hold their right thereto. This is delaying the development of the country between Paradise and Durham. Farmers want the companies to be compelled to furnish them water within a reasonable period.

Tehama county is all agog with the Iron Canyon Irrigation Project, by which 270,000 acres of land can be reclaimed. The cost of the dam and the reservoir system will be about seven and a quarter millions with one million added for canals. The slogan, "Irrigation first and navigation second," which seems to be the policy of the U. S. Department of the Interior, is causing great hopes for reclamation in Sacramento valley.

At the convention of the Irrigation Districts' Association of California a resolution was adopted favoring laws, which will include any irrigation district lands which are not available for agricultural purposes; but which lie within the districts' boundaries. This is brought up by the attempt of the Southern Pacific to avoid having its right of way taxed for the district. A legislative committee of one member from each district has been appointed to aid the Legislature in passing laws which will be satisfactory from the irrigators' standpoint.

MISCELLANEOUS.

The quality of 1914 honey has been good; but the war has prevented marketing a great deal of it.

Placer county is proceeding with the organization of local units for the new county farm bureau.

Bee diseases, which have been giving much trouble of recent years, have been less discouraging the past season.

A large tract of land in Alexander Valley, Sonoma county, is to be prepared for planting to cherries and prunes in small tracts.

The State Bee Keepers' Association held a convention at Los Angeles recently and elected Prof. Lynch of Modesto as president.

Over twelve carloads of celery a day have been leaving Antioch, mostly for the East. The cold weather that hurt orange sales helped celery.

Dynamiting incipient landslides is claimed likely to stop them, according to a report from a Stanislaus county irrigation engineer. It would be a great saving of expense if dynamite would do the work, even temporarily.

Sweet potatoes are better than artichokes or common potatoes for hogs and cattle is the conclusion of an agricultural college, which finds that the yield of tubers is much heavier, the nutritive value is much higher but not heavy in protein, and the vines make fine safe pasturage.

The Kings County Fair Association has a balance of $182 to its credit after paying its bills. This is the Fair of which Sec'y A. G. Robinson said that its ideal was to make the agriculture of the South San Joaquin Valley better and better because of the Fair. Gate receipts this year amounted to more than $250 more than last.

The fifth National Orange Show will be held in San Bernardino February 17 to 24. Butte and Santa Barbara counties did not participate last year, but will this time; and it is estimated that 5,000,000 oranges will be on exhibit besides other citrus fruits. Nothern California is at a disadvantage in this date, but last year some northern districts took many big prizes.

Every package of seed—one pound or more in weight—displayed for sale within the boundaries of Oregon must be labeled and plainly marked with the name of the seed contained, with its purity and germination percentage, and with a guarantee that no noxious weed seeds, such as dodder, Canada thistle, etc., are included, according to the new pure-seed law, which is to be enforced from now on.

The high prices which wheat and barley are now bringing and the prospects, on account of the European war, that foodstuffs will be in great demand next fall, is causing a large acreage to be seeded to grain in California this season. More wheat than usual will be seeded, though the fact that on the grain exchange at San Francisco, December, 1915, barley is now selling at $1.40 per cental will keep many growers of that cereal in line. The tonnage of barley raised in California during 1914 was about 825,000 tons, but not as heavy as was figured on early last season, but was nearly double that of 1913, which totaled about 400,000 tons.

COLD STORAGE FOR PARCELS POST.

To the Editor: Some time ago you called attention to the commendable efforts of the Postmaster General to induce farmers and consumers to utilize the parcels post in conveying agricultural products to the city consumer. I agree with what you say now, and what you said at the time the bill was passed, concerning the inadequacy of parcels post to meet the requirements of direct trade.

To meet the requirements, provision must be made for receiving, caring for and distributing to retail dealers or consumers in cities, in a systematic manner, all kinds of farm produce. The problem is to get the products of the farm to the consumer with the least labor required to insure the product reaching the consumer in satisfactory condition.

There would be required warehouses, cold storage plants, packing houses, and facilities for delivering goods in all towns and cities. At the stations, when produce is received for transportation, packing houses and depots for receiving and shipping every product offered without regard to quantity, must be provided.

If such outfit were operated by the municipality, or by the farmers, or the two jointly, provision could be made for collecting bills and paying farmers by the accounting department.

The operation of such system would not differ materially from that now in use by the milk and cream concerns, or the Petaluma egg producers in getting eggs into market, except in volume of produce handled.

A colony of gardeners, each with an acre or so of land, are operating twelve or fifteen miles from San Diego. They have arranged with a teamster to call each morning at the various "farms" and take to market whatever they have ready for sale.

This teamster takes the morning's output to San Diego where they have established a market. In this way they make a living from an acre or so of soil, whereas, if they were compelled to depend on the methods the mass of farmers rely on to get crops to market they would starve on five or ten acres. To my mind the greatest burden farmers now bear is due to the methods employed in distributing their produce.

W. O. RETHERFORD,
Oakley.

SPECIAL SALE of Farm Implements

Startling reductions in many lines. We are preparing to move from one of our warehouses into a new one and find hundreds of items that we wish to close out rather than move. Prices are sharply reduced for quick sales.

PLOWS, HARROWS, LAND ROLLERS, RIDGERS, DRILLS, TRANSPLANTERS, CULTIVATORS, MOWERS, RAKES, FEED CUTTERS, CREAM SEPARATORS, BARN EQUIPMENT, GAS ENGINES, SCRAPERS, VEHICLES, WAGONS, TRUCKS, GARDEN TOOLS, MILK CANS, PAILS, ETC.

We can only give you a rough idea of the principal items. Not all styles or sizes are included, but plenty for you to pick from. You can save money on almost everything you need—but remember, the quantities are limited. Make up a list of what you need and write or call and see us.

Please remember that we are not moving our office and salesrooms—merely one of our warehouses. You will still find us at the same old stand.

Newell-Mathews Company
Established 1886
Implements, Wagons, Dairy Supplies, Road & Grading Machinery.
200 NO. LOS ANGELES ST., LOS ANGELES.

California Vegetables
In Garden and Field
By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

Price $2.00 Postpaid Anywhere.

Pacific Rural Press
Publishers.
525 Market St., San Francisco

Macabee Gopher Trap

Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by
Z. A. MACABEE, Los Gatos, Cal.

NUT GROWING AUTHORITATIVE INFORMATION
Official Journal. Expert Writers. Illustrated. Only National Publication Exclusively on Nuts. Highly endorsed. Every copy bristling with NUT NEWS FROM ALL POINTS.
$1 25 YEAR. Copy 15c
AMERICAN NUT JOURNAL
ROCHESTER, NEW YORK

The Value of Good Calves.

[Written for PACIFIC RURAL PRESS.]

Most dairymen learn sooner or later that good cows are of more importance in successful dairying than any other one thing and it is upon this principle that the Kaiser brothers of Butte county have established themselves in a paying business after having started six years ago on a share basis with a very moderate amount of capital.

Their dairy, located a few miles from Biggs, is one of the oldest in that section, having been run as a whole milk proposition for a good many years, the product being delivered in Oroville.

For the first four years their work was on much the same order as may be seen on large numbers of dairies all over the State, where whole milk is sold, it having been the practice for years to purchase all cows from other dairymen, using scrub bulls for freshening purposes, and vealing the calves.

The one worthy thing about this plan was that a bunch of good cows were accumulated, many of which were purebred Holsteins whose former owners had neglected to register them.

As soon as possible after acquiring entire ownership of the herd, the present owners started to use a purebred Holstein bull, saving the heifers from the best cows and vealing the bulls and inferior heifers.

Believing that a good heifer calf is well worth taking care of, and especially during its early life, two gallons of whole milk is fed daily for the first two months, along with the best alfalfa hay that is raised on the ranch. Experience has shown that by giving them a good start in this manner, they have stronger constitutions and grow into larger framed and more productive cows.

An illustration of this was seen, when two skim milk calves were compared with the whole milk herd, for although they had all been on the same pasture after being changed from the milk diet, the whole milk calves were at least 100 pounds heavier and showed much better development.

These heifers are usually sufficiently large at 14 months of age to breed, and when coming fresh at a little over two years have almost invariably been found to be good producers.

In order to still further improve the quality of the future herd a registered bull has been purchased, which will be used on the best cows and heifers, all others being bred to the older bull till such time as they may be replaced with better producing young stock.

Being only renters the Kaisers have not been enabled to erect modern buildings or silos, and this has been somewhat of a handicap in their feeding operations.

These conditions have been largely overcome, however, by pasturing when practicable in the summer and by supplementing the alfalfa hay in the winter months with molasses meal and last winter this was further added too by using rice bran from the local mills.

When used alone the cows did not seem to relish the rice bran, but when fed 78 pounds of the bran with 100 pounds of the molasses meal to 65 cows, daily, the results were very satisfactory and it is the intention to again use the rice bran this winter as soon as the pasture is gone.

Some of Mr. Kaiser's Wide-awake Calves.

It is the belief of Messrs. Kaisers that the rice bran will greatly aid in balancing the alfalfa hay ration as it runs high in carbohydrates. During the coming year more definite data will be secured as the herd has been entered in the local cow testing association and in this way some accurate idea of its value as a feed for cows will be secured.

Instead of thinking as did the former owner that it does not pay to raise heifers on a ranch where whole milk is being sold, the Kaiser brothers believe that the whole secret of progressive dairying lies in one's ability to raise a calf that is a better producer than her mother, and with that aim in view hope to greatly increase their annual income in future years.

ARTICHOKES FOR HOGS.

To the Editor: I have raised a fine lot of Jerusalem artichokes, but so far have been unable to get any hogs, old or young, to touch them, though they taste very good to me. I have cut them up fine, soaked in molasses and mixed with middlings, oats and chopped alfalfa, but they carefully cull each piece out and refuse to eat them. Can you advise any method to get them started? Do you think it would be advisable to pen a bunch of 50-pound pigs with a trough full of the artichokes and feed them nothing else for a couple of days?—M. W., Eldorado county.

[We see no reason for your hogs refusing to eat the artichokes, unless it be that they are unaccustomed to them and prefer the generous offerings of other feeds. It is not generally necessary to dig them or cut them up for hogs, the common practice being to let the hogs do their own harvesting. And yet, as we have often previously stated, no one seems to stay with this feed long.

We should try the experiment of penning them up for a couple of days and feeding nothing else, as it is probable that when they once acquire a taste for them you will have no further trouble. In some sections of the country artichokes are grown extensively as a hog feed, and according to literature on the subject from those places, hogs eat of them more readily than is the case with any other feed.—Editors.]

[After receiving and answering the above communication our subscriber wrote us saying, "after mailing your letter a couple of days ago my shoats have taken to eating the artichokes in great shape. I raised at least a ton of tubers from 1-5 acre of ground without irrigation, three cultivations and one hundred pounds of seed tubers." We should like very much to know the results received from feeding these artichokes, particularly if you find it desirable to grow them after a longer experience.—Editor.]

Next year will see hordes of eastern breeders and farmers here looking over the State with an intent to locate. Courteous treatment extended by home breeders will have a big effect upon them and will aid in establishing a friendlier feeling toward the west.

NOTICE!

TO HORSE BREEDERS

The future of the horse-breeding business is very bright, but this is no reason for throwing prudence to the winds and paying prices for stallions, which are not only much higher than necessary, but in many cases so high that it is practically impossible for the investment to prove profitable, unless he is to be used on high-class purebred mares, and the horse is an extra good one.

It is the stallion buyers who are responsible for the high prices, for I venture to say that there are very few company horses sold in this State which could not be bought for half the money and often less, if the buyers went to the barn with the cash, and if your note is good to the salesman it is certainly good in your own bank.

It has always been my endeavor to import high-class stallions, and that I have succeeded is proved not only by my winnings in the show ring, but by the general satisfaction to purchasers.

I have never sold an unsound one or had one returned as a non-breeder. I have an assortment of high-class Shire Stallions on hand, including champions and first-prize winners.

They are for sale for cash at prices which are less than half of what others ask for horses of equal quality. My guarantee is absolutely good and I shall be here next year to stand behind it. I have also a few good young mares for sale at reasonable prices.

For further particulars address

HENRY WHEATLEY

SALVADOR STOCK FARM

NAPA

2-YR. OLD SHIRE STALLION FOR SALE

SEVERN DONALD 13957 by Severn Pilot 11587

DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399

This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1900. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.

For further particulars write

J. McCORMACK, Rio Vista, California

Oak Grove BERKSHIRES

Cholera Immune

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.

For Sale or Exchange,

One Black Percheron Stallion

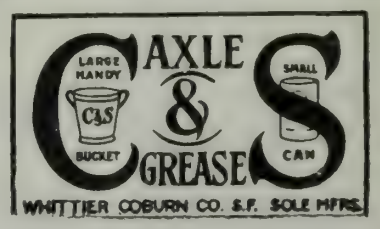
"GANTRAN"

8 years old—weight 1940.

Sound and sure.

LINDEN HORSE CO.

Linden, Calif.



TAMWORTHS

The Big Red Bacon and Block Hog.

Send for prices and circulars.

COTTLE & HOBSON CO.,

Amsterdam, Cal.

Veterinary Queries and Replies

[Answered by Dr. Robert Boyd, San Francisco Veterinary College.]

[In answering queries in this column it is essential that subscribers give all of the symptoms in each individual case, as otherwise it is impossible for the veterinarian to diagnose the case with any degree of accuracy, in which case great damage might result. It is also necessary that the subscriber's name be attached to communications and where an immediate reply is desired, a stamped envelope should accompany the query.—Editor.]

BULL WITH TUBERCULOSIS.

To the Editor: I have a bull that is out of condition, and while I have had two veterinarians examine him they did not do him much good, and he still coughs. For the past couple of days he has thrown blood out of his nose. He has been sick over two months, but seems to eat fairly good. Is there anything that can be done for the animal?—G. N. K., Phoenix, Arizona.

[Should say that this is a well-advanced case of tuberculosis and the animal will in all probability be dead by the time you read this. It seems extraordinary, however, that two veterinarians have treated him if he was suffering from tuberculosis. Of course an examination of the animal would be necessary to say if he were tubercular or not. An animal in the condition which you describe would probably not react to the tuberculin test (subcutaneous).]

MAY BE TUMOR.

To the Editor: I have a cow that freshened a week ago. There is a lump in her udder, close to a front teat, just inside of a line between front and back teats on the same side. This lump does not seem to increase in size, nor hinder the milk flow in any way. The cow, however, kicks and shows signs of discomfort when the teat is milked. She will allow the lump to be massaged without any signs of pain. This teat has been left for the calf most of the time. Please advise as to proper treatment.—E. D. C., Auburn.

[It would be impossible to say definitely what this trouble is without examining the animal. The lump may be a tumor and act mechanically to cause pain in milking, or the cow may have mastitis. If you have a graduate veterinarian in your locality I would advise calling him.]

EXAMINATION NECESSARY.

To the Editor: About a week ago one of my horses was a little lame on one of his hind feet. I secured some liniment and applied regularly. The lameness disappeared but a slight swelling remained around the lower joint or ankle. The swelling has worked up to the hock joint and the leg is tender to the touch and somewhat feverish. I have examined the foot but there is no soreness there. Can you tell me what is the matter?—W. H. R., Patterson.

[It would be impossible to say without seeing the animal. You had better call the nearest veterinarian.]

COW WITH GARGET.

To the Editor: My cow had garget, or at least I doctored her for that and dried her up. She is fresh now and I want to know if her milk is good and if the trouble will return again. What is good for garget?—J. G. R., Geyserville.

[Garget is mammitis. The milk is fit for use only after the animal has recovered. One attack renders an animal liable to another to a certain extent. It is impossible to give a general treatment, as cases vary considerably, but as a general rule a purge, such as from one to two pounds of epsom salts with one ounce of powdered ginger and bathing the udder once or twice daily and rubbing in a mild liniment such as belladonna liniment, will effect a cure. Care must be taken to keep the animal in comfortable quarters and allow plenty of dry bedding.]

IS ALFALFA SILAGE GOOD?

To the Editor: Please let me know if alfalfa silage has proven a success in your State.—W. E. L., Phoenix, Arizona.

[So far as we have ever heard we should say "yes" with emphasis. As a matter of fact there have been so many experiences on this subject related in these columns that we had supposed everyone must surely know by this time that there is no question about the value of alfalfa as a silage crop. To tell the truth, we have had so much to say about silage and silos that we sometimes wonder if we are not becoming silo cranks, but when we see the great number that have been built the past year and hear all of the good things that are said about them by users we feel justly compensated for our efforts. Experience here seems to show that their chief value, so far as alfalfa is concerned, lies in their ability to turn the first cutting, which is very often badly infested with fox tail and other objectionable weeds, into succulent feed, fully as nutritious as green pasture, which may be fed out gradually as the demands require. Then too, the dangers of bloating on pasture are entirely overcome, for when cows are fed silage they do not require pasture and silage does not bloat the stock. Where corn or any of the sorghums can be grown, it is probably best to silo the first crop of alfalfa and by the time the corn is ripe enough to silo, your first filling will have been fed out. The opinion is becoming more general, however, that even if corn cannot be grown, a silo will pay the alfalfa grower with stock, on account of the benefits above recited.—Editors.]

A HOG BREEDING CRATE.

To the Editor: I have a large Poland China boar which the sows cannot hold up. Will you please give me directions for making a breeding crate? — Subscriber, Durham.

[Make a crate 5½ or 6 feet in length, 2 feet 4 inches inside width and 3 feet high, out of 2x4 or other good strong lumber. Leave one end open and enclose the other end with a sliding gate. Lay a floor in the bottom with 1x10 boards. Nail 2x4 cleats on each side of the crate, from a point about where the sow's head comes in the front part of the crate to the floor of the crate at the other end. These cleats are for the boar's forward feet to rest upon and hold his weight off from the sow. Bore holes in the sides of the crate just above the point where the sow's hocks come, through which an adjustable rod may be run to keep the sow from backing out of the crate. In breeding the sow, back her into the front of the crate and close her in with the slip-gate. Drive the boar into the back end, which is always open.—Editors.]

THOROUGH POST-MORTEMS.

[Written for PACIFIC RURAL PRESS.]

We saw some condemned tuberculin-tested cows butchered and cut up. The demonstrator usually found tubercles in the first organs he opened. Sometimes these organs were healthy, but tubercles were found in other places.

One cow seemed not to be diseased, and it was only after careful search that tubercular tissue was found, and that not so foul as the usual case. This led to the explanation that the tuberculin test is no means of telling the severity of the infection. A cow in the first stages, having perhaps only one or two tubercles, is likely to react as strongly as one in advanced stages.

Thus it is that hasty post-mortems often fail to reveal the diseased parts, and the owner of the animal is naturally indignant. Nevertheless, when a cow reacts to the tuberculin test, there is tuberculosis in her, and while it may be dormant and continue so for years, it is likely to develop activity at any time; then the tubercles will burst and send their contents on a work of infection of the outside world, either via the excreta, the sputum, or the milk.

DISTEMPER CURE.

To the Editor: If the remedy for distemper as published in your issue of December 19, is added to by a teaspoonful of flour sulphur every three days, you will have a remedy that has never failed to save dogs in this vicinity.—G. W. Hopping, Kaweah, Tulare county.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the **Pacific Rural Press.** In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

FARM PRODUCE EGGS and POULTRY

The Farmers' Union Inc.

is now located at 1235-37 East Sixth St., Los Angeles, and respectfully solicit consignments of all kinds of farm produce, including eggs and poultry. We guarantee to get the highest market price and remit promptly to shippers. A trial shipment solicited. We work on a commission basis, stating to shippers the amounts we receive for produce. We will give you a square deal. Send on your produce. FARMERS' UNION, Inc., of Arroyo Grande, Cal.

C. A. Cheadle, Mgr., Los Angeles Branch,
1235-37 E. 6th St., Los Angeles.

PROFESSIONAL DIRECTORY

SYMMES, MEANS AND CHANDLER
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 Sutter St., San Francisco, Cal.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examinations, Agricultural Developments, Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS
Soil analyses for fertilizer requirements. Water analyses. Alkali determinations and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO.

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

St. Joseph's
Agricultural Institute
RUTHERFORD, NAPA CO., CALIF.
An Agricultural High School for boarding Students. A thorough training given in the theory and practice of diversified farming. The school is located on a thousand acre farm. The students assist in all the branches of work conducted on the farm, plowing, seeding, cultivating, orchard and vineyard work, dairying, hog raising, poultry raising, etc., thereby acquiring a practical knowledge of agriculture, which is of equal importance to the theory. The eighth grade is conducted as a preparatory class. The fee for board and tuition is very reasonable—Classes reopen on January 4th, 1915. For further information apply to the principal,
Bro. Thomas H. Claffy, S. M.

With the Live Stock Men

Export trade in horses is growing. Importations in horses are practically shut off.

There is every indication that the State will be scoured for suitable horses before the war is over.

Three horse sales in Illinois early in December, including 100 horses, averaged $531 per head for animals of all ages.

Shasta county cattle men are trying to have railway lands opened up for grazing purposes under the same terms as the National Forests.

It is reported from reliable sources that an Oakland horse firm is buying 1000 horses in the San Joaquin Valley at $125 to $200, for some of the European countries at war.

The secretary of the Percheron Society of America says that the demand for high class purebred draft horses is certain to exceed the supply for the next two years.

Approximately $8,000 in cash has already been offered as prizes for Percheron stallions at the Panama-Pacific Exposition. Judging of draft horses at the Exposition is tentatively set for the week following October 4.

N. S. Boone of the San Ramon Valley in Alameda county has recently bought from A. N. Easton of San Mateo county, Rampton President, a fine Shire Stallion. This sale is made largely on the showing which Rampton President put up at the Livermore Horse Show last summer.

A report from Stockton tells of a liveryman there who has been commissioned to buy 500 horses for the French government in that locality. French officials are there to inspect the horses and will buy as many more in Yolo county if they are available.

Receipts at the Portland Union Stock Yards for the last week of the year were 690 cattle, 2800 hogs, 1275 sheep. The well-finished cattle went up to $8. as the receipts were light on account of the holidays. Hog receipts were light also and sold at top prices of $7.30. Sheep were coming stronger than recently, but still below normal. Lambs brought $7.50; yearling wethers $6.50, and ewes $5.25.

DAIRY.

W. R. Belknap of Tulare county recently sold 22 grade Holsteins to E. L. Thompson of Los Angeles at $125 per head. Purebreds are increasing in Tulare.

Fresno county has recently seen several large sales of property to be developed for dairying purposes. A purchaser fom Nevada has taken 200 acres for $25,000; one from Arizona took 80 acres for $10,000, and one from San Diego took 80 acres for $12,000. Two of these will live on their own ranches.

The secretary of the Advanced Registry for Holsteins believes that Keystone Beauty Plum Johanna, No. 161646, has broken the record for fat production in the junior three-year class of the "eight months" division. She has produced in seven days 16¾ pounds of butter fat from 402 pounds of milk. She began this record 257 days from freshening.

J. W. Higdon and A. Whaley of Tulare county recently imported a carload of fancy Holsteins from Arizona at a cost of about $6,000. Part of the animals originally came from Nebraska and the rest from Wisconsin. Mr. Higdon is trying the experiment of keeping both Guernseys and Holsteins. He should be able to tell in due time which of the two pays him best.

We are in receipt of some beautifully colored photographs of Ayrshires from Willowmoor Farms in Washington State. One of the cows, Lily of Willowmoor, is now in her fifth milking period, and will finish with an official record for five years of about 80,000 pounds of milk, averaging about 4 per cent fat. The herd was started eleven years ago with four cows and a bull. It now numbers about 300 head, some additions having been made by importations, but mostly raised on the place.

MISCELLANEOUS.

The Shropshire Association's annual report for the year ending September 30, 1914, shows receipts and disbursements of over $10,500, leaving in the treasury over $5,000 with which they started the year.

To save cattle in the yards from getting tired of life, the University of Wisconsin is reported to have hung a 60-pound tree stump by a chain so the cattle may amuse themselves by bunting it. We presume the attend ants will have to learn agility when the cows get in practice.

All wool and wool skins in the United Kingdom and her colonies are put under embargo, to be used for and in Great Britain alone, all private contracts to the contrary notwithstanding. This has had a fine effect on the prices for American wool; and woolen manufacturers have been trying to get the Government to induce England to raise the embargo so prices of raw wool might be reduced.

We know a dairyman in Sonoma county who started a very few years ago with ethereal ideas of cleanliness and sanitation in production of milk. He didn't want to be responsible for any diseased babies. He still holds his ideals, but the outlook has been mighty blue, for folks that could get less clean milk cheaper, quite often took the less clean milk. This is the difficulty with certified dairies; so those who like babies and want to protect them and us from typhoid, etc., are agitating a stringent State law compelling the pasteurization of all market milk. There is lots more danger from milk than from water, because it is such good nourishment for bacteria that they multiply to uncombattable numbers in small pints of milk. Pasteurization properly done, does not injure the flavor of the milk appreciably, but it does kill the bugs. Then if the milk is handled in a sanitary way in clean vessels, there is no danger in using it even some days old.

Th Pacific International Stock Show was attended by about 40,000 visitors in spite of about two days of bad weather. Shorthorns, Angus, and Herefords were notable features of a fine show, while a pen of Rambouillet bucks engaged much attention. Besides the regularly entered swine, the best of all breeds which arrived for market purposes during the week were reserved for the show; and added an exceptional market fattening phase to the usual breeders' side of a swine show. The annual auction of champion fat stock commenced Wednesday morning. The grand champion steer was sold at $1.25 per pound to a farmer who thought he was buying the whole animal for $1.25. It was later sold to a packing company at 24 cents. The grand champion barrow went at 15 cents, and the grand champion wether at 10 cents. All of these were raised in Idaho. The grand champion car of steers sold at $10.20 per cwt. and the fat yearling at $10.50. The champion load of lambs brought $7.80.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old; also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—14 mules, from weanlings up. One mammoth Jack and some Shetland ponies. Zack Tompkins, Sunnyvale, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. K. W. Abbott, Milpitas, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, write E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

FOR SALE—Twenty-one Holstein Heifers just past two and half years old. Sixteen fresh and well broke. Five registered. Bull from world's record stock. Address Box 15, Vina, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

FOR SALE—40 head grade Holstein and Jersey heifers, from 6 mos. to two years old. J. S. Smith, P. O. Box 515, San Jose, Cal.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

FOR SALE—Registered Holstein Bull Calf, two months old from heavy producing cow. W. N. Totman, Emmaton, Cal.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland, Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. P. J. Glikerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

70 HEAD DUROCS REGISTERED—Must be sold immediately. Breed sows and gilts, fall pigs, both sexes, and a number of yearling service boars. We are closing out everything. If you want a bargain, drop us a line. All mature stock. Cholera immune. Lindquist Bros., Turlock, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Call Building, San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

PURE-BRED Duroc-Jersey Swine. Prize winners. Limited number only. $10 each F. O. B. Western Hog and Land Syndicate, 919 Hearst Bldg., San Francisco.

REGISTERED POLAND-CHINA HOGS. Limited number young stock from prize winners. Golden Gate Stock & Dairy Farm, R 1, Box 34, Galt, Cal.

BERKSHIRES REGISTERED—Young boars and bred sows and pigs of all ages. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

REGISTERED BERKSHIRES—Weanling board pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and uality. Herd bear won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED DUROC JERSEYS from Eastern stock. Sows and boars for January delivery. S. S. Southworth, Napa, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Allison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in state. $30 up. M. Bassett, Hanford.

28 HEAD registered O. I. C. boars and sows, 8 weeks old, $10 up. Enterprise Farms, Newark, Cal.

REGISTERED O. I. C. SWINE—Special sale of young sows. C. D. Conway, Lakeport, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera immune. W. D. Trewbitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W Bernstein, Hanford, Cal.

DUROCS from first prize winners State Fair. $15.00 up. Ed. E. Johnson, Turlock, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Palomas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

WANTED—Large type Poland China gilts or sows. Jack Cleary, Richfield, Cal.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. E. J. Miller, Llewellyn Ranch, Lathrop.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP

FRANK MEACHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

SORGHUM FOR HORSES.

Although there is no evidence that we may expect any scarcity of feed the coming year in California, it is always well to be prepared with reliable information about what to do in dry years like the ones we have at times experienced in the past, and especially is this true with livestock, whose feed requirements must be met in a dry year as well as a year of plenteous feed.

Apparently the Australian farmer finds himself in this same predicament this year judging by the following, taken from the Agricultural Gazette of New South Wales:

Owing to the poor growth of crops many farmers will find themselves hard pressed for feed for their horses during the coming planting season.

Short supplies of chaff will prevail on many farms, and as the price, if supplies have to be purchased, will be almost prohibitive, a curtailment of areas may occur through this cause.

Under the circumstances it is well worth while trying to find some substitute for the usual supplies of chaff.

Sorghum is such a crop, and now is the season to plant it. A few farmers have tried it in the past, and have found it excellent feed for working horses. The stems are fine, and can be easily cut with the mower or reaper and binder. Where a small amount of chaff is available the horses can be kept in good condition by giving them chaff for the midday meal and sorghum at night. They become very fond of the sorghum, as it contains large quantities of sugar, and will waste very little even if it is not chaffed.

The land should be worked up into a fairly good condition. On some of the wheat fields, where a failure has occurred, the cultivator will probably produce the necessary tilth, if not the plow should be used.

Sowing may be done with the wheat drill. The seed is fine and runs easily, therefore the wheat side should be used. It should be sown in rows about 3 feet apart, and to do this some of the tubes should be closed. About 4 or 5 pounds of seed per acre are required. It should be covered about 2 or 3 inches. After the plants have appeared and are well rooted, harrowing or cultivating will help to conserve moisture, and thus increase the yield.

Sorghums are very hardy, and once the plants are above the surface they will wait long periods for rain. The yield varies from 6 to 12 tons of green stuff per acre.

The crop has the advantage that it retains its sap and feeding qualities long after it has become frosted.

Farmers can therefore be heartily recommended to put in an area of this excellent crop in such a season as the present, and, with a fair rainfall, a profitable bulk of fodder is assured.

WOUND WASH FOR ANIMALS.

To disinfect and protect a wound on an animal from flies the Information Bureau, U. S. Department of Agriculture submits the following remedy and formula:

Oil of turpentine .....1 dram
Phenol .....1 dram
Cottonseed oil to make ....4 ounces

Mix and apply freely to wounds.

It is stated that this remedy is highly effective and is widely used. It is said to induce healthy granulation of wounds.

OLIVER CABANA, JR., IS NOW "HOLSTEIN KING."

Oliver Cabana, Jr., millionaire manufacturer and banker of Buffalo, N. Y., gained the sobriquet of the "Holstein King" this week, when he paid out $55,205 for sixteen head of Holstein cattle sold at public auction. He gave the highest price ever paid for a single head when at a public auction sale he bid $25,000 for a five-year-old bull.

Congressman Brownlow of Tennessee has a granddaughter, the delight of her parents. The other day she came to her grandfather with her face all smiles. "Grandpa," she said, "I saw something this morning running across the kitchen floor without any legs. What do you think it was?" Mr. Brownlow studied for a while, and gave it up. "What was it?" he asked. "Water," said the youngster, triumphantly.—St. Louis Post-Dispatch.

'A bird in the farmer's field is worth three in the hands of a hunter" is the new adage of The Liberty Bell Bird Club of The Farm Journal, which is trying to educate the farmers and fruit-growers of the country to protect the song and insectivorous birds now on their places and induce others to come and stay.

When shipping breeding hogs use crates made of fresh looking lumber and see that your name is placed in a conspicuous place. Many a traveler sees these crates on the depot platforms and oftentimes is a good prospect.

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only.
Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.

THE DE LAVAL LINE

Automatic Oiling DeLaval Cream Separators and Milk Clarifiers

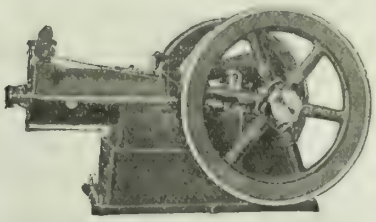
De Laval Separator.

DE LAVAL CREAM SEPARATORS.
Farm and Dairy sizes ranging from 135 lbs. to 1350 lbs. capacity. Hand power, Belt or Turbine driven.
Creamery and Factory sizes from 2000 lbs. to 6000 lbs. capacity. Both Belt and Turbine Driven.

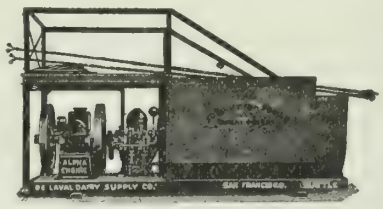
DE LAVAL MILK CLARIFIERS.
Farm, Dairy and small Milk Plant sizes from 100 lbs. to 2000 lbs. capacity. Hand power, Belt or Turbine driven.
Large Factory and Milk Plant sizes from 2000 lbs. to 12,000 lbs. capacity. Both Belt and Turbine driven.

De Laval Milk Clarifier.

Alpha Gasoline and Distillate Engines.


Self-Contained, Hopper-Cooled-Type Alpha Engine.

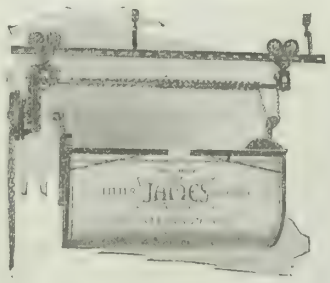
A Size and Type for your every requirement. Wherever continuous and heavy power is required.
ALPHA ENGINES ARE THE IDEAL POWER.
No Batteries.
No Coils.
No. Troubles.


Self-Contained, Closed-Jacket-Type Alpha Engine.

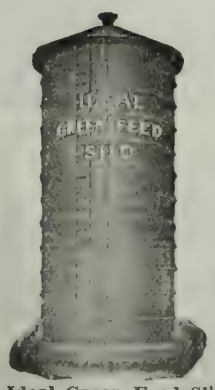
Gasoline Type in sizes from 2 H. P. to 28 H. P. For use of Kerosene or Low Grade Distillate in the Horizontal Cylinder Type, from 3 to 50 H. P. Vertical Multi-Cylinder Type from 35 to 100 H. P.

JAMES' SANITARY BARN EQUIPMENT.

JAMES ALL STEEL STALL. Complete with or without manger or manger divisions.
JAMES STEEL WOOD-LINED STANCHION, double chain hung with alignment device and door-knob type, cow-proof lock.
JAMES INDIVIDUAL SELF-CLEANING MANGERS and manger divisions.
JAMES TRIPLE CURVE STEEL PARTITION for both wood and cement floor.
JAMES ALL STEEL CALF PENS, COW PENS, BULL PENS, AND HORSE STALLS.
JAMES INDIVIDUAL WATERING BUCKETS.
JAMES ALL-STEEL ADJUSTABLE HOIST LITTER CARRIERS, milk can carriers, feed carriers and 3-wheel feed trucks.


James "Big Boy" Litter Carrier.

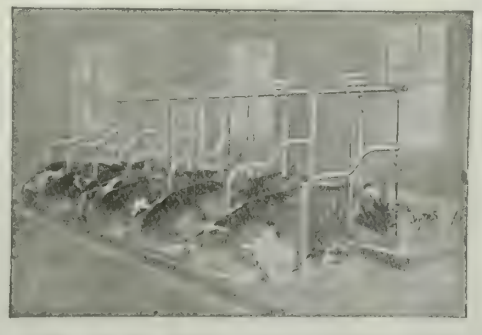
IDEAL GREEN FEED SILO


Ideal Green Feed Silo

OVER TWENTY YEARS' PRACTICAL EXPERIENCE IN SILO BUILDING enables us to furnish you a silo that will return to you as GOOD ENSILAGE every pound of good feed you put into it.

PROPER DESIGN — CAREFUL CONSTRUCTION — BEST MATERIAL — PERFECT RESULTS.
"THE DAIRYMAN'S GOLD MINE."

Sanitary Milk and Cream Coolers, Babcock Testers, Cattle Ear Labels, Viking Rotary Pumps, Centrifugal Pumps, Irrigation and Pumping Plant Equipment, Milk Pails, Milk Fever Outfits, Refrigeration Plants, Steam Boilers and Engines, Alpha Combination Power Spray Outfits.
Everything for the Dairy.


James' Steel Stall with Patent Manger and Adjustable Stanchion.

DE LAVAL DAIRY SUPPLY CO.,
San Francisco.
Please send full information regarding
.....
Name.....
Address.....

The Importance of Good Mares.

From present indications California horse breeders are soon to find themselves in a position directly opposite to the one which prevailed a year ago, namely, a big deficit in horse flesh rather than over-abundance, for while much secrecy is being maintained by buyers of army horses, information from authentic sources is to the effect that buyers for European powers have orders to buy suitable horses in any quantity and at prices which are so attractive, that farmers generally will likely sell.

If this demand continues for some time we will have what might rightly be termed "a horse house-cleaning year" and the State will be in better shape than ever to make a new start in horse breeding along lines more in keeping with present-day requirements both for city and farm uses.

In times past this re-establishing would have been done largely by men with long-standing experience and those having large acreages of cheap range lands, but at the present time, the high priced steer and the limited mountain range will force many experienced horse raisers out of the horse business and as a consequence we may expect the major portion of our future horse supply to come from the ordinary sized farm, where good mares will furnish motive power as well as colts.

As the quality of these mares will have much to do with the success attained, the following advice on the qualifications of good brood mares taken from the Agricultural Gazette of New South Wales should be of value and timely:

The mare should be roomy, staunch, of even temper, gentle disposition, with strong maternal instinct, and a reputation for being good in the collar and quick in moving. Sluggish mares transmit their objectionable habits.

In connection with freedom from hereditary disease or unsoundness, it may be specially emphasized that it is of great importance to the owner to have the mare examined by a qualified veterinary surgeon to determine whether or not either of these defects are present in any form. At the same time appearances often mislead the best judges, for splendid stock have been bred from mares showing no special fitness, though evidently possessed of a capacity for transmitting vigour and quality.

A brief inspection of the future mother should include a keen examination of the way she stands. Correct balance on the ground, standing, walking or trotting, with even movement, is essential, for balanced action is the source of a mare's ability to do a long day's work and to come home comparatively fresh, showing the minimum waste in power. Any tendency to awkward pace, or abnormal spreading of the feet inwards or outwards means unusual wear, and early suspension from work. The shoulders contribute in no small degree towards the perfection of balance, and enable the animal to walk and trot with level, active carriage, and game, even movement, and they should be fairly oblique and broad.

Symmetry, quality, stamina, stoutness are to be estimated, as well as character and staunchness. The short ribs and hips should not approach each other closely. Roominess is gained by broad and prominent pelvic bones, with width across the loins. The udder, or mammary glands, should be firm and well shaped, and should have clearly defined teats. Vigorous heart and lung action is evidenced in the angle and space of the girth, and size of the chest. The ribs should be well sprung, enclosing a capacious barrel.

The legs should be well moulded from the forearm and thighs downwards, terminating in sloping pasterns, and sound, round, wide feet. The knees should be broad and massive, and the hocks well placed, firm and clean.

The lean, fine head, soft but quick intelligent eye, with active ears, are indications of a good disposition.

Causes of Sterility.—Shy breeders among mares occasionally create some concern. It is claimed with some evidence to support the contention, that the higher the breed in the scale of purity, the more irregularly does the animal produce its young, and that mares leading a natural life are more certain foal-getters than those fed and housed under artificial conditions. Darwin points out that "any sort of change in the habits of life of an animal, provided it be great enough, tends in some way to affect the power of reproduction." In countries where housing and stall feeding are practised this may, to a certain extent, attain in horse-breeding, but in Australia, (California conditions are much the same.—Editors) owing to constant and abundant sunlight, even temperatures, excellent pasturage, and open spaces, we have advantages that induce sexual fertility, and lessen the percentage of barren mares.

It is also claimed that irregular breeding in mares runs in certain lines of blood. Marshall states:

"It is well known that the fertility of animals which are much inbred is often reduced, but it is by no means invariably the case. Thoroughbred horses are often inbred, and it is interesting to note that in one of the earlier reports of the Royal Commission on Horse Breeding in England, it is shown that no less than 40 per cent of the thoroughbred mares in the country fail to have foals each year. "This relatively large amount of sterility is perhaps due to a variety of causes, and not entirely owing to the results of inbreeding."

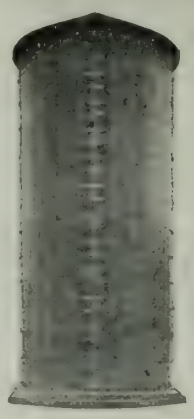
It is pointed out by Ewart, that mares abort most freely from the sixth to ninth week after conception, but it is most difficult to ascertain how many cases of failure to foal are due to this trouble.

In animals which, as a general rule, breed freely in a state of domestication or under confinement, it is probable that nutrition plays the chief part (though by no means the sole part) in regulating the capacity to produce offspring. That an insufficient or marked abnormal diet must affect sexual power is almost self evident. An excessive diet, tending towards producing a fatty condition, is likewise prejudicial to the proper discharge of the reproductive functions.

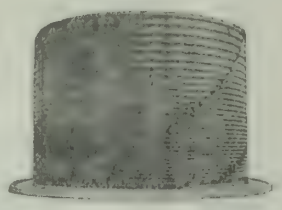
SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

Breed 30,000 Pound Production into Your Herd by Securing a

Grandson of Tilly Alcartra

The breaking of the world's milk record by this wonderful cow has put California upon the dairy map of the world in a way that will benefit every breeder having one of her grandsons as a herd sire. It is bound to bring to California much of the trade that has heretofore passed by our doors. Your best bet, Mr. Breeder, is to get this blood into your herd as soon as possible. Buy one of these bulls and share the increased benefits of high production.

We are the only ones that can furnish you sons of Prince Alcartra Korndyke, best-bred son of Tilly Alcartra. Write us or call and see our herd.

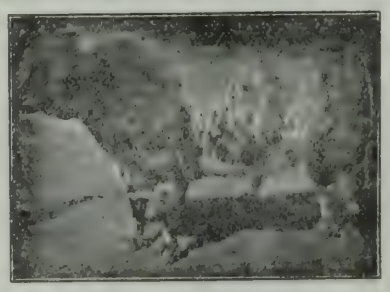
J. S. Gibson Co., Box 97 Williams, Cal.

"The name Gibson insures quality."

Hillcrest Stock Farm

Breeder of Shorthorn Cattle, French Merino and Shropshire Sheep.
DAVIS, CAL. T. S. GLIDE, Prop.

At 1914 State Fair our Shorthorns took first prize in every class we entered except two, and in these were beaten only by stock of our blood. We took all the herd prizes, first and second prizes in produce of cow nd first in get of sire.



KING LANCASTER, 3 times Grand Champion

Below is a list of our Grand Champion bulls for the last eleven years—a list that will stand for quite awhile:

1904—Hillcrest Hero
1905-1906—King Edward (Also Grand Champion World's Fair at Portland.)
1908—King of Greenwood
1909, 1910, 1911—King Lancaster
1912—Greenwood Knight
1913—Greenwood Knight
1914—Greenwood King

All except the first two of the list were bred by us. We have beaten a number of bulls that were bought in the East at prices ranging from $500 to $3000 and brought out here to beat us.

Range raised young bulls for sale, single or carload lots.

60 HEAD--- POLAND CHINA PIGS FOR SALE ---60 HEAD

Both Large and Medium Type

Ready for Delivery January 15. Ten weeks to three months old. Prices reasonable and will guarantee to please or refund your money.

W. A. YOUNG, LODI, CALIF.

Infectious Abortion of Cattle.

[Written for PACIFIC RURAL PRESS
By H. B. Wintringham, D. V. M., Petaluma.]

California's loss by infectious abortion, though not tabulated, probably exceeds that of any state in the Union.

Too often is the disease overlooked and the resulting trouble attributed to accident. Thus it is that instead of applying measures for stamping out the infection, it is permitted to gain a foothold in a clean herd.

The purpose of this article is not technical but to place before dairymen and cattle breeders a few simple facts which if followed will save dollars otherwise lost.

Our first and most important fact is that any cow which drops her calf prematurely should immediately be looked on with suspicion and isolated from the rest of the herd. That this is of primary importance has been proved to the writer on more than one occasion.

After abortion these rules should be strictly followed: The aborting cow should immediately receive a thorough irigation with a 1 per cent creolin solution slightly warmed. Do not stop with a douching of the vagina, but continue on into the uterus. The irrigation must be continued daily until the mouth of the uterus closes, as it will ordinarily do in a few days. The hind parts of the animal must be thoroughly washed with the same solution at the time of the irrigation. A hand pump with about six feet of half inch tubing is excellent for this treatment, or lacking the pump, a large funnel attached to one end of the hose and held slightly higher than the animal's back.

The dead foetus must be burned, together with the afterbirth. Do not move the foetus from where found, but burn on the spot. If moving is necessary, place it in a receptacle which has tight sides and bottom so that the accumulated liquid will not be spilled about.

All other cows in the herd should have their hind parts washed off at least once with the same solution. The same solution may be used to spray out the barn or sheds, paying particular attention to the aborting animal's stall and those immediately adjoining.

Particular attention should be given the herd bull. His sheath should, and must, be washed out before and after each act of copulation. For this, a 1 per cent creolin solution is excellent. Inject enough fluid to distend the sheath or foreskin and hold it for one minute. The bull is in many cases the actual carrier of the disease, the germs of which remain active for indefinite periods in his sheath.

All new animals brought into a herd should be quarantined. Cows and heifers, especially if with calf, until they have had normal births. Cows and heifers unbred until they have undergone irrigation for at least one or two weeks. Bulls until the sheath has had daily irrigations for one week.

Where herds are already badly infected, it is almost impossible to clean them up, but constant endeavor along the above lines has given good results and been known eventually to rid the herd of the disease. Constant and painstaking irrigation, sanitation, and cleanliness are the only means at our command at present to cope with abortion.

A new bacterin is in the course of being tested out of which the writer has great hopes, the idea being to vaccinate heifers previous to breeding against the disease. It will, however, be some time before definite results can be ascertained.

At present there are many so-called serums, bacterins, vaccines and other remedies on the market which, from a practical and financial standpoint, are worthless. Do not let misleading statements as to the potency of the above, induce you to try them, as they are more than worthless and often dangerous.

To make 1 per cent creolin solution go to your druggist and buy liquor Cresolis Compositus. Ten teaspoonfuls to the gallon of water will make a 1 per cent creolin solution. This is cheap and effective. Use plenty of it.

The owner or attendant coming in contact with infected animals must be sure to use disinfectants on himself and garments, as the disease is often carried in this way.

It is advisable in all instances where abortion has occurred to consult your veterinarian as there are many points he can clear up for you and be of great help. The day of the old horse doctor is past and the modern educated veterinarian has knowledge at his command that is worth paying for.

WHY NEVADA NEEDS LIVESTOCK.

That the alfalfa growers in the State of Nevada are realizing the importance of more livestock, due to the same reasons that have forced many California farmers into the stock business in recent years, is evident from the following communication which has just reached this office from L. A. Beckstead of Fallon, Nevada, in which he says: "While we are in the general merchandise business here, we have leveled about 45 acres of land on the project and take a great interest in farming and stock raising.

"We have about 35 head of dairy cows and horses besides hogs, chickens, etc. Just now the great and crying need of this project is more sheep and milk cows. Geo. Wingfield is helping to a great extent by bringing in dairy cows and allowing the purchasers to pay for them with half the cream checks, without limiting them to time. Had it not been for this scheme of his, many people would not have fared very well this winter, as there is practically no sale for hay, which we have in abundance, the price being about $4 a ton whenever one is lucky enough to sell any.

"However, just as soon as people of this project can stock their places up with enough stock to eat up the alfalfa raised, this will be one of the richest valleys in the world, as the great demand for cattle, hogs, sheep and butter will always insure markets for our products. There is no doubt that ultimately the majority of people here will go into stock raising and dairying for the reason that the quality of alfalfa raised here is not surpassed in any part of the United States. Our experience has shown that one ton raised here is equal to two tons raised in California in strength and nutrition.

"For instance, any man feeding his work horses nothing else but alfalfa in California would be considered "bug house," whereas here no man working horses will be found to be feeding anything else, or rather any other kind of hay. There is a whole lot more that might be said of this country, but this will do for this time."

PLOWS MILO STALKS UNDER.

A strange sight was seen not long ago in the Salt River Valley by Professor Stanley F. Morse, superintendent of the University of Arizona College of Agriculture. In a level field of 20 or 30 acres a man was seen industriously at work. He had finished perhaps one-third of the field, which was deeply and thoroughly plowed with scarcely a vestige of trash on the surface of the land. The remaining two-thirds of the field was covered with a heavy stand of milo maize stalks in which a bunch of cattle was still pasturing on the few remaining shreds of leaves.

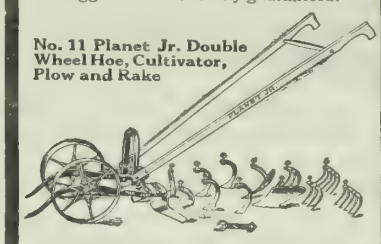
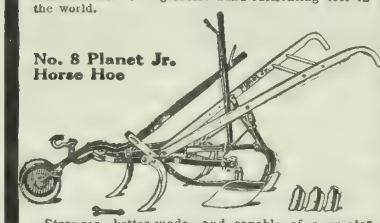
This rancher was plowing under the milo maize stalks, and no doubt his neighbors (self-confessed experts on farming) said that he was crazy. What was the use of going to the bother of plowing under all those stalks when they could be much more easily raked and burned, or perhaps even fed? Of course, the cattle had pastured off most of the digestible portions of the maize, and to be sure the soil did have a tendency to run together, did not scour well, and worked up into lumps, but adding the necessary organic matter to the soil in the shape of milo stalks was too much work. Notwithstanding all this, Prof. Morse, who has had a great deal of practical experience with refractory soils in the arid regions, believes that this farmer was doing just the right thing.

Arizona soils do not need commercial fertilizers, but they are hungry for humus or decayed vegetable matter, such as is furnished by manure, green crops, stalks, and stubble. Arizona farmers usually would do well to head their wheat and barley high and turn under the stubble, and cut up their corn, milo, and cotton stalks with a stalk-cutter and plow them under. Treat the soil right and it will reciprocate with good crops.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

RHOADES & RHOADES
EXPERT LIVE
STOCK AUCTIONEERS
Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Planet Jr.
Wheel Hoe: Horse Hoe
Planet Jrs. are the most economical farm and garden tools you can buy. They are made the best, last the longest, and give the biggest results. Fully guaranteed.
No. 11 Planet Jr. Double Wheel Hoe, Cultivator, Plow and Rake

A single and double wheel-hoe in one. The plows open furrows and cover them. The cultivator teeth work deep or shallow. The hoes are wonderful weed killers. The rakes do fine cultivation. Unbreakable steel frame. The greatest hand-cultivating tool in the world.
No. 8 Planet Jr. Horse Hoe

Stronger, better-made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel. Depth regulator and extra long frame make it run steady. Adjustable for both depth and width.
72-page Catalog (168 illustrations) free
Describes 55 tools including Seeders, Wheel Hoes, Harrows, Orchard and Beet-Cultivators. Write postal for it.
S L ALLEN & CO Box 1203F Phila Pa
We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast Cities.

RICE LANDS
FOR RENT
Any part of two Sections, rich, level land with flowing wells and pumping plants, good buildings, barns, etc., in Tulare County, between Pixley and Spa. Three miles from two railroads. Land has been plowed, fallowed, fertilized and harrowed, and is ready for planting. Rent reasonable and for term of years, if desired. Apply to
R. C. FAIRALL
PIXLEY,
Tulare County, California.

BRENTWOOD
Irrigated Farms
"BEST IN THE WEST"

IN EASTERN CONTRA COSTA COUNTY, East of Mt. Diablo.
63 Miles from San Francisco
Soil and Climate Unexcelled
Suitable for Alfalfa, Fruits, Nuts, Dairying, Poultry and Hogs
PRICE $300 AN ACRE
Including Water Right.
Write today for illustrated folder, map, etc.
BALFOUR-GUTHRIE & CO.
350 California St. San Francisco

STUMP PULLERS
CALIFORNIA STUMP PULLER COMPANY
704 Bryant St., San Francisco

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Poultry for Profit

[Written for PACIFIC RURAL PRESS
By Susan Swaysgood, Pomona, Cal.]

Raising Geese and Turkeys.—One of our subscribers in West Summerland, British Columbia, sends in an inquiry about geese, and as it will perhaps help others who are thinking about geese, I will answer at length.

The first question asked is: "Will geese do on alfalfa, without grain until time to fatten them in the fall?"

In answer to this question, I must say that they will, because grass is the principal food for geese. But in saying they will do, does not mean that they will do the best they are capable of doing. If there was a good pond where the geese could obtain plenty of insect life it would improve the chances of success, but our friend does not mention that matter.

The idea prevails that ducks and geese are vegetarians, but this is positively wrong; and they will not do well if deprived of animal food. With plenty of grass and a good pond with plenty of insect life in it, and one or two feeds of grain a day, geese would not only do, but they would do well.

If, however, there is no water with insect life, on the range, the animal food must be supplied in another form, preferably as beef scrap in mash. The mash should be composed of two parts bran, two parts corn meal, one part wheat middlings and five parts beef scrap. But in all cases, for ducks and geese to be kept on a paying basis they must be supplied with animal food in some form.

The next question is: "How many geese can be kept on an acre of alfalfa that can be irrigated two days a week, and perhaps some range given outside?"

This question is somewhat of a puzzler, not having had any actual experience with geese on acreage that was so restricted. However, at a guess, I should think not more than twenty breeders, and it is a question whether the acre would feed all the young, even with good irrigation, unless there was outside range part of the time. Young goslings eat a good deal of grass, and they prefer the grass to any other form of green feed, no matter what is served. This would be quite a venture, but if the geese for breeders can be had cheap, there is not much to lose any way, provided the person keeps up with their other work or business.

And, although this is not my business, properly speaking, I would advise anyone to go slow when undertaking anything new. If a man is at liberty and has the means, there is a lot of pleasure in experimenting; but if your bread and butter depends on it, let someone else do the experimenting and you gain by their experience.

Care of Goslings.—The young goslings will need protection from the sun, as they do not stand heat at all. For the first month they must be protected from the sun and from water to swim in, and if they are to be sold as green geese they must be kept from swimming altogether, or it will be almost impossible to get them fat enough for table. At ten to twelve weeks old the young goslings should be marketed; if they go beyond that stage it is necessary to keep them until they are fully matured.

The eggs must be hatched out either with hens, or by the geese themselves, and the goslings are the easiest things to raise by hand of all young bird life. The only thing is to keep them warm at night and keep them out of hot sun and water pools at all times. And while they will eat any kind of green feed, grass, nice, tender, green grass, is their delight. They can be raised in very close quarters, but do so much better on good range that it is a pity to confine them. If our subscriber could remove his old stock breeders after the young goslings get two weeks old he might raise one hundred young ones on the one acre, with a fair amount of mash feed.

Another question that comes this week is also of importance to others at this time of year; and though it is partially answered in last week's paper, I am going to answer it more fully.

"Will you please answer in your paper which is the best way to raise turkeys, let them run with old hens, or can they be raised by hand? How many hens to one Tom? Do ducks that are on a pond lay their eggs in the water if kept yarded till about nine o'clock?"—C. E. V.

In reply to your first question, it depends on how you are fixed for stray cats, hawks and other depredators of the feathered tribe. An old hen is a good protector against these things, and if she is kept strictly free from lice will be quite an improvement and much less trouble than hand raising the turks. The best way to handle a hen that is to run with turks is to remove her well away from the house and confine her for at least a week in a coop, roomy enough to be comfortable. Then when she gets used to the coop, turn her loose for a few hours the first day or two, after which it will be safe to turn her loose all day; and the young turks will lead her, instead of her leading them.

How many hens? I don't think anybody knows really. A good healthy Tom will serve all the hens in a neighborhood. A neighbor of mine used to hire his Tom out at so much a week, after the season had well opened, and I never heard any complaints of infertile eggs. So if you have a nice flock, it might be better to keep just one Tom, as there would be less danger of fighting.

Ducks, as a rule, lay their eggs early in a morning, but whether they would all lay before nine o'clock is a question to be tried out. The reason ducks lay their eggs in water is because it is so much easier, and also more natural for them to do so. I once had a duck that carried her egg so long that it was absolutely rotten when it was laid; so to prevent another such occurrence, I turned her loose and never got another egg unless I waded in the water after it. I should prefer to keep them in until ten o'clock, when I think it is safe to say all the eggs would be deposited in the buildings.

Just Colds.—A subscriber writes: "My pullets seem to have some disease of the eyes, as they are frothy, and in some cases I can see a slight swelling. Please tell me what it is and the remedy."—W. G. D.

These pullets have contracted a cold, either from a draught or cold, wet ground. If you can, catch those that have the swelling and bathe the eyes in some simple disinfectant like creolin, a teaspoonful to a quart of warm water. Then give the whole flock a dose of Epsom salts and put a little blue-stone in the drinking water. California Poultry Practice will save you money because it tells you just what to do and you do not have to wait. With sick animals or chickens, especially chickens, every minute is precious, because a chicken's life is not very long as a rule and they do not stand sickness very well. I am perfectly willing to give you the answer to any of your troubles, but it is a loss to have to wait so long. The printer must have the copy over a week before the paper is issued, so you see how it is that your questions are not always to hand promptly and you are disappointed. One lady writes: "I shall watch the paper and expect my question answered in the first week's issue." Now I had just sent in my copy a day or so before, and it was not possible to get the answer to her without writing a letter. This I cannot do unless in very urgent cases and then a self-addressed and stamped envelope must accompany the letter.

I am obliged to tell you these things once in a while because the

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

TO THE POULTRY FARMER—We now have under construction a modern Hatchery, and are booking orders for BABY CHICKS from our heavy laying strains of S. C. White Leghorns and White Plymouth Rocks. We solicit your order for 1915 delivery, and know that you will be well pleased with the high quality of our stock. Write for prices on Sept. and Oct. hatched pullets, and year-old hens for breeders. Hopland Stock Farm, Hopland.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. B. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $16.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336 C. Phone S. J. 1889.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

ORDER NOW—Thoroughbred Bronze Turkeys from largest Turkey Ranch in Stanislaus county. Large Spring gobblers and hens for breeding stock. Address, Crow's Landing Turkey Ranch, Crow's Landing, Cal. Box 227.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 373 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns. Wychoff strain. Also S. C. Brown Leghorns. Route 2 Box 1416, Sacramento, Cal

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

BLACK MINORCAS!—The hen that lays the big white eggs and lots of them. Baby chicks, January prices, 14c, from heavy-laying vigorous stock—the kind you want to keep. Write for circular and delivered prices on any quantity. Hatching Eggs, $6 per hundred. Roeden Poultry Ranch, Campbell, Calif.

WHITE ROCK BABY CHICKS.—Winnings at Modesto, 65 White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper, Ceres, Cal.

MAMMOTH BRONZE TURKEYS—Strong, vigorous, well-marked Toms and Hens from the best blood of prize-winning and utility stock. Prices reasonable. Geo. A. Smith, Corcoran, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Moe, St. Helena, Cal.

HART'S BRONZE TURKEYS. Stock and Eggs. Eggs by setting or hundred. Limited number from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed Hart)

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

SILVER SPANGLED HAMBURGS, Silver Laced Wyandotte, White Wyandotte and Light Brahma cockerels. Beautiful individuals. Tribble Nurseries, Elk Grove, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

S. C. RHODE ISLAND RED Eggs. 85 per cent fertility guaranteed. Also prize-winning cockerels. Book orders now. B. C. Quessenberry, Lodi, Cal.

BUFF ORPINGTON cockerels, pullets. Purebred. Money back if not O. K. Customer writes: "Best I ever saw." W. D. Wasson, Mountain View.

BLUE RIBBON White Wyandottes. First prize winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enoch Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

DAY-OLD CHICKS—WHITE LEGHORNS. Good stock. Selected for seven years. Circular free. H. A. Schlotthauer, Exeter, Cal.

TOULOUSE GEESE—direct from Philadelphia. Win everywhere. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View, Cal.

RHODE ISLAND REDS—Winners at leading California shows. Hatching eggs. Fine cockerels and pullets for sale. Wm. Larm,, 746 Lincoln Ave., Alameda, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS—Breeding and foundation stock eggs for hatching. Rancho Del Martino, Mrs. E. B. Martin, Downey, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W., Stawetski, San Jose, Cal., R. 2.

DAY-OLD CHICKS—Hoganizing Egg Machines. We are booking orders for spring delivery. H. & F., Mortensen, Suisun, Cal.

INCUBATOR CHICKS—White Rocks and White Leghorns. High-class stock. Send for booklet of prices. Mahajo Farm, Box 597, Sacramento, Calif.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BARRED ROCKS—Prize winners stock and eggs. W. L. Kennedy, Fowler, Cal.

FOR SALE—1-year-old Buff Leghorn cockereds. Prime stock. Selected. P. R., care Pacific Rural Press.

Press family is increasing all the time and the new members have to be initiated. Old members know. So if you write for advice, ask questions in as brief a manner as is consistent, and don't expect a long letter with all the family history. I have no time to gossip, and less inclination. Time is money, and if I tell you I don't want money you would be perfectly justified in calling me a fibber. Sure I want money; all I can use anyway.

FEDERATED POULTRY ASSOCIATION ENTHUSIASTICALLY ENDORSED.

E. J. Talbott, secretary of the Federated Poultry Association, reports that thus far only two unfavorable answers have been received in response to the following open letter recently mailed to every available address of associations and co-operative clubs, as well as numerous firms and individuals directly interested in poultry matters:

"To All Poultry Organizations in the State, Greeting:

"The Federated Poultry Association has been organized to consolidate and unify the poultry interests of the State so that the individual producers may co-operate and advance their interests. That this is imperative, everyone can realize. The poultry production of California amounts to about $18,000,000 a year; the producers are scattered all over the State acting without any unity whatever; no direct aid nor fostering consideration is accorded to the industry by the State; the market is being fast overrun by Chinese eggs and eastern poultry; poultry shows are poorly supported and since poultry is raised and distributed to the consumer without proper system or governmental supervision, the loss to both the producer and consumer is enormous.

"Some of the work this Federation aims to accomplish is securing necessary legislation in direct aid of the poultry industry, and especially a State Commissioner of Poultry; preventure of the passage of all legislation injurious to the industry and its patrons—the consumers; organizing a system of production and distribution that is sanitary and genuinely economical and that will benefit both the producer and consumer; dissemination of lists of certified poultry breeders so as to promote the production and sale of vigorous, healthy, and well bred stock, educating the public to demand better poultry and eggs, and the producer, how to improve his output.

"At the present time the Federation consists of a few individuals who, prompted by an earnest desire to make this organization at once the direct representative of every section, have included in its membership the President and Secretary (subject to their willingness to act) of every association of poultrymen and women of California. Its by-laws and completed organization will be left entirely in the hands of the poultry people of the State. Please send your advice and suggestions as to the permanent organization, plans and policy of the Federation.

"Your first important move—and it is imperative—will you help the Federation to secure the appointment of a Commissioner of Poultry? The Legislature meets next month. Write at once telling us if you and your association will give your moral support in this matter. This is your own organization, so get behind it, boost it and help run it. How many members have you?

"Very truly yours,
"FEDERATED POULTRY ASSOCIATION OF CALIFORNIA."

The poultry public should understand that this association aims to be thoroughly democratic in its own work and no restriction is placed on membership beyond commercial respectability. This is intended to be the one society for the benefit of every man, woman and child who depends in any way on poultry culture for revenue or pleasure and this, no doubt, is the reason for its enthusiastic reception by the people.

BAD EGG TRAFFIC.

There is a country-wide disposition on the part of State governments to co-operate with the Federal authorities to break up the traffic in eggs and poultry unfit for food.

The following extracts from The Poultry Keeper for Dec., 1914, demonstrate that Illinois is certainly on the job:

"Federal, state and city authorities are now actively co-operating in Illinois to put an end to the illegal traffic in rotten eggs.

"In the past, the delay necessary to secure authorization from Washington to make the seizures has proved a serious handicap in breaking up the traffic, but with the co-operation of the state authorities, however, this delay is now largely obviated. Under the detention section of the new state law governing this matter, state inspectors are able to hold suspicious shipments for examination and further investigation. Shipments of bad eggs are also being reported to the authorities in Chicago by Federal, state and city inspectors in other states, in order that these eggs may be traced to their ultimate destination. That this can be done has already been demonstrated in Trenton, N. J., where 11 indictments have been found on the charge of conspiracy in connection with this business. All of the indicted men are now awaiting trial."

This is another illustration of the need of the appointment of a California Commissioner of Poultry, which is now vigorously advocated by our poultry producers in various parts of the state.

SELLING GOOSE FEATHERS.

To the Editor: As one can find out most everything in your valuable paper, I too, come to ask a question. I have some A1 goose feathers which I should like to sell, but can find no market for them. Can you tell me where I can dispose of them?—M. M. H., Tranquillity.

[The Sunset Feather Co. and the Crescent Feather Co., of this city, buy feathers. The former company pays 27 cents per pound for goose feathers which must, at that price, be white, clean, dry, and unmixed with hen feathers, which sell at 4 cents, but are worth a good bit less than nothing when mixed with goose feathers. If you have a large quantity, you will save freight by compressing them.—Editors.]

40-ACRE EQUIPPED
FARMS

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

FISH AND GAME EDUCATION.

The California Fish and Game Commission, believing that education as to the necessity and value of game protection and preservation is a more efficient means of conserving the State's game than police patrol, has inaugurated a bureau of research and publicity. Dr. Harold C. Bryant of the University of California has been placed in charge of the new work. The function of this bureau will be to find ways and means of protecting and preserving foreign and domestic game birds within the State and to dispense information relative to game by means of correspondence, public illustrated lectures, and by the issuance of bulletins dealing with the status of game. A study will also be made of the habitats, habits and breeding seasons of the different game birds and mammals of the State so that a basis for sane game laws may be afforded.

Laws and police measures, though necessary, are not so effective for the preservation of game as an enlightened public sentiment. This new move of the Commission will hasten the day when a large force of wardens, making hundreds of arrests yearly, will be unnecessary.

BIG WASTE OF EGGS.

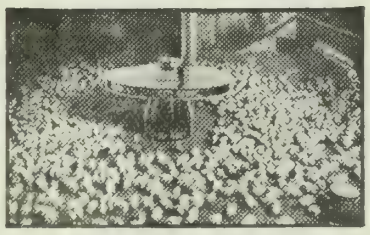
Between the hen and the consumer there is an estimated waste in deterioration, spoilage and breakage of eggs of $200,000,000 annually in this country, according to William Mann, attorney for the New York Central Railroad Company, who testified recently at the inquiry into the butter and egg business of the State by the Attorney-General's office of New York State. Mann placed the value of the annual egg crop which reaches the consumers at $500,000,000.

RURAL NOISES.

Suburban Resident—It's simply fine to wake up in the morning and hear the leaves whispering outside your window.

City Man—It's all right to hear the leaves whisper, but I never could stand hearing the grass mown! —Tit-Bits.

"I wish I were the enemy," wailed Bridget, aged eight, who had walked from Kemp Town to Hove. "Why, dear?" "Then I'd be driven back," was the irresistible answer.—Truth.



The Fresh Air Brooder Stove

Our 1915 model is now out with splendid improvements and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it. It's free to you.

J. E. KRESKY
PETALUMA, CAL.

GET THE BEST
For Your Baby Chicks.
Coulson's Poultry Food
SPECIAL CHICK FOOD.
Write for Particulars to
COULSON CO., Petaluma, Cal.

VERMIN PROOF
POULTRY HOUSES

All Kinds and Sizes.
Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house. Write for descriptive catalog.
ROGERS MFG. CO.
Williams, Calif.

FREE BOOK
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
F. F. SMITH & CO.,
1006 J St., Sacramento.

The Home Circle

THE GARDENER.

By Richard Warner Borst.

A stranger wandering through a garden gate
Who finds the gravel swept, the hedges gay,
And limpid moisture lying on the leaves,
May say, "The gardener has gone this way."

Aye, such am I, who find all things are well;
My hours of grief and joy, both foe and friend;
For this I know, in all my daily care,
My Gardener goes before,—around the bend!

THE KNITTING CONTEST.

Trot had begged for a story about their Picture Auntie, as the children called her.

'A long while ago, before your Aunt Barbara became an artist, the family lived in Carlsruhe," said Grandma, in response.

"Where's that?" demanded Fred.

"In Germany, of course," Peggy informed him, loftily.

"Yes," Grandma said— "And, Barbara used to go to a German school, and talked Geman just as the other children there, and was a good scholar I believe—besides being a dear, unselfish child."

"Didn't you know her, Grandma?" asked Trot.

"Not for years after, dear. Barbara wasn't my little girl, you see. She belonged to your other grandmother and her name was Barbara Harvey. When the family returned to Canada her brother Bobbie became acquainted with your mother and married her,—and then of course I got to know the Picture Auntie very well.

This story was told me by your Grandmother Harvey and as I remember every word of it I will tell it just as if I had been there when it happened.

Barbara had a little German friend named Bertha von Werth. Her mother was a Baroness who lived next door to the house your grandparents had. It was a handsome Villa with a beautiful garden, for the von Werths were rich people, and as, Bertha was an only child, she was a good deal spoilt. But she was pretty and lively and fond of Barbara, who had no other friend in Carlsruhe.

It was in the early Spring. The two little girls were playing in the villa garden with their grace hoops, —a pretty game which you children have never seen because it went out of fashion before you were born.

"Leave your hoops, children," called the Baroness from the Salon window,—"and come here!"

"I am going to offer a prize," she said when the two little girls were standing before her,—" a prize for the best and quickest knitter. My darling Bertha and her little friend Barbara are to try for a prize of twenty marks,—a beautiful gold piece, which will go to the little girl who knits a sock in one day. It must be done before eight o'clock tomorrow night—"

"But what if we both finish before eight?" demanded Bertha.

"The one to finish first wins the prize," said the Baroness. I will begin the two socks tonight,—the same yarn, the same needles, the same number of stitches. Not a stitch to be knitted by either of you tonight,—but get up with the little birds tomorrow, children, and make a good start."

"Pouf! I can knit much better than Barbara!" cried Bertha. "The prize is as good as mine already," she said boastfully.

For a Canadian girl twelve years old, Barbara was a good little knitter. But Bertha being a German had the skill of scores of German grandmothers in her fingers. She was quick and clever when she chose to work, but she was lazy too,—and had never been known to finish anything she had begun. It was in the hope of correcting this fault that the Baroness had offered the knitting prize.

Barbara went home full of excitement. She told her mother all about the contest and begged Minna, the maid of all work, to wake her at five next morning. It was the Easter holidays and there were no lessons,—just one hour's piano practice each day,—and Barbara thought that with a whole day before her she could perhaps beat Bertha by dint of perseverance."

"Just like the hare and the tortoise,—" put in Fred.

"This poor tortoise had a hard time of it, as you will hear," said Grandma.

"To begin with, your Grandmother Harvey, who was all interest and sympathy when Barbara told her about the knitting contest, promptly forgot all about it, and it never came into her mind again until late the next afternoon,—she being the most absent-minded woman in the world.

Minna, who was good-natured, but stupid, also forgot to waken Barbara next morning; so she slept soundly till 7 o'clock and lost two hours of the lovely spring day. However she consoled herself with the thought that Bertha would not be up before eight at the earliest and she determined to set to work the instant breakfast was over.

With her knitting in her hand she was slipping out of the house, on her way to a nook she knew of in the garden, when Bobbie, her little brother, intercepted her.

"Please sew this button on, Barbara, Mother's too busy, and I'm in a hurry to get off with Karl."

"Only five minutes," thought good-natured Barbara; "that won't matter." So she put the button on Bobbie's coat and then helped him find his fishing rod, which took longer than she expected.

Once more she took up the knitting needles when she heard father calling her. He had mislaid yesterday's paper and needed it for something. Barbara was such a good seeker, he said, and would she please look for it. Of course she did that without grumbling, too—she was devoted to her father.

Then mother called to her;

"Before you do your practice, Babs, I want you to go to Schmidt's for a pound of coffee."

"Oh, mother, can't Minna go? And please, please let me off my practice today," Barbara pleaded, dismay in her voice.

"Minna has other things to do; besides, the walk will be a good thing for you this lovely day," said mother. "As for the practice, Fraulein said one hour was far too little, you know; and you promised not to miss once——"

"I'll practice two hours on Monday," begged Barbara.

But Grandmother Harvey, who, as I told you, had forgotten all about the knitting, would not hear of that.

The coffee was purchased, and one strict hour was spent at the piano, while Barbara watched the hands creep round to ten with tearful eyes.

At last she found herself really started on the sock. How hard she tried to make up for the lost time! But at first her fingers seemed to be all thumbs, and she made slow work of it. Then came the lunch bell. Barbara took no notice of the summons till Bobbie was sent to fetch her, and she had to go. She swallowed only a few mouthfuls of soup; then begged to be excused.

Her mother was quite worried about her. "I hope the child isn't sickening for anything," she said to Grandfather Harvey. "She is certainly not herself."

But if she could have seen the child running down the garden path like a deer she would have felt relieved.

After that came two hours of steady knitting. The little heel was almost turned—she knew how to do it, for the Baroness had written exact directions for the girls to follow.

Then she heard her mother's voice calling in the garden:

"Barbara! Barbara!"

She sighed and said to herself: "How I wish it wasn't wrong to hide and pretend not to hear when mother calls!" and she went slowly back to the house after putting her knitting in a safe place in a tree. Her mother told her in a hurried whisper that there were visitors in the drawing room and she was wanted to help Minna with the afternoon tea.

Barbara made a great effort and managed to say, "Yes, mother," quite cheerfully.

She cut thin bread and butter and arranged the tray and told Minna just what to do—and all the time her heart was bursting with impatience.

It was done at last, but before she was half way down the path Mother appeared again, this time leading a small child by each hand.

"Barbara, come back! Amuse these children for me, like a good child, so that we can have our tea in comfort."

Barbara decided to tell the little boys stories while she went on with her knitting. But this did not suit the two lively youngsters, who were aged three and four, respectively. Before she had well started one of them grabbed the needles, the other the sock; they pulled and tugged, and in a few seconds every stitch was off and a long piece unravelled.

"I hope she slapped them!" exclaimed Peggy, indignantly.

"She burst out crying," said Grandma, "which was a very unusual thing for Barbara. The children were so frightened when they saw what they had done that they ran away and left her in peace to pick up her stitches and begin over again.

Patiently she worked for an hour or more to undo the children's mischief, and at last she was just as far on as she had been before. But it was then late in the afternoon, and she realized sadly that there was little chance of finishing by eight.

Then suddenly she heard the swing creaking on the other side of the hedge, and a moment later Bertha's head flew over the top as she swung in the air.

"Good evening, Barbara, how goes the knitting?" she called out.

"Slowly," Barbara replied, with an attempt at a smile.

"Ah, did I not tell you I would win? It is half-past five, and I have just finished. My mother is so pleased she has promised me a new spring toilette and a hat all covered with roses, as well as the gold piece."

Barbara went on knitting mechanically, though all chance of the prize was gone. Looking up, she saw her mother coming towards her.

One of Our Houses.

MAKE THE TRIP In Less Time
BETWEEN
Sacramento
AND
Oakland-San Francisco
FAST ELECTRIC TRAINS
Clean—Comfortable—Convenient
Baggage carried on all trains
Trains arrive and depart from Key Route Ferry.
SAN FRANCISCO, OAKLAND, ANTIOCH & EASTERN RY.

Bertha saw her, too, and slipping through a gate in the hedge she ran to meet her.

"Congratulate me, dear 'Granidge Frau,'" she said. "I have won the prize of twenty marks. Barbara can surpass me at school, but this time it is I who am victorious."

Then, all in a flash, your grandmother remembered the knitting contest and all the day's happenings.

"I congratulate you heartily, Bertha," she said. "You are a quick clever knitter, and I'm sure you deserve a prize. But my little girl has won something better than a gold piece," she went on, turning to Barbara, who was sitting on the garden bench still knitting. "All day long she has patiently endured interruptions and unselfishly waited on others. Father and mother, Bobbie and Minna—she has helped us all without grumbling or complaining, and she has the loving affection of the whole household for her prize."

Barbara, who had never stopped knitting, though her eyes were swimming in tears, now folded up her work at last and looked up, smiling. She had no more regrets, and was satisfied with her reward."

"Was the sock ever finished?" asked Peggy as Grandma paused.

"Never," said Grandma; "I saw it years afterwards put away in your Picture Auntie's box—with the heel just turned and the needles rusty."

HOUSEHOLD RECIPES.

To Bake Celery.—Parboil the stalks and cut them up fine. Put in a buttered baking dish and for two roots of celery allow a pint of cream sauce thickened with one level tablespoonful of butter and one of flour rubbed together and beaten smooth with the yolks of two small eggs. Cover with crumbs and grated cheese and brown in quick oven. A cup of stewing oysters added to the celery and sauce when mixed will give a delicate luncheon or supper dish.

Southern Rice.—In Virginia and far Southern states rice is used instead of Irish potatoes, and as a vegetable is particularly nice. To one quart of rapidly boiling water put one cupful of washed rice. Boil rapidly until done, as that makes it fluffy. Drain. Put in a bowl two eggs, beat well with an eggbeater, add salt, pepper, and a tablespoonful of butter, one pint of milk. Pour over the rice, heat up, and serve.

Curing Hams.—A reliable recipe for putting up hams is as follows: Rub the hams with dry salt and drain for twenty-four hours. Mix 4 quarts of salt; 3 pounds of brown sugar; 1 pound of saltpetre; 4 ounces of salprunella, and 4 ounces of bruised juniper berries together, and boil in 6 quarts of water. Cool and skim the brine; then take the hams from the salt and wipe dry. Pour the cold pickle over them and rub well into the meat. There should be enough brine to cover the meat. Turn the hams every second day for three weeks, after which take out, wipe dry and rub a mixture of pepper, salt and brine thoroughly into the meat. Paint with liquid extract of smoke, or smoke them in the usual way. Hams shrink about 10 per cent. in weight in smoking, while pickled or salted hams gain about 10 per cent.

Spiced Cranberries.—Three and one-half pounds of brown sugar, two cups of vinegar, one tablespoon of allspice, three-inch sticks of cinnamon, one teaspoon of cloves and three quarts of cranberries. Put the allspice and cloves (both whole) and the cinnamon into a square of cheese cloth and tie them up. Place in a preserving kettle with all of the other ingredients. Let the whole simmer very gently for one and one-half hours. Turn into a stone jar, or, if preferred, into small jelly glasses, and cover closely. The spices can be removed after the cooking is completed.

Apple and Raisin Pie.—Chop the apples fine and nearly fill the crust. Dot over with small bits of butter, about a tablespoon to a pie, and cover, with brown sugar. Then add one-half a cup of raisins chopped rather fine and a light sprinkling of flour. Put on the top crust and bake slowly till a delicate brown.

Baked Apples with Nuts.—Peel and core the apples without cutting them in halves. Fill the cavity with sugar and in the top of each put a lump of butter the size of a hulled hickory nut. Put the apples in the oven and in a short time the sugar will sink down. Fill the cavities with hickory nut meats and continue baking till done. Walnut meats may be used if liked.

Cranberry Pie.—One quart of cranberries, two cups of sugar, one pint of water and one-half cup of sifted flour. Stew cranberries in the water till tender; while warm stir in the sugar and flour. Line deep tins with paste and pour in the berries. Lay narrow strips of paste crisscross on the top and bake; or sprinkle sugar on the bottom of a pie plate, put thick layer of fresh cranberries, a little flour, a small piece of butter and a spoonful of water, then cover with a crust.

Shrimp Wiggle.—The first proceding for the tasty wiggle is a sauce made of four tablespoonfuls of butter melted, combined with three of the same measure of flour, half a teaspoon of salt, one-eighth the same of pepper. On this pour gradually three-fourths pint of milk. When the sauce has thickened turn in a cup of shrimps broken into pieces; also cup of peas, cold boiled or canned, the latter drained of their liquor and rinsed.

Pumpkin Waffles.—Canned pumpkin is so delicious that I am going to ask the readers to resort to its use and try my delicious recipe for pumpkin waffles, made this way: Take one-half pint of finely mashed, seasoned and well-drained pumpkin, and add one beaten egg, one-half pint of warm cream, one-half of a yeast cake dissolved in one gill of lukewarm water, two tablespoonfuls of melted butter and one pound of sifted flour. Thin to rather a thick batter with sweet milk, allow it to rise until light and then beat down, adding a pinch of powdered mace and ginger. Let it rise again for twenty minutes and then bake in hot greased waffle irons to a golden brown color. Dip the waffles while hot in melted butter and roll in equal parts fine sugar and cinnamon mixed.

The Future Man or Woman

The food taken by the nursing mother influences the physical development of the child. Children should be fed on nothing but the most strengthening foods.

Ghirardelli's Ground Chocolate is both a food and a drink.

Children need no coaxing to take it. They like it and thrive on it. It is the final expression of purity, wholesomeness and deliciousness.

The cost is less than a cent a cup. Begin using it tomorrow.

In hermetically sealed tins.

Quality, strength and price remain the same.

Ghirardelli's Ground Chocolate is the only original ground chocolate. It has been used in Western homes for over a third of a century and its popularity is growing day by day.

D. GHIRARDELLI CO. San Francisco

(Since 1852)

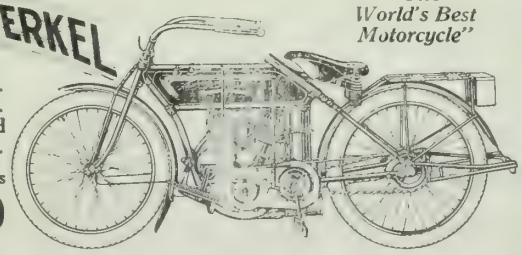
GHIRARDELLI'S GROUND CHOCOLATE

Sell This Motorcycle in Your Own Locality

AS OUR DIRECT FACTORY AGENT

THE FLYING MERKEL

"The World's Best Motorcycle"



9 h. p. Two Speeds. Miami Direct Starter. Spring Frame and Spring Fork, etc., etc.

1915 Twin Cyl. Models

$200 TO $260

We Want One Responsible Agent

in each rural community, where we are not already represented, to ride and sell the Flying Merkel motorcycle. Our Special Agency proposition offers a splendid opportunity for the right man to build up a profitable business of his own. Devote all or part of your time as you wish; no selling expense, very little capital needed. We give you exclusive territory, show you how to make sales, and give you a good profit on every machine sold in your territory.

Send Today For Catalog and Full Particulars

The Miami Cycle & Mfg. Company

"America's Greatest Cycle Manufacturers"

1015 HANOVER STREET MIDDLETOWN, OHIO

WHO INVENTED CHEWING GUM?.

Raymond is a little boy who lives in the city and has seen very little of the country. One day he went on a visit to his grandpa's farm. While out in the pasture he saw the cows chewing their cuds. Not knowing what it meant, he ran to his grandpa, saying:

"Grandpa, do you have to buy gum for all of those cows?"—Exchange.

DIVIDEND NOTICE.

THE GERMAN SAVINGS AND LOAN SOCIETY.

526 California Street, San Francisco.

For the half year ending December 31, 1914, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, payable on and after Saturday, January 2, 1915. Dividends not called for are added to the deposit account and earn dividends from January 1, 1915.

GEORGE TOURNY, Manager.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Jan. 6, 1915.

WHEAT.

Prices in northern and eastern markets continue to break all previous high records, as the export demand is absorbing a large part of the offerings. Supplies here are light, and as grain must be brought from other quarters, a further sharp advance is noted.

Cal Club, Ctl	$2.15@2.20
Forty-fold	2.20@2.30
Northern Blue's	2.30@2.40
Northern Club	2.15@2.20
Northern Red	2.20@2.35

BARLEY.

While some sales have been made at a further advance, the general market remains at about the former level. Both feed and brewing grades are very strong, however, as the shipping demand continues active and supplies in the State are rapidly being reduced.

Brewing & Ship'g	$1.35 @1.40
Choice feed, per ctl.	1.25 @1.32½

OATS.

A large export demand is reported in the north, causing higher prices there. The local demand, however, is light, and so far this market has shown no unusual strength.

Red feed	1.45@1.50
Seed	1.65@1.90
Gray	Nominal
White	1.55@1.60
Black Seed	1.75@2.25

CORN.

Local values remain about as before, though Egyptian is reported higher at some points in the interior. The demand is picking up in all lines, as the high price of wheat is turning the attention of poultrymen to corn.

California Yellow	Nominal
Eastern Yellow	$1.70@1.75
Egyptian White	1.55@1.65
Milo Maize	1.65@1.70

BEANS.

Buying has been resumed rather actively since the holidays, and it looks as if the January movement would be better than usual, as many eastern inquiries are coming in. With offerings in several lines rapidly diminishing, prices are again on the upgrade, and substantial advances are quoted this week in bayos, cranberry beans, and both large and small whites, Blackeyes in the south coast district are said to be cleaning up well, though local prices show no change.

(On Wharf.)

Bayos: Cal. per ctl	$4.75@5.00
Blackeyes	3.75@3.85
Cranberry Beans	4.00@4.25
Horse Beans	3.50@3.75
Small Whites	4.00@4.15
Large White	3.90@4.00
Pink	3.00@3.10
Limas	5.15@5.25
Red Kidneys	5.00@5.10
Mexican Red	4.75@5.00

SEEDS.

Business is very quiet in all the varieties quoted, and values have not changed for some time.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3½@ 4 c
Millet	2¾@ 3¼c
Timothy	7½@ 8 c

HAY.

Arrivals continue rather light, but even so are more than sufficient to supply the local demand, which has not improved. Deliveries are still being made on some old contracts for export, which helps to absorb the stock that comes in; but in spite of this it is difficult to clean up the daily arrivals, and sales are frequently made at concessions. Choice hay is fairly steady, with little offering, but ordinary stock is very hard to sell, and the present situation is not improved by the prospects for another large crop. There is a fair demand for alfalfa in the country, but the prices are not satisfactory.

Alfalfa Meal, per ton	14.00@15.00
No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	40@ 45c

FEEDSTUFFS.

Supplies of bran are still very light, and with only moderate offerings in the north the prices have been marked up again. A further advance is also noted in rolled barley, with indications that the top has not yet been reached.

Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	29.00@30.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	39.00@40.00
Middlings	34.00@35.00
Rolled Barley	28.00@29.00
Rolled Oats	32.00@33.00
Shorts	29.00@30.00

VEGETABLES.

The local vegetable trade continues fairly active, but miscellaneous garden truck from southern California is now coming forward in larger quanties, and prices show less firmness than last week. The bulk of the tomatoes coming in still show frost damage, and ordinary stock is much lower, though some choice lots still bring the old figure. Both string and lima beans are in ample supply and somewhat lower in price, and the top figure on bell peppers has been shaded. Lettuce has dropped sharply, with rather large supplies from both southern and nearby points. Celery, however, continues firm at the old prices, both Delta and Palo Alto stock finding a strong demand.

Mushrooms, lb	5 @12½c
Peas, lb	8 @15 c
Peppers, Bell, lb	4 @ 6 c
Chili, lb	4 @ 5 c
Carrots, per sack	30 @40 c
Tomatoes, crate	25 @75 c
Beans, Wax, per lb	5 @ 7 c
String	7 @ 10c
Lima	6 @ 8 c
Eggplant	5 @ 8 c
Cream Squash, box	30 @50 c
Celery, doz	10 @20 c
do, crate	1.25 @ 1.25
Sprouts, lb	2 @ 4 c
Lettuce, crate, So.	75 @ 1.25
Rhubarb, box	65 @ 1.00

POTATOES AND ONIONS.

There is some uncertainty as to the potato situation, as the bulk of Delta crop has been disposed of, while offerings from the north tend to prevent the advance that has been expected in some quarters. Onions are a little higher, as the cheap stock has been pretty well cleaned up, and more shipping business is expected.

Potatoes: Oregon, ctl	$1.25@ 1.65
Salinas, ctl	1.40@ 1.60
River Burbanks, ctl	1.25@ 1.40
Sweet Potatoes, ctl	1.75@ 1.95
Onions: Yellow, sack	90c@ 1.25
Garlic, per lb	12@ 15c

POULTRY.

Very little eastern stock is arriving this week, and with a continued active demand, chickens are fairly firm, small hens being higher. Ducks also show a slight advance. The demand for turkeys is keeping up well, and with lighter offerings the price shows a slight advance.

Live Turkeys, lb	20 @21 c
do, dressed	22 @25 c
Live Turkeys, lb	20 @21 c
do, dressed	22 @25 c
Fryers	19 @20 c
Hens, extra, per lb	17 @18 c
Hens, extra, per lb	17 @18 c
Small Hens, per lb	16 @17 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb.	9 @10 c

BUTTER.

Prices have taken a little drop this week, owing to an increase in offerings. These include a good deal of grass butter, which tends to keep prices down; and competition is also felt from the Australian stock, of which there is a good deal offered.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	28	..	27½	25½	25½	25½
Prime	27½	..	27	25	25	25
Prime	26	..	26	24½	24½	22½

EGGS.

Frequent shipments of Chinese eggs are still appearing, and are probably a factor in the rapid decline of prices for the last two weeks, though it appears to be mainly due to an increase in local production. Offerings at outside points, however, are said to be light at the moment, and may cause a slight recovery here.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	41	..	38	38½	35	35
Sel. Pul.	35	..	35	35½	33½	32

CHEESE.

Offerings are quite liberal, especially of Monterey cheese, which has dropped sharply. Flats are also a little lower, Y. A.'s standing as before.

Fancy California Flats, per lb	12½c
New Young America, fancy	13c
Monterey Cheese	14@15c

Los Angeles dairy prices.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	29	28	..	..	26	26
Eggs	40	40	..	..	42	35
Cal. Cheese	14	14	..	..	14	14
Flats	14½	14½	..	..	14½	14½

DECIDUOUS FRUITS.

The local supply of cranberries is now about cleaned up, though a few are still offering at the old prices. There is a limited sale of winter nellis pears from cold storage at the appearing figures. Apples have received very little attention since the holidays, but desirable stock is pretty steadily held at the former figures.

Cranberries	$9.00@10.00
Apples, Newtown Pippin	50@ 95c
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, box	1.00@1.50

DRIED FRUITS.

There is little new in the dried fruit situation just at present, though values are firmly held, with good indications for an all-round advance, and there is considerable inquiry from various sources. Supplies in most lines are getting down to rather narrow limits, and it is expected that eastern buyers will soon be out to cover spring and summer requirements. There are still plenty of apples and peaches, but the shortage in other lines seems to be turning more attention to them. There has been little movement of peaches in the last few days, but numerous inquiries have come out for apples. Prunes are very closely cleaned up in the country, and leading packers predict higher prices before next fall. Raisin sales were unusually heavy during the holiday period, owing to the advance in prices, and it is evident that more stock will be needed during the spring. The New York Journal of Commerce says: End of the year dullness prevents any quotable improvement in prices, but the whole line of California products is unusually strong for this season and holders are looking for a material advance when the spring trade opens up owing to the exceptionally strong statistical situation and the expectation that Europe needs a large quantity of stock still to satisfy its requirements, an expectation that is fostered by the continued inquiry from the other side even though it is not followed by actual purchasers for present shipment.

Evap. Apples, 1914	4½@5½c
Apricots, 1914	6 @9c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5 c
Prunes, 4-size basis, '14.	5 @6 c
Peaches, new	3¾@4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels c	4 @4½
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction markets are taking California oranges at fair prices for this season of the year. Quotations are a trifle lower than last week, but the demand is good. At New York on Monday, January 4th, navels averaged from $2.55 down to $1.55 per box, while lemons averaged from $2.55 to $2 per box. The various other auction points paid about the same prices as New York on that day.

Florida oranges are on the market in good supply and are bringing from $1 to $2.35 per box.

Shipments of oranges from southern California for the season, up to Jan. 3, were 1041 cars, from Tulare county, 4641 cars, and from Butte county 453 cars. It is stated that Tulare county has about 1000 cars yet to ship, while from Butte county the crop has been about all sent out.

Navel oranges at San Francisco continue in fair demand, with prices firm. Values, however, appear rather uncertain, as the Tulare crop is about all in, and local dealers do not know yet what they can count on from the south. Grape fruit and lemons are fairly firm.

Oranges: Navel, box	$1.25@1.85
Tangerines, small box	1.10@1.15
Grapefruit, seedless, box	1.50@2.00
Lemons, box	1.75@3.00

NUTS.

Walnuts are very quiet, though some scattering sales have been made at irregular prices, and walnuts receive considerable inquiry. Few can be sold, however, for more than 12½c. A better local demand is expected soon on account of the Exposition, which should stimulate local consumption of fancy products.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

The market remains extremely dull, with large offerings from all directions. Efforts are being made to find an eastern or foreign outlet, but there seems to be a surplus everywhere. Values are nominally unchanged.

Water White, extracted	7 @ 8 c
Light Amber	8 @ 9 c
Water White, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

HOPS.

Nothing of special interest has developed, the great bulk of the Coast crop being now out of growers' hands. Values are well maintained, with a fair demand from brewers.

1914 Crop	8 @13 c

LIVE STOCK.

Dressed hogs are quoted a little lower locally, other lines showing no change. Sheep remain firm, numerous sales being reported in the country at unusually good prices; while the cattle situation is said to be a little easier, and calves are coming in more freely.

Steers: No. 1	7 @ 7¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @6½c
No. 2	5½@ 5¾c
Bulls and Stags	3 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs	7 @7¼c
100 to 225 lbs	7½@7¾c
Prime Wethers	6¼@6½c
Ewes	5¼@ 5¾c
Milk Lambs	7 @ 7½c

BUY IT NOW.

There is 40,000,000 farm population in the United States. Their 1914 crop is worth $9,872,936,000.00. If only $10 were spent for each person on the farm now, instead of waiting till Spring, it would put $400,000,000 into circulation and give employment to thousands whose families are suffering where factories are idle.

WOOL.

The regular dealers report very little movement, with a few sales of fall wool at 8 to 13c. The market is reported somewhat firmer than it has been, however, and some brokers report business at as high as 18c, for first-class year's staple.

DRESSED MEATS.

Steers	10¾ lb @ 11½c
Heifers	10½ @ 11 c
Veal, large	13½ @ 14 c
Small	15 @ 15½c
Mutton. Wethers	11½ @ 12½c
Ewes	11 @ 11½c
Suckling Lambs	13½ lb 14 c
Dressed Hogs	11½ @ 12 c

HORSES.

Value are largely nominal, as business has been dull for the last few weeks, and the prices realized have shown considerable irregularity. A few shipments have come in lately, but have not received much interest.

Heavy drafters, 1700 ibs. and over	$225 @ 275
Light Dra's, 1500 to 1650	200 @ 215
Chunks, 1350 to 1500	180 @ 200
Wagon Horses, 1250 to 1350	125 @ 175

Publisher's Department

We promised in this department last week to give the date of publication of our new book, "California Garden Flowers," but owing to the inability of Prof. Wickson to furnish the copy for the last few pages of the book, we are not able to state definitely at this time when the book will be ready for the trade. Part of the book is printed, the covers are made and most of the manuscript is in type, so we hope to have it ready for you in two week' time. The price will be $1.50 per copy, postpaid.

Our other books are selling well at this time. Particularly is this true of "One Thousand Questions in California Agriculture Answered" and of "California Poultry Practice." Both of these books were written to help the farmer enlarge his output and to save money by stopping the leaks. The small price charged was made purposely low, that they might go into every farm home and do a world of good. Every reader of the Rural Press who keeps even a few chickens should have the "California Poultry Practice." Mrs. Swaysgood, the author, has spent a lifetime raising poultry for profit. She knows every phase of the game, and she tells of every little detail in poultry raising that makes for success. Send to this office for a copy.

As most of our subscription force laid off last week on account of the holidays, we have only 150 new subscribers to report. Will have more next week.

ADVERTISE ON ENVELOPES.

[Written for PACIFIC RURAL PRESS.]

Use of informational letter heads and envelopes for farm business correspondence is increasing. The information is not always decorative, but it makes lasting impressions on those we write to. This is carried out quite thoroughly by a Fresno county farmer who, we suppose, is growing seedless raisins. He forgot to state the fact that he has them for sale—perhaps he hasn't, but is advertising them for the general good of the industry.

A great feature of the advertising campaigns being conducted by cooperative organizations in California might easily be to have neatly informational "returns" printed on good quality envelopes in large quantities, to be sold at half cost to their members for business correspondence. Good envelopes might be used for letter writing to many thousands of friends back East, too, who would thus be especially interested in the products of the associations.

We quote below, from the envelope referred to, as an example of the informational possibilities of such advertising:

If not delivered in 5 days return to
Festus C. Lewis
Alola Vineyard.
Fowler, California
Comparative Food Values
Taken from Farmers' Bulletin No. 142 of the United States Department of Agriculture.

	Calories of energy per lb.
RAISINS	1265
English Walnuts	1250
Whole Wheat Bread	1130
Beef Sirloin	975
Hens' Eggs	635
Baked Beans	555
Milk	310
Potatoes	295

"There are most excellent reasons why more dried fruits generally and raisins in particular should be eaten in much larger quantities than at present."—Prof. M. E. Jaffa, M. S., Director Dept. of Food and Drugs, California, and Nutrition Expert, University of California.

Eat Seedless (not seeded) **Raisins** A most economical food and delicious sweetmeat. Incomparably the BEST.

PREVENTS SUNBURN AND RABBITS.

To the Editor: Will a whitewash containing an animal repellant be sufficient protection for young nursery trees, just being planted, against being gnawed by rabbits? I note what you say about such a whitewash in article "Planting Orchard Trees" in Nov. 21 issue. But as I am a new subscriber cannot refer back to Feb. 28 number.—A. T., Folsom.

[As in any rapidly growing family, we also must give the same food to the younger members ofttimes that the older ones received. So we repeat the instructions desired.

"To repel rabbits, rub the bark with the stinking carcass of one which you open for that purpose. Or whitewash with lime into which you have mixed stinking tallow while slacking; or apply a wash of commercial aloes, four ounces to one gallon of water. H. E. Butler of Placer county kills two birds with one stone by whitewashing with rabbit repellant. He mixes thin whitewash while hot, with glue and aloes, the latter in about the proportion mentioned above. The whitewash protects from sun injury—a most important precaution both in winter and summer—the aloes repels rabbits, and the glue makes it all stick better.—Editors.]

REMOVE HEAT WASTING ASHES EVERY DAY.

Ashes are heat wasters.

Cleaning the range daily saves fuel.

The ashes should be cleaned from the top of the oven every morning, leaving a very thin layer to act as a non-conducting medium and so prevent excessive heat in the oven. Close all drafts and shake the ashes out of the grate into the ash pan.

If there is an ash sifter above the ash pan sift the ashes to save unburned coal, otherwise the ashes must be sifted later when they are removed. Carefully remove all ashes for if left they absorb heat and are wasteful.

Return the ash pan to its place, saving the unburned coal for use on the fire when it is burning well. Brush any remaining ashes into the ash box and remove the clinkers.—University of Wisconsin.

A log raft containing one million feet of cedar, said to be the largest ever floated on the Pacific, recently made the trip from British Columbia to Puget Sound. It was 100 feet long and 70 feet wide; it stood 15 feet out of the water and 20 feet under.

BUY IT NOW.

Don't buy what you don't need, but buy what you do need, now. It will put thousands of idle men at work who are suffering this Winter.

Classified Advertisements

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

BUENA VISTA RANCH—4160 ACRES—This famous Rancho being subdivided; railroad through property; depot on ranch, good schools, fine roads, best class of progressive and successful neighbors; unexcelled climate and cheapest irrigation system in State; deep, rich red leaf mold soil; population in vicinity 12,000; big payroll and fine market for all products; packing plant, cannery, creamery; five improved home places on ranch of from 40 to 120 acres at exceptional price and terms; fine level cleared pieces any acreage; prices $40 to $75 per acre; terms; perfect for Bartlett pears, prunes, cherries, English walnuts, market gardening, berries, hogs, poultry and dairying; early buyers will have unlimited choice. Above is without exception the greatest value ever offered in California. Splendid demonstration farms on property. Deal direct with owners and save commission. Investigate this at once. Priced for quick action. Buena Vista Farms Co., Owners, 309 Balboa Bldg., 593 Market St., S. F.

160 ACRES—8 miles from good R. R. town; good house, barn, etc.; fine oak timber, partly cleared; plenty of water; fine climate, $2,000. Also several claims of government land, relinquishments, etc. W. Wallace Baldy, Raymond, Madera Co., Cal.

160-ACRE MOUNTAIN RANCH, Tulare county, near Mt. Whitney. Power plant, mail service, school, plenty of water could be developed; enough oak wood to more than pay for place. $1600 cash. Mrs. C. Clayton, Visalia.

200 ACRES FOR SALE, eight miles west of Lodi, joining Brack Station, 40 acres ten-year Tokay; 90 acres wine grapes, 7 and 10 years old; balance hay and pasture. $225 per acre. Terms. T. H. Beckman, Lodi.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg. San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

HEADQUARTERS FOR BUILDING MATERIAL—Symon Bros., 1501 to 1525 Market St.—Rough dimension lumber, long lengths, $11.50 M feet; short, $8M; sheeting, $10M; flooring $13M; T&G ceiling, $16 M; rustic, $18M; $25 up to $35; extra star A star redwood shingles, $1.40; cedar, $2.25; shakes, $11; large glass booth sides, 65c. ea.; new flooring $18 M; new rustic, $23 and $25 M; new rough pine, $13.50 M. SPECIAL—4-inch planks, long, $8M. 40 French plate mirror mantels, $12.50 each. NEW AND SECOND-HAND—Toilets, bathtubs, sinks, lavatories, boilers, cement trays, gas heaters, pipe and fittings, Davis windows, single sash, electrical material, chicken netting, new gal. corr. iron Ready Roofing, best on the market, all prices. Slightly damaged new goods at ½ price. NOTE—The above material and quotations fully guaranteed and f. o. b. San Francisco; car lots special rate. Be not deceived by false advertisers; the only proof to those in the country is seeing; if impossible, write to an acquaintance in the city. We have a full half block, yards and ware rooms open for inspection; compare us with others; our prices for up-to-date, serviceable goods are the lowest; we resort to true statements and rely on the merit of our stock, and your judgment. Having the large stock, yards, more men, own teams, we are fully equipped to render the best and most efficient service as to promptness, grade and general satisfaction. We solicit your confidence and orders. Block 11th and Market Sts., San Francisco.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Bellflowers, Newtowns, Langford Seedlings, Missouri Pippins. Prices on request. Edward A. Hall, Watsonville, Cal.

I'LL SHOW YOU. Make what sells itself quickly all times, places. Whole Pacific Coast; more, if desired. Box 28, Germantown, Maryland.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AGRICULTURAL HYDRATED LIME—Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

BELGIAN HARES.

THOROUGHBRED Belgians with or without pedigrees. Old Hickory Supply Co., Dept. 3, Capitola.

TREES AND NURSERY STOCK.

PEACH SEEDLINGS, twenty thousands, all sizes and prices. Must be ordered before the 20th of Jan., 1915, pay on delivery. One thousand pounds of Pollock strain of Rocky Ford Cantaloup seed. If you want profits, try it. A few of Burbank"s latest creations, Beauty and Formosa plums. Standard prune trees and scions for grafting. Grafted Walnuts and ten thousand black walnuts. All guaranteed to be as good as any at any price. A. P. Henning, Clements, Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS.—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

BURBANK'S THORNLESS BLACKBERRY—A very limited supply of this new wonderful plant, a new creation, fast grower and heavy producer of fine berries for sale at $1.50 each, or $1.00 each for 5 or more. J. I. Jewell, Santa Rosa, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail. Placentia, Eureka, (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia ave., Whittier, Cal.

CALIFORNIA GROWN Sudan Grass Seed. I have a limited amount of this seed. Until sold, will fill orders less than ten pounds for $1.00 per pound; over 10 lbs., 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

PLANT RUSSIAN RIVER non-irrigated trees. More hardy. Better root system. Self-reliant; didn't have to be weaned. Got the go—you get results. Price list, all kinds, mailed an opplication. Miller & Gebbi, Healdsburg, Calif.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

APRICOTS, Royal-Newcastle, Pears, Apples, Peaches, Cling and Freestone, guaranteed, large trees. Don't buy until you get our prices, which are cheap. Newton & Cavanah Nurserymen, Hemet, Calif.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

FAMOUS ST. REGIS EVER-BEARING Red Raspberries, Strawberries, Blackberries. Postage paid. Old Hickory Supply Co., Dept. 3, Capitola.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

WANTED.

WANTED—Responsible party to take charge of business in each county. New Automatic Combination Tool, combined wire fence stretcher, post puller, lifting jack, etc. Lifts or pulls 3 tons, weighs 24 pounds. Sells to farmers, shops, teamsters, etc. Descriptive catalogue and terms upon request. Harrah Manufacturing Co., Box M., Bloomfield, Ind.

INDUSTRIOUS, responsible single man, wishes position on ranch or private home as caretaker in livestock. Good milker, thoroughly familiar with poultry-raising, generally handy with tools, practical with gardening work. Have clean records from last employer. Address R. 1, Box 140, Dos Palos, Cal.

SUPERINTENDENT open for engagement after 1st of January. General farming, rice, grain, fruit, dairy. Can handle modern agricultural machines. Capable administrator, willing worker; 42. Address: Superintendent G. D., Box 121, Gridley, Butte County, California.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

AGRICULTURAL COLLEGE graduate with practical experience wants position on ranch. P. T., 2435 Oregon St., Berkeley, Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

WANT five hundred Bolton Oil Heaters for sixty days. Advise "Apricot Grower," Box 235, Suisun.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., box 12, Nordhoff, Cal.

"I Saved $400.00 on My House and Barn by Buying Building Material from the Whiting-Mead Commercial Co."

This is an actual statement made by one of our customers. You can do the same. You can save from $25.00 to $40.00 on every hundred dollars' worth of building material you need by buying direct from us. We cut out the dealer's profit. If you are going to build or repair a house, barn or auto shed—study these prices carefully and be sure to send coupon below for our Big Free Catalog.

THIS SPECIAL STEEL ENAMEL BATHTUB

A wonderful bargain! Made of finest galvanized 24-gauge steel. Outside finished with a rich sky-blue enamel, bronze trimmed. Price only $8.00

Others larger in size at $8.50, $9, $10. Just the thing for your house.

Low Down Enamel Steel Toilet Combination $12.50
Complete to floor—wonderful value

Low Down Vitreous China Closet Combination $16.00
Special value worth $22.50

Big values in High Tank Toilet Combinations $10.00
Complete to floor—a bargain.

Special Bankrupt Stock of Kitchen Sinks. All sizes up from $1.00

Best Quality Porcelain Lavatories, every one guaranteed—$10 down to... $3.75

Standard House Paints. High grade 24 colors—per gal..... $1.50

Black Graphite Roof Paint—per gal 50c

Standard Roof Paint—red, green, gray—per gal 85c

Shingle Stain, made from pure ground colors per gal..... 50c

Everything in Paint, Wall Tints, Brushes, etc., at big savings to you. We pay freight.

ROOFING PAPER 1-ply, plain or sanded—per roll of 108 sq. ft... $1.25

—2-ply only $1.50 per roll. Cement and nails ready to lay included in above price. Send for free sample.

WIRE FENCING at Half Price—per rod 35c

Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition; 55 inches high, 20 rods to the roll. This is just about half price. Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED BARB WIRE—per roll of 80 rods $1.75

Our Light Wire Special, slightly water stained in shipping otherwise in perfect condition.

Special heavy galvanized "Waukegan" barb wire, 80 rods to reel, weighing 100 to 115 lbs., only $2.75 per 100. Going fast! Don't miss this opportunity.

Lowest price yet on CORRUGATED GALVANIZED IRON—per hundred square feet $3.55

Look at this! Corrugated galvanized iron, 2-inch corrugations, from 6 ft. to 10 ft. long. This is in perfect condition and won't last long at this special price.

WALLBOARD

The highest grade wallboard on the market; made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.

Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet $19.00

This is a $30.00 Value.

Special—NAILS—In 100-lb. kegs—per keg $2.20

This is an unequaled price for 20, 30, 40, 50 and 60 penny common nails. We also carry all sizes and finishes at $2.20 per 100 lbs. base.

LUMBER, SASH AND DOORS — Lowest Prices on Rough and Finished Lumber

2-inch Redwood as low as $12.00 per 1000. 1 in. x 6 in., 8 in. and 10 in. length, 8 to 18 ft., going at $15.00 per 1000. 8 ft. x 12 ft., galvanized all-metal frame skylights glazed with ribbed glass, suitable for hot-house, roofs, etc., crated, $12.00 each.

Two light double hung windows 1⅜ in. thick, best quality American wavy glass, all sizes..... 60c

No. 1 Colonial Door Selected Kiln-Dried Oregon Pine — all stock sizes—$1.50 up.

Second Hand Building Material

At Wreckage Prices!

Carried only by Whiting Wrecking Co.

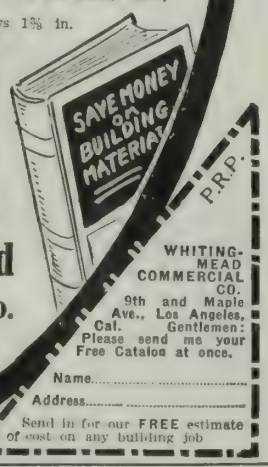
You can buy anything in the Building Material line second-hand, at one-half to two-thirds less than the price of new material. We do 95 per cent of all the wrecking done in Southern California.

Wonderful bargains! Be sure to write for estimates on anything in second-hand Building Material to the

Whiting Wrecking Co.
8th & San Pedro Sts.
Los Angeles, Cal.

Send Coupon for **THIS FREE** Catalog tells you how to save many dollars

Whiting-Mead Commercial Co.
9th & Maple Ave.
Los Angeles, Cal.



WHITING-MEAD COMMERCIAL CO.
9th and Maple Ave., Los Angeles, Cal. Gentlemen: Please send me your Free Catalog at once.

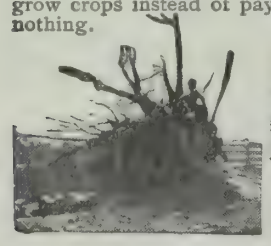
Name.....
Address.....

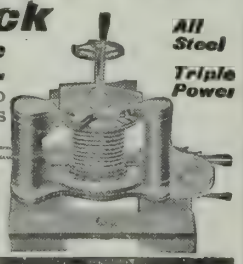
Send in for our FREE estimate of cost on any building job

Pull Big Stumps Quick and Easy

$1280 from 40 acres the first year stumps are out.

Pulls an acre a day. It doubles land values. Enables you to grow crops instead of paying taxes on land that yields nothing.





All Steel

Triple Power

HERCULES Stump Puller

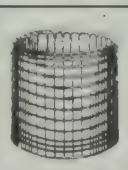
More power than a tractor. 60 per cent lighter, 400 per cent stronger than cast iron puller. 30 days' free trial. 3-year guarantee to replace, free, all castings that break from any cause whatever. Double safety ratchets insure safety to men and team. Accurate turning means light draft. Mail postal for free book showing photos and letters from owners. Tells how to turn stump land into big money. Special introductory price proposition will interest you. Write—

HERCULES MFG. CO., 112 23rd St. Centerville, Iowa

From Michigan

DEWEY, STRONG & CO.
SCIENTIFIC PRESS — PATENTS — PATENT AGENCY
911 Crocker Bldg.

Circulars containing 100 mechanical movements mailed free.



Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Moulding, Wagon, Tanks, Spraying Tanks. Independent.

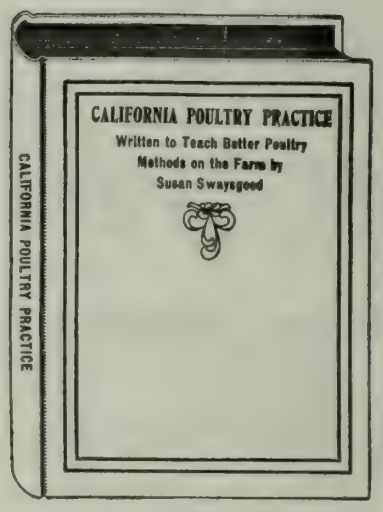
R. F. Wilson, Stockton, Calif.

CALIFORNIA POULTRY PRACTICE

Written to Teach

BETTER POULTRY METHODS

On the Farm



BY

SUSAN SWAYSGOOD

Contents by Chapters.

1 Some of the Advantages of California Poultry Raising.
2 When and How to Start in the Poultry Business.
3 Location.
4 The Colony Plan.
5 Open Front Houses.
6 Large and Small Plants for Eggs.
7 The Care and Management of Eggs.
8 How to Build an Incubator Cellar.
9 How to Run the Incubator.
10 Raising the Chicks.
11 Why Chicks Die in the Shell.
12 A Few Don'ts in Raising Chicks.
13 Brooders and Brooding Systems.
14 The Building of Brooder Houses.
15 Poultry Appliances.
16 Raising Broilers.
17 Feeding for Eggs.
18 Balanced Rations, What are They?
19 Feeding the Breeders.
20 Fattening and Preparing Fowls for Market.
21 Balanced Ration for Heavy Breeds.
22 The Mold that Injures Poultry.
23 Egg Foods, or Condition Powders.
24 The Value of Milk in the Poultry Yard.
25 The Management of Poultry During the Summer.
26 The Molt in California.
27 The General Purpose Fowl.
28 Capons.
29 Prepotency and Prolificacy.
30 The Mediterranean Class.
31 The American Class.
32 The French Breeds.
33 The Asiatic Class.

Just from the Press

Mrs. Swaysgood has spent a lifetime in raising poultry, mostly in California. This cloth-bound book of 160 pages, besides half-tone pictures, tells of the up-to-date methods now used on California poultry farms. Every reader of this journal should have a copy.

Price, $1.00 Postpaid

Pacific Rural Press

525 Market Street

San Francisco

Vol. LXXXIX—No. 3 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, January 16, 1915 LOS ANGELES

7-1-16 State Library

Dairy and Hogs Combined.

[Written for PACIFIC RURAL PRESS.]

An utter disregard for the systematic arrangement of buildings on a dairy and hog ranch invariably leads to much wasted energy in future years and nowhere does the old saying, "a place for everything and everything in its place" apply more forcibly than on such farms.

It was with this idea in mind that H. T. Harrold of Orland took particular pains to have each building on his 175-acre ranch so situated than labor would be reduced to the minimum, and to further this idea of economy the various buildings were arranged in a manner which provides sanitation and convenience, two factors which are all important in successful dairying.

The accompanying illustration shows the complete arrangement of the buildings with the exception of the milk and boiler rooms, which are located beyond the large barn shown, and out of view of the camera, also the concrete silo, which is situated at the extreme north end of the barn.

It will be noted that the cow barn was built on a commodious plan and of good material, as it was the intention to make this a large and permanent dairy. The middle of the building is used as a hay loft, having a capacity of 100 tons of loose hay and being partitioned off from a single row of stanchions on either side, which provides room for the 65 head of cows now being milked. Concrete flooring was laid on each side, which is drained by gutters running lengthwise of the building.

In order to put the maximum amount of hay into the barn, and thus lower the annual interest charge per ton stored, it has been found profitable to run the hay through an electrically driven cutter, which blows the chopped hay into the mow at a cost of one dollar a ton. As it would ordinarily cost 75 cents a ton to put the loose hay into the barn it will be seen that there is a difference of 25 cents a ton in favor of the loose kind, but this is more than overcome by the smaller amount of waste in feeding, and the fact that 300 tons of the chopped kind can be stored, thus making the storage room three times more efficient than if loose hay were used. The silo was erected last fall, and with the additional use of the cutter for silo filling the interest charges on that investment will not all be charged to the chopped hay.

As a large part of the ranch is river bottom land, which lies some twenty feet below the level of the buildings shown, it has been comparatively easy to furnish drainage for all liquid matter from the buildings, and by erecting a manure bin at the edge of the high bank, which separates the high ground from the low, and building a road down the embankment directly below the bin, the loading and hauling of the manure is economically accomplished.

As the plant was planned with the intention of selling either sweet cream or butter fat according to the market demands, the milk house, which is 18 feet square, was equipped with a well-drained concrete floor and plenty of light and ventilation, and an adjoining room was erected for a small steam boiler to furnish steam for sterilizing all milk vessels and utensils. Space was also provided in the milk room for a milk cooler and Babcock tester and scales, for it was early realized that the weighing and testing, as well as cooling of the milk were essential features of the business.

Barnyard and Building Arrangement on H. T. Harrold's Ranch at Orland.

On the extreme right of the photograph will be seen a long, low building. This is the hog farrowing and fattening house, and since this view was taken has been added to by the erection of a similar building on the other side, the two roofs making a large gabled roof, in the south side of which has been built large skylights, which afford good light and ventilation.

This building, as completed, is 82½ feet long and 44 feet wide, divided in the center with an aisle 12 feet wide running from end to end. On one side of this aisle are located 10 farrowing pens, each of which is 7½ feet wide and 16 feet long. Concrete floors were laid in these pens, having a gradual slope toward the feeding aisle in front, from whence they drain into a concrete drain pipe in the center of the building, this drain in turn running on out of the building and emptying at the foot of the embankment into a slough.

Tight board fences about four feet high run along the front of the pens, and also serve as division walls between the pens. A feed trough is located at the front of each pen, also a water faucet, which facilitates feeding and watering, as the feed may be thrown from the feeding alley directly into the troughs.

Another wall divides the 16-foot pen into two 8-foot enclosures, one for the feeding, as before mentioned, and one for the sow's bed. Half of the floor in this latter enclosure is made of concrete and the other half has a board floor, for the sow to lie on. An open-

(Continued on page 84.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., January 12, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	5.48	22.25	19.36	56°	36°
Red Bluff..	2.20	11.24	11.43	54	34
Sacramento.	1.26	6.43	8.19	56	36
S. Francisco	2.38	9.09	9.61	58	42
San Jose...	1.42	7.54	7.03	58	30
Fresno	.62	3.35	4.18	60	36
Indep'nd'nce	.00	0.52	4.14	56	20
S. L. Obispo.	.96	7.51	7.67	68	38
Los Angeles.	.14	4.58	6.08	70	46
San Diego..	.02	4.18	3.87	68	46

The Week.

The rains have kept coming in good measure and the State is now wet enough everywhere for anything that ought to be doing at this date. This lays a good foundation for a year of maximum activity and production, and there is every reason to believe that it will carry through on that line. Those who are on the bridge of the great industrial activities do not hesitate to declare that the general prosperity throughout the country will be widely promotive of the plans which California cherishes. We recently cited announcements by leaders of the Southern Pacific. Last week, E. P. Ripley, president of the Santa Fe, from his winter home in Santa Barbara, talked in this way:

"The enormous crops of the Middle West, and the abnormal prices will inure to the very great good fortune of California this year, in the shape of tourists and prospective colonists. Hosts of people will now be enabled to visit this State who otherwise could not have come. A good proportion of those people, finding themselves unwontedly well supplied with money, will spend a portion of it by coming to California. The fairs are interesting, but I find that California itself is a bigger drawing card than any fair ever could be."

That is a good basis and we commend its contemplation to the few, who are never happy unless they can see a chance to be miserable. These few are now busy proclaiming that the reaction after the two great expositions will be so great that it would be better if they had never exalted us. This proposition that California is herself a greater drawing-attraction than any temporary incident, no matter how attractive it can be, is something to remember. We believe it is strictly true. Take the gold attraction, for instance. It lost its luster a third of a century ago, not altogether, of course, but largely, and California still had charms enough to have and to hold increasing population. And so it will always be.

Mules and Motors.

It seems that 1200 American mules are joining the allies every week, and are leaving in their outward trail a stream of gold. Advices from Kansas City, the mule emporium, are that the total "enlistments" of mules in this country exceed 7000, and there is a probability that the record exports of more than 150,000 of these animals duruing the Boer war will be broken if the European war is prolonged. The animals are costing the British government nearly $250,000 weekly. Her purchasers to date represent an expenditure of more than $1,250,000. And there are others than the British who have intentions on the American mules. If we were not building tractors so fast, and getting into the way of using them, we probably could not spare so many mules without interfering with our crop-making and moving, but motors are vastly greater than mules from a national point of view. According to the official figures, the year just closed produced more than 515,000 cars, valued, at wholesale prices, at more than $485,000,000. No statistics are available as to the output value of men engaged in manufacturing automobile accessories, but the manager of the National Automobile Chamber of Commerce claims that "the whole industry now ranks third among our national industries." We do not know exactly what is meant by "national industries," but the motor output does not, of course, compare well with our agricultural output, which is valued at $9,872,936,000, which is $83,000,000 in excess of the record in 1913, the previous banner year. Perhaps the automobile manager has moved so fast that he has acquired the European use of the word "industry," which means there manufacturing, and is never applied to agriculture, as we do it in this country when we proclaim "agriculture our greatest industry." However, both mules and motors are surely on the move.

We Must Even Make Macaroni.

Now that the plenteous rains are making California wheat grow gloriously, it is very interesting to note that this country is not only called upon to supply mules to belligerents but macaroni to neutrals. How can Italy go on producing "old masters" without macaroni? Evidently not. The hard wheat which she has been getting from Russia and elsewhere is otherwise engaged this year, and from that fact comes the story from Chicago that two dollars a bushel for wheat, the dream that only enthusiasts ever expected to come true, was within one-half a cent of being a reality on one grade of wheat, if the cost of delivery to Europe might be counted as a part of the price. A carload of durum wheat was sold to go to Italy on a basis that figured, delivered at destination, $1.99½ a bushel. Such a price breaks all records for durum wheat. The supply of that variety in the United States is said to be virtually exhausted for this season, because such wheat is high-priced for flour, unless you wish to make macaroni and not bread from it, and very little of it is grown in this country. And so it is both interesting that one can figure wheat nearly to the two-dollar limit and how it has so singularly come about that one can do it.

But we probably see in this incident a forecast of what wheat is likely to be next summer. Though the very high price in Chicago, of $1.37 on January 5, for May delivery, has fallen since then for fear wheat exports might be interfered with by the war, there is still every reason to expect high prices and Eastern bakers have reduced the weight of the five and ten-cent loaves of bread an ounce. The reduction in weight is made instead of an increase in price, owing to the high price of flour.

But do not get the idea that the farmer is profiting by this pinching of the loaf. Charles J. Brand, chief of the Federal bureau of markets, believes a major portion of the 1914 wheat crop no longer is owned by the farmers, but has passed to the hands of the elevator men and the grain dealers.

Wishes to Do Something for Rural Credits.

To the Editor: You have been telling us for months to keep our eyes skinned on rural credit legislation. First you told us to watch Congress, and after awhile you reluctantly confessed that Congress was not likely to do anything. Then you said, watch Sacramento, for our legislature seemed likely to come through first on the proposition. We have been keeping our eyes on these rat-holes until we are becoming wall-eyed and nothing comes out of them. The whole thing has a Mexican aspect to me: patient waiting! Why don't you tell us to do something and what to do?—IMPATIENT READER.

You have overlooked the fact that we have been urging you for months past to do several fundamental things:

First, see if your community of farmers knows and cares enough about rural credit to demand legislation which will provide ways to get abundant capital for agricultural uses, so that producers shall have funds for improvements at rates and length of loans which will justify such improvements for increased production. It is a notable fact that no insistent and persistent demand has come from the people. A few resolutions have been passed by large assemblies, but there has been no local "follow-up" to indicate that the real people in their local communities care a button about it. The first thing to do is to get your local grange, farmer's union, fruit association, dairy association, etc.—in fact, any kind of an associaton you have, to take up the subject for discussion, resolution and action. If you have no local men's association of any kind, appeal to your local woman's club, mother's club, or any other sort of community assembly you have, to go to the matter and help you to find out if you have in your neighborhood anyone who has any knowledge or conviction on the subject. If you have no local association to make this discovery, hunt up such a person yourself and get together with him.

Second: Whether you get together one or one hundred, find out if the prevailing conviction among them is that one or another of these propositions should be realized:

(a) That rural credit should be provided for by legislation, enabling farmers to do what they wish, or what they can, for themselves, by organizing local banks, credit associations, etc., having some form of joint liability; authorizing them to receive deposits, make loans, and thus do their own business under such safeguards as the legislation shall provide.

(b) That, in addition thereto, there shall be arranged ways in which such farmers' banks, duly qualified, shall have the use of surplus

State funds on the same terms on which they are now placed in the old lines of commercial banks.

(c) That in organization of long-term loans, repayable in installments, capital for them by sale of bonds upon collective mortgage security, there shall be provided a way in which the State shall guarantee these bonds and create banking machinery by which this form of State approval shall be made practicable.

(d) That in addition, thereto, there shall be a way in which State funds of any kind, when available, may be invested in such bonds.

(e) That the above State guaranty, or investment, or both, shall be operated through existing banks—the same being required to use a part of their deposits as capital to finance this new line of work, instead of State investment of funds to that end.

(f) That the State shall use its credits or its funds, or both, to promote development of idle lands, making such improvements thereon as shall make them productive and sell them in subdivisions to farmers, at a price covering wholesale value of land and reasonable improvements, at low interest rates and installment re-payments.

Thus we have stated, hastily and roughly, of course, some of the phases of the rural credit question upon which one must have some conviction before he can do anything. Our correspondent desires us to tell him what to do: the first thing to do is to decide what you want in the above category. The most perplexing matter in the rural credit situation is that no one knows what the farmers want and what they will approve and stand for. As we have said before, the only people who are now talking in the public ear or writing for the public eye are publicists, philanthropists, politicians, professors and phinanciers—we have to mis-spell the last word to get all these peas in the pod. What we want you to do is to get busy and find out what the pharmers think of it.

Governor Johnson Provides for a Picnic.

As we recently anticipated in these columns, Governor Johnson has declared himself strongly in favor of some system of rural credit for the promotion of farming prosperity and the upbuilding of the State. We have a notion that he believes that some of the propositions put forward on rural credits are flossy: that they have more philandering than practical philanthropy and finance in them: that the cause is sound, but some of the becauses are rotten. And Governor Johnson, in his message to the legislature last week, made a suggestion which ought to bring these propositions down to earth. He said, speaking of rural credits:

"Such an undertaking as this is so vast and so important and fraught with such possibilities that I suggest to you that a special committee with peculiar knowledge of matters of this sort be appointed, to which committee will be referred all measures involving rural credit schemes; and which will devote the month of February, during the recess of the legislature, to a scientific study of the question and to the determination of whether or not, under our constitution, we may enter this new field of activity.

"Our national government stands pledged to a system of rural credits; but in the stress of other matters has deferred action. Here in California, with an empire's domain, with a farming population far less than it should be, with land sufficient to accommodate and assimilate readily and easily ten times our present population, we may well investigate, and after due deliberation adopt a system elsewhere demonstrated—a system by which the wealth of the State is immeasurably increased, and the happiness of its citizens augmented."

We doubt not the legislature will provide such a committee as the governor suggests, and we presume it will arrange hearings at which those interested may submit their convictions as to what the State should do. This will be the chance for our agricultural interests to declare themselves and the thing to do now is to get ready for it. Before those days arrive every agricultural association should thresh out the subject, reach some definite conclusions as to what the State should do and arrange to have such conclusions brought to the attention of this legislative committee. In answer, then, to the demand of our impatient reader, we reply: "Go to it, and do it now."

The Forlorn Hope at Washington.

It is all the more necessary for you to do this now, because the hope from the national capital becomes more and more forlorn. On Saturday last it was telegraphed from Washington that Senator Owen has informed Representative Glass that the majority of the Senate Banking Committee agrees with the House committee majority that it would be futile to take any steps toward enacting rural credits legislation at this session of Congress. Senator Glass said that he would make a speech in a few days to point out how the Federal reserve bank law meets many of the rural credits needs. That is as we expected, and may be taken to indicate the standard banker's idea of the East. Fortunately, we have many many bankers in the West who are taking broader views of the matter.

Queries and Replies

Querists must give name and address.

White Sweet Clover.

To the Editor: Several times I have noticed you refer to "sweet clover" as though rather skeptical of its usefulness. Can you give me your reasons, as I was not a subscriber January 10, 1914, the number Mr. De Witt refers to in his article on page 10 of your issue of January 2, 1915. I have gone to considerable pains for stands of red clover and alfalfa here. I have not seen in this locality a successful looking stand of alfalfa, and only in a few favored overflowed spots does the clover thrive. I have considered sowing some white sweet clover in a small patch with barley for soiling, as a nurse crop, in land that has had corn, thus insuring a crop this year and in case of failure, losing only the seed. From your knowledge of general conditions here, what is your opinion of it.—W. B., Willits.

The objections which are made to sweet clover and from which Mr. De Witt dissented, in the article to which you refer, are that both the white and the yellow species grow all too well with the moisture which makes a barley or wheat crop and are counted a great pest by grain growers, not only because they take the moisture which the grain should have, but because they impart their perfume to the grain, and it even goes into the flour and disgusts the bakers. The sweet clovers are good winter growers in California. They persist in making winter growth in alfalfa, and sometimes lead the farmer to think that he has discovered a new kind of winter-growing alfalfa, but he soon learns that the intrusion of melilots into alfalfa is exceedingly undesirable because the plant is not generally acceptable to stock, owing to its rank flavor. Mr. De Witt says his experience has been otherwise, but our observation stands as a general truth just the same, both as to New York, where we knew the plant as an outcast, and as to common California experience.

Another objection to melilotus is that it is not a perennial as are red clover, alfalfa, etc., and its growth the third year depends upon the seed of the second; and though it will be very likely to come, it is apt to be patchy unless the seed is gathered and resown. As to sowing barley as a nurse crop for sweet clover, it will be the barley that will need a nurse when their fight is over.

Katydid Eggs.

To the Editor: Enclosed find a small prune twig with some eggs attached. Please tell me what kind of pest they will hatch out and at what time, and what damage they will do to a tree and what will kill them.—R. E. E., Chico.

The oval, flattish, grayish, seed-like eggs which you find neatly laid in two rows are those of the katydid—one member of the grasshopper family, which never becomes numerous to do any harm. Therefore, you can snip off what you see in pruning or you can leave them if you like katydid music. They will hatch with the flowers that bloom in the spring.

Gypsum on Alfalfa.

To the Editor: Can gypsum be put on a field already in alfalfa, 3-year-old stand, on a sandy soil, and how, and if it would do any good, and what benefit would it better the stand?—E. B. B., San Francisco.

It is usual to apply gypsum to growing alfalfa. Scatter, say 500 pounds to the acre, with a shovel from a wagon, or get a fertilizer-sower. The effect is better on a heavy than on a sandy soil, but it will stimulate the growth on any soil. It does this by setting free other plant-food from the soil mainly. It would not improve the stand by making more plants (which is usually meant by those words), but it would increase the growth of the old plants. Apply as the plant is making its spring start.

Acorns as Stock Food.

To the Editor: I have a few oak trees (live oak) on my place. I would like to make use of the acorns if I could. Are they good to feed chickens or Belgian hares? My horses will not eat them, and I don't keep hogs.—A. R. Z., Applegate.

All acorns, so far as we know, are wholesome and good for man (as the original Californians, the Digger Indians, demonstrated), and for any beast or bird which will eat them, as the woodpeckers do. We are told that turkeys take to them like corn. Some consumers have to be educated to like the taste of them. Smash up some and the chickens and rabbits will probably take to them, and you can help the horses to take them by using a little salt. But do not give them too many at once.

Ashes for Apples.

To the Editor: About what is a fair application of wood ashes per mature apple tree?—L. R., Sebastopol.

We have used two bushels to the tree with good effect on woolly aphis, etc. We do not know how much more could be safely used.

What May California Expect From Seedling Walnuts?

[Written for PACIFIC RURAL PRESS.]

Remembering the fact that the present English walnut crop of California is practically composed of seedlings of a soft shell type which originated in Santa Barbara: that, on demonstration that type was not so well suited to other parts of the state as to the south, several varieties like the San Jose Mayette, Concord, Willson's Wonder, etc., which are now being largely planted, are also California seedlings; that several now prominent for rust-resistance, Eureka, etc., are also California seedlings—it seems fair to expect that, in the progress of the English walnut in this state, selected local seedlings will always play a prominent part. Therefore we take much interest in them and have pleasure in presenting herewith, by courtesy of W. A. MacKinder of the St. Helena Star, some pictures and statements about a walnut seedling which is duly installed in the St. Helena district.

John H. Wheeler, who we have personally known and admired since his college days of three decades and a half ago at Berkeley, has had for a long time vineyard property in the Napa valley which he has developed and improved with his characteristic insight and energy. He has grape vines, prunes, hogs, alfalfa, etc., and though single in his own purpose to make good, his products are much diversified. But the feature of the Wheeler farm that impresses one most just now is the grove of one hundred and forty acres of walnuts, now coming into bearing. About two tons of nuts were marketed at a fancy price last November and each year from now on the yield will be larger until when the trees have attained an age of ten years and have come into full bearing it is confidently expected that there will be harvested annually from this one walnut grove a ton of nuts to the acre or a total of one hundred and forty tons.

Life Size Large Strain Franquette in Shuck.

Walnut growing in Napa valley, says Mr. MacKinder, as an industry is new and consequently interesting from that viewpoint, but growers and others interested in walnuts are probably most impressed by the variety Mr. Wheeler has selected and that predominates in his orchard.

After very wide investigation Mr. Wheeler selected the Franquette as the best variety for his valley. The Franquette walnut has easily taken the lead in grafted and budded stock in central and northern California. Whether this variety was first brought to California by John Rock of the California Nursery Company or by his contemporary, Felix Gillet of Nevada City, we are not quite sure, but it has proved itself to be widely useful from the fact that it comes out a month later and sheds its foliage several weeks earlier than the Concord and Santa Barbara varieties, though the nuts ripen later.

Many seedlings have resulted from the wide distribution of Franquette nuts of the Rock importation, some of which show marked improvement over the original European stock. One strain, the exact life-size of which appears in the illustrations on this page, represents an extreme variation selected by Mr. Wheeler as his specialty. Mr. MacKinder says, it is a veritable "whale" among walnuts, weighing five ounces and measuring eight inches around one way and eight and three-quarters the other. This weight and the measurements, of course, include the shuck, but the nut itself is exceptionally large, is full of white meat and has a light, firm shell.

The Franquette is wonderfully prolific when on trees old enough to bear, though not so precocious as some others. Mr. Wheeler grafts his California black walnut stock to this strain of Franquette only, because of its full bearing on young trees. His trees yield crops difficult to maintain without props. Mr. Wheeler lost three nine-year-old trees last year from breaking under their heavy loads.

The shucks of this strain, like all Franquettes, are remarkably heavy, so much so that they may be utilized separately for making valuable walnut pickles, if the nut be picked and removed therefrom at early maturity. The pickle is very palatable, being considered a great delicacy by many.

When Mr. Wheeler decided to go extensively into walnut growing he made a close study of every phase of the industry. His son, Rollo C. Wheeler, also became greatly interested and the two visited all the large groves of the State and studied every available authority. Now that a large acreage of the trees are coming into full bearing everything has been made ready for caring for the crop.

Near the winery is a building 80 feet long, one half 30 feet wide and the other half 16 feet wide, the whole being 26 feet high. This is equipped with every modern device for handling the nuts, which are washed, sorted, dried and bleached. There are six tiers of wire mesh tilting drying trays, each of one ton capacity. These are arranged to dump automatically and thus the nuts drop from one tray to the other in the process of drying. The plant has a capacity of fifty tons and was installed by C. C. Sidwell, of Los Angeles, an expert in that line.

Same nut showing size with shuck removed.

In Peabody a small Unitarian girl of four, whose father, a bank official, had complained more than once that the income tax made him sick, was playing that her doll was ill. Her mother asked, "What is the matter with dolly?" The child replied, "I think she has the income tax."

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

OUR SERVICES ARE FREE

We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.

We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.

OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.

Write for Booklet.

CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco

Martinez Nursery
Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

Peach Trees Show Gratitude.

[Written for PACIFIC RURAL PRESS.]

The cash difference between the profits resulting from spending plenty of money intelligently, and those resulting from lack of applied capital, was strikingly illustrated on a four-acre peach orchard, part of a 62-acre dairy ranch in Stanislaus county.

It was a rundown ranch for sure in December, 1909, when J. S. Rhodes leased it for $500, with half of that knocked off if he would clean it up. Manure had accumulated around the barns until the dairy inspector said it had to be cleaned up.

The peach orchard was full of weeds high as the trees; curl leaf, blight, and gummosis had run riot, and in the previous two years just $41 worth of fruit had been sold from it. The ranch was sub-irrigated by drainage from the irrigated farms on the higher land to the north.

The manure piles were surprised and scattered among the mown weeds of the orchard by means of a Fresno scraper at the rate of about 16 tons per acre. The ground was plowed a foot deep, tearing roots promiscuously, a procedure justified only by the immense weeds and the amount of manure to be turned under.

The trees were ruthlessly but intelligently pruned to cut out all the disease and reduce the mess of interwoven shoots to correspond to the root pruning and to admit light to all parts of the tops without cutting out all the fruit wood.

They were thoroughly sprayed through the season and cultivated every two weeks through the summer with a spring tooth harrow. The soil was made so loose that a man would sink in it half way to the shoetops.

We hesitate to tell the enormous growth made—as much as 16 feet in one season. But not all of the growth was wood, for Mr. Rhodes sold $350 worth of peaches to the canneries the first year without having to pay any transportation.

Prospects were so good that he bought a share in the place next year and applied as much manure as he had before. With plenty of spraying and perhaps some thinning, but with much less radical pruning, a crop was raised which sold in Omaha for $800 above the cost of transportation. Next year the manuring and other attentions were repeated. Part of the crop was dried and sold through the Cured Fruit Exchange. The next returns on this third crop were $1350, the fresh fruit having been pooled with that of shippers from Fresno, because the local shippers had lost prestige on the eastern markets by shipping ranch packed fruit.

At this stage, Mr. Rhodes sold his interest in the ranch and the new owner did not cultivate or thin the fruit. He didn't prune or spray, and the crop netted less than $100. There was an awful load of little stuff not worth shipping.

Mr. Rhodes has been in dairy and fruit ranching many years and he believes that his method of pruning peaches is right. It works easy if begun at planting. In pruning an older orchard, the same ideal is held in mind and attained as near as may be under the existing circumstances.

The tree having been cut off 18 inches tall at planting, sends out six or seven branches. All but three or four of these are cut off next winter close to the tree. The three or four left are cut back 2-3 of their growth. Each of these sends out several laterals in the following summer. These are thinned out and the ones allowed to remain are cut back ½ to 2-3. The center is kept open. Since the prevailing winds there come from the northwest, the branches are all cut with the top buds on the northwest side if possible.

When the age for fruit bearing has come, enough of the previous season's limbs are left to bear all the tree can mature the next season, enough are cut back part way, to insure the production of new wood to bear the second season ahead, and all the rest is cut off at its junction with another limb. This continually keeps the fruit close to big limbs where the wind does not lash it and where it is supported so that no props are needed.

There is another peach grower in Stanislaus county who couldn't get much of a crop for three years and didn't know why. Then he changed pruners and the new pruners left more of the previous season's wood so that he got 1-3 of a crop. This year there was an enormous set of buds, but still only a half crop because not enough wood had been left of the previous year's growth.

A tree is at best bearing efficiency, thinks Mr. Rhodes, when its tops take all the sap the roots send up and couldn't take any more without sending out watershoots. Thus, watershoots indicate that too much wood has been taken out, provided there is a normal setting of fruit to take part of the sap.

It was lots of work and considerable expense to get the peach trees into working condition, but how the trees must have worked when they were so encouraged!

DOUGLAS "FIR" OR "SPRUCE"?

To the Editor: Some months ago you published an article by Prof. W. L. Jepson under the heading "When Fir is Pine," in which Prof. Jepson states that the official name of Pseudotsuga taxifolia is Douglas fir. I had always supposed that the correct name was Douglas spruce, and both Hough and Sargent so designate it. Is Douglas fir a later and more authoritative name?—WM. R. WATSON, Albany, N. Y.

[Answered by Dr. W. L. Jepson.]

["Dougas Fir" is the official name of Pseudotsuga taxifolia in the sense that it is the name adopted by the Pacific Coast Lumbermen's Association as official in the trade. It is also the name adopted by the United States Forest Service.

"Douglas Spruce" is preferred by botanists since the tree is more nearly related to the spruces than the firs.—University of California, Berkeley.]

Ethel (studying grammar): "Say, Reggie, if a man druggist is called a pharmacist, what would you call a woman druggist?" Reggie: "A pharmacister, of course."

Armstrong Nurseries
ESTABLISHED 1889

OLIVE TREES

Mr. Planter: Do you know that the olive industry, from the standard of profit, is, at the present time, of utmost interest to you? and that it is deserving of careful and serious consideration?

Do you also know that, if the same scientific principles that have been applied to the citrus industry were applied to the olive industry, the profits would be enormous? If you have suitable soil in a suitable location,

Plant Olive Trees.

If you are in "doubt" as to the advisability of planting olives in your particular case, write for a free copy of my Booklet on the Olive; it contains a brief summary of facts relating to Olive culture from the propagation to the marketing of the fruit. Also.

Write for Prices on Olive Trees.

MISSION, MANZANILLO, ASCOLANO, SEVILLANO.

A FREE Copy of my 1915 Catalog will be mailed on request.

WRITE TODAY.

John S. Armstrong, Prop.
406 Euclid Avenue.
ONTARIO, CALIFORNIA.

ALFALFA SEED

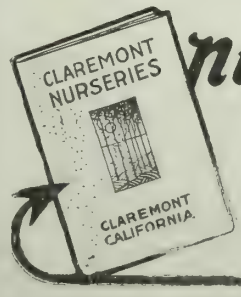
Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.



Write for this Nursery Catalog

MISSION AND MANZANILLO OLIVES.

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

ETTERSBURG STRAWBERRIES

These are the varieties bred largely from our native species and other wild species. They are new and different from the regular varieties, exceeding them in vigor, productiveness and HIGH QUALITY. They are wonderful berries here, and they will be for you, too. Write to ALBERT F. ETTER, Briceland, Calif., for catalog and price list.

DO IT NOW

Navel Orange in Its Old Home.

A. D. Shamel of Riverside, whom our readers will remember from the outline of his California work better types of Citrus fruits given in the Pacific Rural Press of June 13 and 20, 1914, has in the Orange Judd Farmer an interesting sketch of the navel orange as he saw it in Brazil.

The Washington navel orange crop of California amounts to an average annual production of about 27,000 cars. The variety came originally from Brazil, and was distributed in Florida and California by the department of agriculture; in 1913-14 the department sent an expedition to southern Brazil to collect further information. In Bahia the municipality includes not only the city proper, but also about 30,000 acres of land suitable for orange culture, and a large amount of land adapted for the cultivation of other crops. All of the established commercial orchards are located in the municipality and are centered about eight principal districts, reached for the most part by electric car lines. The groves are usually located on the higher lands, hilltops or hillsides. In the valleys forage crops, vegetable gardens and fruits other than citrus are grown. Average annual rainfall is about 50 inches, heaviest during winter season, although more or less rain falls every month of the year. The maximum temperature is about 105, minimum 68, no frost ever having been reported.

We found a total of about 76,000 navel orange trees at Bahia. The trees are planted at the average rate of about 100 to the acre. The city and state of Bahia are encouraging the planting of navel orange trees, so there is likely to be a considerable increase in the area.

The universal stock used in Bahia for the propagation of the navel orange is the Brazilian sour orange. The seed is sowed in seed beds much like the practice in California nurseries. The seedlings are budded when about two years old, at which age they reach a size of ½ to 1 inch in diameter. Shield buds are commonly used, cut from bud stocks of about same size as seedlings. These buds are inserted in the seedlings at 10 to 20 inches above the ground, high budding being the rule.

Orange lands with bearing trees convenient to the city are said to sell at $300 to $500 per acre. The cost of clearing an acre is estimated at $2 to $4. The ant colonies on the cleared land are destroyed by fumigation, using sulphur and arsenic. Navel orange trees are planted during all months of the year, although the spring season is usually preferred. Trees are arranged in squares and are set about 20 feet apart, average planting of about 100 to the acre.

Manure is almost universally used for fertilizing the soil. All of the leading orange growers with whom we came in contact maintained dairies in order to secure manure for use in the orange orchards. The liberal use of manure is regarded as absolutely essential. In one large orchard we found that in addition to manure, the refuse from the municipal abattoir was used.

The citrus trees we found to be attacked by many kinds of scale, the white fly, several kinds of ants and other insect enemies. All of the insects attacking the citrus trees in California with which the members of the expedition were familiar, as well as other unknown kinds, were found in the Bahia district. As fumigation, spraying or other methods of artificial insect control are not practiced, except in the treatment of any colonies, it is evident that the ladybirds and other natural parasites perform an important function in the control of certain of the insect enemies of the orange trees.

Of the many fungous diseases attacking the navel orange trees, the most destructive kinds are the group included under the heads of gummosis, scaly bark and dieback. When the orange trees become unproductive from any of these causes, the tree renewal, or severe cutting back method is practiced. Spraying or means of fungous control is not used.

In an experimental shipment of carefully handled oranges from Bahia to Washington, taking three weeks, we found less than 1 per cent decay. There is no doubt but with careful handling and proper conditions during transit the Bahian navels can be exported to any markets reached by established steamship lines. The average price secured by the growers for navel oranges is 2 cents each.

OPENING ORANGE TREES.

[Written for PACIFIC RURAL PRESS.]

Orange pruning is attracting more attention since the frost. The following written to this office by D. D. Sharp, Riverside county horticultural commissioner, shows the trend:

"In a great many cases the frost, although a loss to the grower temporarily, has been a blessing to the tree permanently. The grower was compelled to prune in a manner the tree had needed for years; he became reckless in his own estimation, and plowed up his orchard in a manner the soil had needed for years. Result — a vigorous, healthy wood growth, large healthy leaves, and a good setting of fruit of desirable sizes, a bank account instead of white elephant."

In the Porterville district, C. W. Buswell thins the outer twigs of navels to let light vitalize the buds inside. He breaks out the dead twigs by hand as much as time allows and encourages inside buds to grow all they will. Only the rapid growing upright shoots are taken out entirely. These would make fruit in three years by cutting back to a foot of new growth each year, but natural fruit wood can be induced to grow and bear in the same time anyway. Last year Mr. Buswell got three boxes of inside fruit on two year wood growth and it is extra fine quality and texture of skin.

GOLDEN ORANGES.

[Written for PACIFIC RURAL PRESS.]

A successful woman orchardist of the "Success section" of Tulare county is reported to have picked 2480 boxes of oranges from five acres of young trees. The name of the section is not responsible for the success of the lady nor is it likely that this is the only part of Tulare county where success is possible to a woman fruit grower.

And success comes to men in that county, too, with oranges and olives, for R. D. Williams of Exeter is reported to have netted $12,500 from 50 acres. Since "net" has so many customary commercial meanings besides its mercantile application, we do not know that he had that much to put into the bank after all the year's orange expenses were paid, nevertheless, the report states that $2000 of it was due to the row of olive trees characteristically surrounding his navels, that $6,000 is due to ten cars of oranges and $4,500 to another ten cars. Not content to fill us with wonder at Mr. Williams' success, the report continues to say that it is the usual thing in that country. Well, "after you've been there, you'd like to go back," as we all say of California in general.

Still another color of gold is revealed in the report from Sutter

Wilson Trees Recognized the Standard

IF YOU WANT RELIABLE NURSERY STOCK well grown and otherwise first class, write us.

Our New Catalog is the talk of the Pacific Coast. This Book gives description of all commercial varieties of Nursery-stock, and in addition it contains valuable Planting Methods and other expert advice. Send for it. IT'S FREE FOR THE ASKING. Submit a list of your wants for quotations. Special prices named on large orders.

SPECIAL OFFER All orders placed with us before Jan. 1st, 1915, calling for 500 Trees we donate a Family Orchard of 20 Assorted Fruit Trees.

SPECIALTIES: Deciduous Fruit Trees, Citrus Trees, Olive Trees, Fig Trees, Grape Vines, Hardy Ornamentals.

Address us Box 615 M, Fresno, Cal.

40-ACRE EQUIPPED FARMS

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

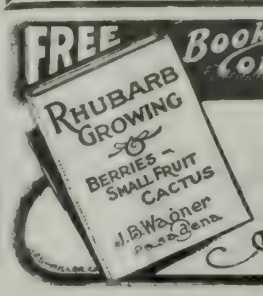
Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

FREE Book on RHUBARB Culture WRITE FOR IT TODAY —



Now is the Best Time to Plant RHUBARB BERRIES AND SMALL FRUIT. If planted now, you should derive good results

J. B. WAGNER - Pasadena, Cal.

The Rhubarb - Berry & Cactus Specialist

county that a lemon tree and six more, all twelve years old, yielded three hundred dozen Villa Francas already with more than twice as many to come. Please don't everybody do as well all at once, till the tariff is tinkered some more.

OLIVES WITHOUT IRRIGATION.

To the Editor: Having seen several inquiries in the farm journals relating to the culture of olives, it seems to be the general opinion that they need to be irrigated, in order to thrive. Now as a matter of fact this is not true, for the olive will do well on our hillsides, with an ordinary cultivation. I have given the olive quite a consideration during the last ten years, and if a little pains is taken in planting, good results may be expected, especially so if dynamite is used.

Personally, I have only 20 olive trees, ten Mission and ten Manzanillo. These trees have had no care at all, having for the first five or six years been broken down by the stock. They are now twelve years old and, having kept the stock from them for the last few years, they are doing fine, being literally loaded with fruit, which is of fine quality and size. The Mission is the most vigorous grower. Now don't understand me to be quoting on the olive just from my personal experience with these 20 trees. I have given this matter my attention through a radius of fifteen or twenty miles, and I tell you that the olive, with only moderate cultivation, will make good. These observations apply to granite land, red land, slaty land, loam, and rocky, hilly land. From my experience, I believe that an olive will thrive where an oak will grow, and I can show the most skeptical good reasons for believing it.

W. E. SPEER.

Jackson, Amador county.

GARLIC PROFITABLE.

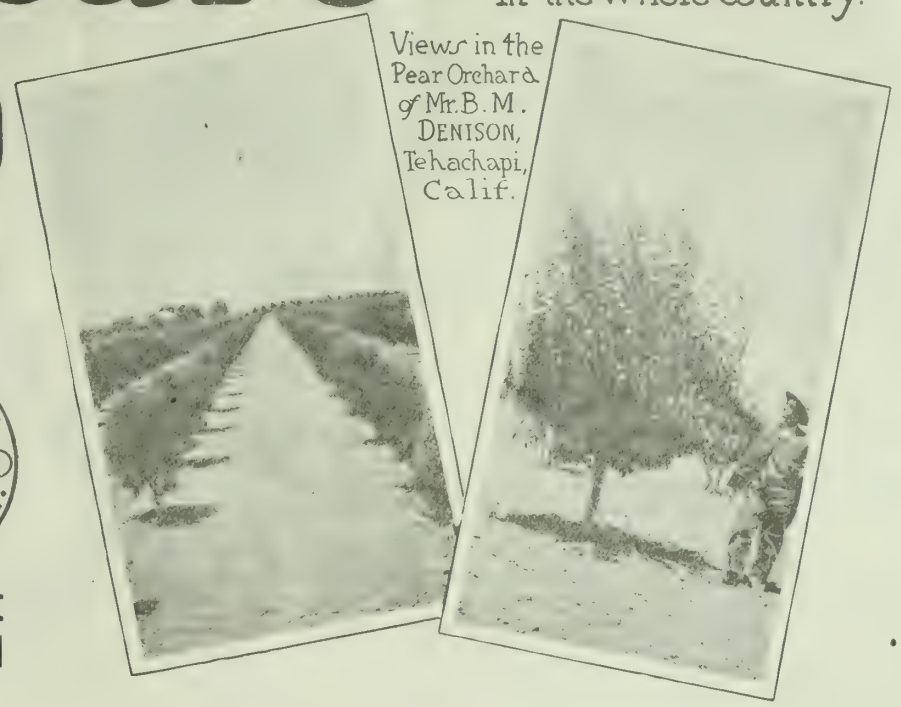
To the Editor: I have thought some of planting a couple of acres of garlic. Do you think it a profitable crop? The soil is gravelly loam. When is the proper time to plant and harvest it? Should it be handled like onions? They do well here. —Mrs. J. B. M., Patterson.

[Just now, according to C. W. Gould of the Growers' Cooperative Agency of San Francisco, garlic is worth 10 cents a pound wholesale in sacks. It is usually 3 to 4½ cents —higher now because New York people have cleaned up the California crop on account of the war and the demand is likely to continue good. Plant the "cloves" as soon as the ground warms up and heavy rains are over. Have the soil finely prepared, set them like onion sets immediately after preparation before weeds start and never let the weeds get ahead of you. Wheel hoes built for the purpose are probably best—those having two wheels, one on each side of the row, and two knives slanting backward. Keep the knives sharp and have help ready to weed the narrow strip left in the row before the weeds get so big that pulling them loosens the garlic. The other cultivation too, is like onions. Unless you have reliable help, two acres is too much, especially for inexperienced people.—Editors.]

Pears

Pronounced by Experts to be Perfect in Appearance and Exceeding in Quality Anything in the Whole Country."

READ what this satisfied user of ROEDING TRUE TREES FRESNO, CAL. ---says about QUALITY and SERVICE---



Views in the Pear Orchard of Mr. B. M. DENISON, Tehachapi, Calif.

Tehachapi, Cal., Dec. 18, 1914.

FANCHER CREEK NURSERIES CO.,
Fresno, California.

Gentlemen:—

I want to give you a few particulars concerning the Bartlett pear trees which I purchased from you in the spring of 1909. My orchard of 40 acres has made a remarkably fine growth, and my place excites the admiration of everyone who sees it. When I planted this place, the people in this vicinity intimated that my undertaking was that of a tenderfoot, and that it would be only a question of time when I would find that I had made a great mistake in attempting to convert a locality that was only a sheep and cattle grazing country into a fruit district. Within two years after I had planted my orchard, it had made such a remarkable growth and the trees were so thrifty and free from disease that it attracted wide-spread attention and caused prominent fruit-growers from all over the Pacific Coast to make investments and immediately commence the development of their properties, so at this time there are over two thousand acres planted to pears and apples.

I want to take this opportunity to express to you my appreciation of the advice given me by your Mr. George C. Roeding concerning pruning and general cultural directions. Although I gave the orchard the best of attention, I do not hesitate to say that the actual demonstrations which he made in pruning had much to do with the uniform, shapely appearance which the trees present today. My orchard is located on an elevated plain 4000 feet above sea level where the climatic conditions are extremely favorable, causing the pears to open very late in the fall so that they keep in perfect condition for the holiday trade. Experts have pronounced these pears perfect in appearance and exceeding in quality anything which they have ever received from any other section of the country. I have planted several orchards since and I obtained these trees from you. These younger orchards are doing just as well as the first one I planted. I have simply had splendid success with your trees.

If you desire to use this letter in any way, you are at liberty to do so.

Yours very truly,
(Signed) B. M. DENISON.

TREES

We have Finest & Largest Assortment of Fruit and Ornamental Trees, Vines and Plants on the Pacific Coast.

No matter what you figure on planting this season we can supply your orders fully and with first quality trees. Send us your list for prices and suggestions.

Pears, Olives, Peaches, Oranges, Apples

——and every other sort in all the best varieties and in any quantity that you may desire.

1915 CATALOG NOW READY
Write for your copy today

Just off the press and will be mailed to any address upon request.

ROEDING TRUE TREES FRESNO, CAL.

Fancher Creek Nurseries, Inc.

Geo. C. Roeding, Pres. and Mgr. Paid Up Capital $200,000.00
BOX 18, FRESNO, CALIF.

Oak Fungus on Fruit Trees.

[By Prof. W. T. Horne, Cal. Agr. College, Berkeley.]

The oak fungus disease or fungus root rot caused by the fungus Armillaria mellea, is a very common and a very serious disease of orchard trees in California. Its most striking characteristics are its marked localization and slow progress. The fungus which causes it probably existed in the roots of wild trees, attacking living roots but working so slowly that vigorous trees were not killed, and also persisting in the dead wood causing roots to decay. It appears that many wild trees are infected in nature and we do not have sufficient evidence to say that oaks are more subject to infection naturally than other trees. Not all roots in the soil are infected, so we can not say that because an oak tree grew in a given place oak fungus will appear there.

When the roots of a fruit tree come sufficiently near infected wood in the soil, the fungus grows over and attacks the living roots. We must believe that this may happen long after the original clearing, because the fungus will not die out of the soil until the root in which it lives is very completely decayed. It is probable that new infections have appeared ten years after planting an orchard.

Trees Die Gradually.—The course of the disease is now well understood by fruit growers. Often several trees have died before particular attention is given to the trouble. It is then found that two or three trees nearest to those which have died are dying or diseased. The trouble can be recognized with certainty only by an examination of the roots. Usually two or three years will elapse after the first signs of weakening have appeared before the tree dies and after the first collapse some part of the tree may start up and continue to grow for an indefinite time, finally to be blown over by the wind or to die completely if it does not first exhaust the grower's patience and get pulled out. Two or three years or more may pass before the disease spreads to the next tree. The rate of spread is slow, but we have maps of spots in citrus orchards fifteen years old where 25 to 30 trees have been lost. In some cases practically whole orchards have been swept over. Some have not been replanted. Others have been replanted, part of the replants living and others dying, so that the result is very discouraging. After the disease has become well established occasional new centers of infection appear. It is believed that probably such new infections arise from a diseased root. I have picked up from the moist cover crop a piece of diseased root which had fallen from the cart in which a dead tree was being hauled from the orchard. If this root has been plowed under so as to come near a healthy root the fungus would almost certainly have grown over into the healthy root and in a few years another tree would have died and a new center of infection would have been established.

How to Tell Oak Fungus.—Toadstools or mushrooms appear during early winter about most of the sick and dead trees. These toadstools may continue to come up on some stumps for at least five years. They are light tan color and are found in large clumps. They arise directly from the diseased roots and are the fruiting bodies of the fungus. White spores are found on them in immense numbers, but probably these spores do not cause new infections in living trees, although we have repeatedly grown them artificially. They might easily infect a decaying stump.

If we examine carefully a root newly killed by this fungus we see that its bark is somewhat puffed and when cut into is soft and moist. By care we can separate it into layers exposing white plaques of fungus which are soft, felty and tend to radiate out in fan-shaped bodies. The appearance will vary somewhat according to the kind of tree. The odor is a sharp sweet mushroom odor and not putrid or sour. Precisely such bodies are found in artificial cultures. Sometimes the bark is cracked and fungus bodies pushed out into prominent ridges which are black on the surface but white below. Roots which have been attacked for some time will be found to have the wood with a white decay working in from the surface. After a time the wood becomes very soft and moist and finally almost completely disappears.

Dark brown to black shining root-like structures coming out of the diseased bark and running along its surface are often found. These are the rhizomorphs; they resemble roots but have a different structure, the center being composed of soft white fibers. They give the fungus the power to go several inches from one root to another. When the tip of the rhizomorph comes to a healthy root the very small microscopic threads of which it is composed seem to loosen like the cut end of a rope and the individual threads penetrate into the bark and start a new infection.

Treatments for Oak Fungus.—Prevention.— It is often recommended to take great expense to get out all roots from new land before planting. Evidently the fewer roots left in the soil the less chance there will be for infection. However, it is not within the limits of practicability to get out all roots from wooded land. A good practice would be to clear the land, cultivate thoroughly, then keep it several years in alfalfa before planting the orchard. However, in view of the scattered nature of infections and the impatience of planters, it does not seem worth while to insist on such a program.

Treatment of individual trees may have a certain value, but usually will be disappointing and is doubtfully worth while for orchard trees. If the crown of an affected tree is uncovered and by a generous amount of digging all diseased roots are removed or the diseased bark scraped off and the wood treated as recommended in our paper on wood decays, published in the issue of Aug. 29, and the place allowed to dry out well, the remaining roots will grow freely, provided the tree has not been girdled by the fungus. By repeating such treatment and by keeping the crown

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS

REMEMBER
When you purchase
Silva-Bergtholdt Trees
you buy from a firm who are fruit growers and shippers as well as nurserymen.
Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree.
Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue
giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

ALMONDS
Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS
Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.
Franquette — The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES
California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.
Tuscan — Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.
Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.
Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

The best varieties are selling rapidly. Don't wait too long.

OLIVES
Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES
Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS
The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES
The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS
Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

as dry as practicable it is entirely possible that a tree may be kept alive for many years.

Treatment of Spots.—We have insisted that two problems are involved: one, checking the outward advance of the fungus so that new trees will not become affected and, two, treatment of area already infected.

Treating the margin of the spot has been practiced, I understand, in German forests by digging a ditch about the affected area so as to enclose all the fungus. The fungus travels along the roots and a ditch makes a space which it has no way to pass. We have some experiments under way to test this method. Our orchardists object to an open ditch so we allowed the ditches to be refilled. One spot ditched was in an orange orchard in good mellow soil, trees good and more than ten years old. There were two dead trees and two infected at the root, but with tops still fine. The ditch was made 3 to 3½ feet deep, no wider than necessary for digging. It seemed to have cut all the roots. Infected roots could be readily recognized. As finished it was believed that no diseased orange roots crossed outside the ditch. A layer of tarred building paper of good quality was put against one side of the ditch to prevent new roots from crossing back into the diseased area.

After a little more than two years the ditch was reopened. The building paper was worthless for stopping the roots as they grew through it very readily. The rest of the experiment was highly encouraging. In repeated cases a root from which a piece had been cut out could be recognized unmistakably on the two sides of the ditch. The piece within the diseased area would be in an advanced condition of decay with the fungus, while the end toward the unaffected tree and outside the diseased area would be entirely unattacked and putting out numerous new roots. There could be no reason to doubt that if the ditch had not been made the fungus would surely have followed the root and there would have been no hope of saving the tree. Around this area which included four diseased trees, no less than five good trees were saved from infection. If once opening the ditch will save the sound trees from infection for two years there is no reason why the thing can not be done again in the same place and the spot continually restrained to its present area.

All Roots Kept Out of Ditch.—Several points in the work should be noted. In one case unintentionally a diseased piece of root was thrown back into the ditch. The new roots which had grown out from the healthy side had come in contact with this and were already diseased, but this infection had not gone far back toward the good tree. I believe we succeeded in removing all of this infection.

It should be pointed out that many new roots were getting close to the infected areas and would soon have become infected, so that if the ditch is made once and not reopened the trouble will be only slightly delayed and the work will be hardly worth while. Some orange roots which were cut off in working the ditch remained alive in the soil for more than two years and were pushing out growth from the cut end which might have become a leafy shoot. This is an important matter because it shows that a long time must elapse before roots will be entirely decayed in the soil.

Soil Sterilizing with Carbon Bisulfid.—It would not seem to be a difficult matter to find some substance which could be put into the soil and entirely kill everything. Carbon bisulfid is the most promising material thus far suggested. If used properly and in sufficient quantity we feel sure it will do the work. It is simply a matter of studying out the method and counting the cost. We feel rather doubtful if it will be possible to kill the fungus and not kill good roots lying in the soil, because the fungus penetrates into the wood and part of it is deeply buried, while the living part of roots is the cambium layer just between the bark and wood. The way carbon bisulfid spreads and works in the soil may be illustrated by one experiment. A row of holes were bored with a small soil auger one foot apart and about fourteen inches deep. One ounce of carbon bisulfid was poured into each hole and it was filled and tamped with the heel at once. This row of holes passed just at the edge of the branches of a good orange tree.

After a little more than two months part of this row of holes was dug out. Roots near the surface of the ground were found dead a little more than a foot on each side of the holes while the deepest roots (less than three feet) were killed nearly three feet from the holes. There was no way to guess how deeply the material was effective, but evidently it would be for a good way. Wetting or covering the soil after injecting the carbon bisulfid will probably be more important than the amount used. We have taken a treatment of injecting 1½ ounces at 1½ feet each way, as a sort of standard for experimental purposes. The treatment is worthless if the material is injected into dry, loose soil.

Resistant Trees Unreliable.—Ways of utilizing the infected areas are by planting annual crops or resistant trees if they can be found. Such areas have sometimes been used by well meaning growers for nurseries. The nursery would probably grow very well so far as could be observed, but it will be clear that such planting is highly undesirable. We have found spring replants badly infected the following fall. Of resistant trees the pear is decidedly the favorite in California and we have no definite data to oppose to this view. However, we understand that the pear is not entirely immune in the states north of us nor east of the Rocky Mountains. Black walnut, cherry, apple, and fig probably all possess decided resistance. We can only advise caution in replanting diseased areas with supposedly resistant trees. The strain of heavy fruit bearing and occasional bad seasons may reduce resistance in some cases. We would urge at least that when planting the trees, a large hole should be dug and the soil not used to fill the hole but spread out to dry around it and all roots gathered up. The best quality of soil free from pieces of sticks or wood should be used to fill the hole in which to plant the trees. The fine roots we believe are less liable to infection than the larger ones, so that in this way resistant roots will be given the best chance to escape infection.

One definite way, the ditch method, for stopping the spread of oak fungus disease, is not unduly difficult nor expensive and should be practicable under some conditions.

In starting in to treat an oak fungus area, first, make sure that the oak fungus is present and that you can recognize it in the roots. A piece of suspected root may be sent to the University if there is any uncertainty. Next, make a map of the area and locate every tree which has the disease and indicate these on the map. Condition of the trees should also be indicated. Then the map can be studied and it can be decided what should be done. We advise deliberation. The problem is one which may take years to solve, but we believe may be solved in time and without extraordinary expense.

ESTABLISHED REX 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS Have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.

WRITE FOR BULLETINS.

California Rex Spray Co.

BENICIA, CALIFORNIA

One-Man Power Sprayer

A Complete High-grade Outfit for the Small Grower

Supplies one line of hose. One man does all the spraying. One horse can haul it anywhere. Will spray from 2 to 3 acres a day at small cost. Light—strong—durable. This is the

BEAN EUREKA

Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.

BEAN SPRAY PUMP COMPANY
211 W. Julian St., San Jose, Cal.
Also Lansing, Mich.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

GYPSUM LAND PLASTER

Gypsum neutralizes alkali; Cures Gum disease, root rot, varigated leaf; mellows gumbo soils; binds sandy soils.

WRITE FOR BOOKLET "LIMING OF SOILS"

CONSOLIDATED PACIFIC CEMENT PLASTER CO
611 San Fernando Bldg., Los Angeles, Cal.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

Effects of Irrigation on Fruit.

[From the address of Prof. C. I. Lewis, Corvallis, Ore., at the California Fruit Growers' Convention.]

There seems in the East to be irrigation prejudice. It is very common to find that eastern people believe that it is impossible to grow a good quality of fruit by irrigation. While in the East during December I was confronted with this statement constantly, that we could produce good looking fruit of good size, beautiful to look upon, but that it did not have the quality. They attributed this to irrigation.

But the type and quality of fruit under irrigation need not differ materially from that which has been grown without irrigation. Most of the prejudice common against irrigation must be attributed to unintelligent irrigation, rather than to irrigation as a factor in itself.

Size of Crops.—Irrigation can be made to influence very materially the size of crops. This come in various ways: first, by producing a larger size of specimen, bringing what would otherwise be small specimens up to a good marketable size; second, by reducing the windfalls; and third, by giving bud wood such a stimulus as to lay the foundation for succeeding crops. In all our work at the Station, trees which were given sufficient moisture have generally excelled in the above named factors those which were not given this moisture.

Color and Maturity.—The color of the fruit, especially red apples, is quite materially influenced by moisture. Whenever a tree bearing red apples does not receive quite as much as it should ,these apples will take on a deep color, but it is dull and unattractive. They do not have that live handsome living color which sells so much of our Western fruit. When given sufficient moisture the color may not be quite so deep but it is alive and bright and measures up to our market requirements.

The lack of moisture on yellow apples is apt to cause an early maturity which brings the greens and yellows into the darker yellows and orange much earlier than would otherwise be true. With Newtowns, for example, if the tree does not receive quite as much moisture, it has a tendency to mature its crop earlier, so that at picking time the fruit is of a much deeper color than is true with those which receive more moisture. But on the other hand, those trees which receive the moisture are generally a little later in maturing, the apples are larger, the color comes out a little slower, but will come in the end, and you generally have a longer keeping apple.

Form of Fruit.—You have all noticed that many of the apples on the Pacific Coast are very long, are so-called elongated, and are ribbed and angular. This is especially true in our Coast districts. Trees that receive an abundance of moisture tend to produce an elongated ribbed apple. Trees suffering from moisture are apt to produce a flatter, round, smooth apple. We not only get this striking result in our various irrigated plots, but in tillage experiments conducted at Corvallis. Plots which were well tilled and heavily mulched, versus those which had poor care, had these same characteristics. The reason many apples in our coast districts are elongated is that they have a very uniform, ample moisture supply. The reason that apples are probably more elongated and ribbed on young trees than on old is that the young trees are relatively receiving more moisture. In the usual system of handling orchards, we give proportionally less moisture as the trees get older, whereas they should receive more.

Dropping of Fruit.—When a tree is suffering from moisture and is very heavily loaded with fruit it will tend to shed much of this fruit. We found in some years, a difference of as high as 50 per cent in the drop between plots which were suffering from moisture, and those which were getting a good supply.

Proportion of Culls.—Culls come from two sources: first, the fruit is too small; second, the large amount of calyx cracking or cracking around the stem of the apple. We have always had more of this cracking in the plots under natural conditions than in our irrigated plots. However, if we picked the apples a little earlier on the non-irrigated plots, we would have probably less culls than would otherwise be true. Apples on the dry plots mature earlier and therefore are perhaps in many cases over-ripe at the time they are picked. However, when you stop to consider windfalls, and small apples, the advantage of an abundant moisture supply in the soil is very easily seen.

Bud Formation.—There seems to be a stimulus given the bud by giving it sufficient timely moisture. These buds are stronger; and we have felt that in several cases the irrigated plots seem to have a heavier bloom the following year than the non-irrigated plots, partly due to the fact that the moisture gives the trees more food and stimulus for accumulating bud tissues.

Wood Growth.—We receive much more wood growth, both in the length and diameter of the twigs. Even though the trees are heavily loaded with fruit, we still secured more wood than we did where they received insufficient moisture and had a smaller crop.

Foliage.—The effect on the foliage is quite marked. Ample moisture-supply tends to make the foliage greener, larger, and more vigorous. We note also that both the foliage and wood seem to continue in activity late in the fall. On this account I would caution the growers who are handling their young trees in districts that are subject to winter damage to be a little careful not to over-stimulate the trees on account of succulent growth freezing.

Disease Resistance.—Several years ago we tried some experiments with some eight to ten year old Bartlett pear trees which were in fairly vigorous condition. The following year the plots we had irrigated were much more susceptible to the action of fire blight than were the dry checked trees. This showed that at that age, under the conditions in which we were working, the moisture had forced a sappy, rangy growth in which the blight worked to better advantage than it did where the wood was firmer and harder. So I would caution pear growers, especially, not to over-stimulate their trees by irrigation.

Quality of Fruit.—We expected to find quite a range in keeping and eating qualities of apples affected by irrigation. This, however, much to our surprise, was not the case. We found very little difference. Where some of the fall and early winter varieties were over-irrigated, they were of coarse texture and coarse eating. But where late winter apples were being grown and were being handled with any degree of intelligence and care, we could see practically no difference in either the eating or keeping qualities of the fruit. In fact, in some varieties the eating qualities improved. It had overcome the tendency to become corky or dry which was noticed in some others.

Jimmy wanted his tooth after it had been drawn, so the dentist wrapped it up in paper and gave it to him. "But what are you going to do with it, Jimmy?" he asked. "I am going to take it home, cram it full of sugar, and watch it ache."

TREES

With Roots That Insure You a Fine Growth From Planting.

You will note the even size of the trees and the long roots. Then consider that Mr. Kirkman has long practised bud selection to improve yield and type, and you can appreciate their value. That's why we say

KIRKMAN'S

Reliable Trees and Vines.

You will find that we will help you in any way possible. Any advice or information is at your disposal.

PLANTING TIME IS HERE. HAVE YOU ORDERED OUR TREES? If not, write us about what you will need, and we will quote prices on your order. Our catalog on application.

KIRKMAN NURSERIES

2523 Tulare St. Fresno, Cal.

Regular 4-6 Ft. Pear Trees. "Kirkman's Reliable."

Farm Youths Grow Apples.

Now is the time to form apple clubs, and the U. S. Department of Agriculture in co-operation with the agricultural colleges of northern and western States is endeavoring to interest the boys and girls of apple-growing sections in the possibilities of apple culture as a profitable and pleasurable occupation.

The new clubs will be organized on the same lines as are those for the encouragement of potato, corn, and alfalfa growing, gardening and canning, and poultry raising. Members must be not under ten nor over eighteen years old. Each of the club members will be allotted not less than ten apple trees, six or more years old, in the same orchard (and all in one row or block if possible) of which he will have the exclusive care for one year. Each club must have at least five members, and these will be under the instruction of a local leader who will receive instructions from the State leader in charge or the county agent. Following these instructions the young member who knows nothing about apple raising will learn to pick, grade, crate, and market apples; also to can and label fruit for exhibition and for sale. The instructions will aim to show each of these young people how he may get the maximum results from his ten trees with the minimum expenditure of labor.

As in the other clubs for boys and girls co-operating with the Department, practical prizes will be awarded by local fairs and interested people to those who excel, the best prize however will be experience and a net profit on investment to each member.

During the winter, interest will be kept up through the local club organization and meetings. The leaders will visit the plats of each of the members to give specific instruction. Early in the spring records will be in order and each club member will be shown how he may keep a simple account of the progress of his row of trees. During the next summer vacation the work will be at its height and the boys and girls who are persevering will not only learn much valuable information but may make a substantial profit on the time and labor they have invested.

Fall will be the occasion of apple club fairs and festivals. At these events there will be exhibits of all kinds of apples and apple machinery, devices used for handling both fresh and cooked apples, of food products prepared from apples, of canning equipment, crates and barrels. Demonstrations will be given at these festivals of how to pare and core apples, how to can "useless" windfall apples, how to make apple jellies, butter and pickles; how to grade, crate and pack apples, etc.

In awarding the prizes for the year many features will be considered; how the trees are pruned, whether they are free from blight and plant lice, how the soil has been worked, the size, color and condition of the fruit and methods of packing will all count in the final reckoning. One of the most important considerations is how much profit the club member has netted from his investment. In the last analysis that is the final test of his success.

It is hoped that the organization of apple clubs will show the younger generation what may be derived from properly directed intelligence and enthusiasm and a systematic study of orchard problems as they arise.

[California is left out of the Department's activities in this line probably because we have a corps of efficient horticultural commissioners and farm advisers who can undertake this work where boys' and girls' High School Agricultural clubs have not already been formed.—Editors.]

BLOOMING TELLS ADAPTABILITY.

[Written for PACIFIC RURAL PRESS.]

The blooming times of different varieties of fruit determines their likelihood of bearing crops in a given locality. In Placer county certain varieties of plums in some orchards are never dependable. The question "why" is generally answered in one of three ways: (1) More fertilization would have made the buds stronger so that unfavorable spring weather would not have been so disastrous. (2) Rains come almost every year when the variety is in bloom. (3) The variety blooms at such a time that late spring frosts often injure or destroy them.

Thus before planting, it is well to investigate the usual times of late frosts and heavy rains and the time of blooming, of different varieties. This may be at a different time each year, but the relative time of the different varieties is likely to be about the same.

With this in view, W. R. Fountain, one of the pioneer fruit growers of Placer county, kept records of the full-bloom time of his plums in three different years.

Table of Plum Blooming.

Table of Plum Blooming.

Variety	1899	1900	1903
Kelsey	Feb. 16	Mar. 1	Mar. 10
Ogon	Mar. 4	Mar. 4	Mar. 16
Burbank	Mar 4-10	Mar. 8	Mar. 21
Climax	Mar. 4-10	Mar. 8	Mar. 21
Wickson	Mar. 4-10	Mar. 6	Mar. 16
Tragedy	Mar. 4-10	Mar. 8	Mar. 23
Red June	Mar.4-10	.....	.....
Clyman	Mar. 4-10	Mar. 8	Mar. 23
America, Botan	Mar. 4-10	Mar. 8	.....
Hungarian	Mar. 23	Mar. 16	Apr. 6
Diamond, Pearl, Gold	.....	.....	Mar. 25
Bartlett	.....	.....	Apr. 8

In 1899 it was observed that the varieties blooming between March 4 and 10 were four days earlier on the east slope than the same varieties on the west slope. In 1900 the Ogon was well in bloom on the flat valley part of the ranch two days before Ogons on the hill. The Hungarian was three days earlier on the eastern slope than on the western.

It will be noted that some of the varieties were pulled up during this period and new varieties planted. This means only that certain varieties were fitted for shipment East while others were found wanting in that respect, though they might be all right for home use.

R. W. Dodge is planting 60 acres of almonds in San Joaquin county.

Farming as a Business.

The farmer is learning to get the results from scientific demonstration by experts. He is finding out that under certain conditions the soil will produce more than under different circumstances.

For instance, animal fertilizers put back into the soil those things taken from it—nature's way.

Animal fertilizer releases in the soil those life germs which are absolutely necessary to the growth of crops.

GOLD BEAR is the brand name for the animal fertilizer made in our government-inspected plant, under the most favorable conditions.

GOLD BEAR fertilizer has proved its worth in the fields of California in the growing of more and better crops to the acre—it has been tried and tested and found to be the one great help needed by the farmer who conducts his farm as a business.

Send for the Gold Bear Booklet.

Western Meat Company

704 Townsend St., San Francisco

SEED POTATOES

If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.

WRITE FOR PRICES.
Alfalfa Seed a Specialty.

VALLEY SEED CO.

510-512 Jay Street, Sacramento, Cal.

LIME FOR LAND

HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate

PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

Maxwell's Nurseries, Napa, Cal.

New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

Melon Growing and Seed Selection

[Written for PACIFIC RURAL PRESS
By Prof. S. Samuelson, Ceres.]

Our melon patches are schools, and trials are our best teachers. Humbly let us unite to do something to help others.

In raising melons some of the important things are: (1) Local experience in soil, moisture, climate, and disease. (2) Local facilities for marketing. (3) Surface or subirrigation. (4) Seeds of good strains and varieties for locality. (5) Rotation of crops. (6) Artificial and natural fertilizers.

As a rule, heavier soils are harder to work, keep the moisture longer, but less of it, they yield lesser crops, smaller in size but better in quality for local markets. Yet as melons are mostly raised for outside markets well subirrigated sandy loams are preferred.

The land should be plowed once 6 to 8 inches in depth after the first rains. Once more ,12 to 14 inches deep after some more rains soak the plow pan underneath to break and pulverize it. Once more if the ground needs it.

The hills 6 to 10 feet apart, will be made by running the plow 12 to 14 inches deep from one side of the patch to the other and turning back running along the same line. This overturned soil forms a ridge. Running the cultivator upon it pulverizes some more and partly fills the open furrows formed on both sides. Repeating the same process crosswise of the patch, ideal desirable hills will be formed, affording better exposure for sunshine to absorb more heat from above and more moisture from below, and also saves much labor hoeing to form the hills and keep them loose. It also saves the hill from extremes of heat or cold during the early and later seasons.

This system of hills provides a nice bedding for the upper two or three sets of temporary lateral rootlets to keep them alive and healthy longer, which is very beneficial for maximum start of growth before they die away on account of surface drouths and give way to lower lateral and tap roots to extend and spread all around under surface mulch, created by repeated cultivations and hoeings.

Vigor Decreases Troubles.—Melon plants are very tender during the earlier period of their growth, therefore need a soil put in the best shape to render them able to attain a timely growth, strength, and maturity before the natural time of start for worms, beetles, aphis, and other diseases or climatic disturbance to attack them.

The common complaint is the melon aphis (casbug). It has a certain time to make its first appearance, very few at the start, though generation after generation it multiplies into millions, yet healthy timely vine growth survives it until the hot days arrive to increase plant growth and to kill the aphis. The best and easiest aphis fighting way yet known is to pull up the hills attacked by the first aphis generation, which are usually only a few in a patch, and kill the aphis.

A timely, repeatedly deeper plowed and cultivated melon patch does not have worms, germs, aphis, and other diseases or climatic disturbances to scare the faithful farmer.

A plow furrow in the shape of V all around the melon patch prevents the invasion of cutworms and army worms from abroad.

Soil Treatment.—The depth of hoeing around the hills, and cultivation of the balance ought to be about 4 to 6 inches, deeper if wetter, with intervals according to the weed and moisture conditions, to keep the weeds off and the moisture up to surface.

Well subirrigated alfalfa land when broken in and put into shape provides the best melon patch with rich nitrogenous plant food and nice network of moisture tunnels as a result of its decay in the soil.

Lands with hardpans or clay bottoms three to five feet deep are good for cantaloupes, musk melons and casabas. Watermelons need a depth of 6 to 10 feet and more moisture accordingly. Plow pans are 4 to 8 inches below the plowed surface soil. The second plowing 12 to 14 inches breaks this. If it is thicker and deeper, another third and deeper plowing is necessary to break it, because it gets dry and prevents the bottom moisture coming to help in plant growth. Delaying of growth and later plant blights are the destructive result of it.

Alkalis with extra outpour of moisture later on dry quick and harden the ground and prevent air penetration to the roots, cause pressings against and chokings around the tender roots until they die. If the ground be ditched and water flowing regulated, the dry soil put in good shape, the alkali salts help for better melon growth.

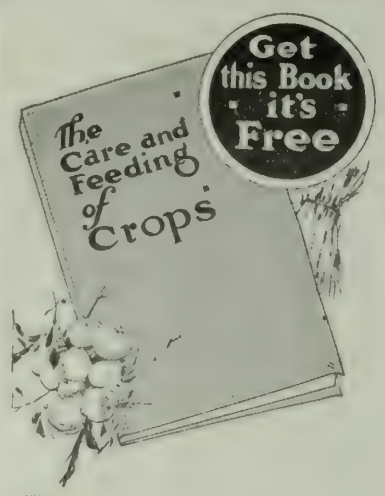
Manures and fertilizers are not economic to be applied on account of high labor and cost comparing the cheap value of melons usually. Another reason is because, when manure or fertilizer is applied, the patch needs frequent irrigation. As melons are raised in short supply irrigation districts, it is not possible to obtain water enough. Also the soils mostly after irrigation ought to be cultivated right away to avoid crackings or hardenings on the surface, which is not possible after the vines are grown two to three feet long, when the patch needs more irrigation.

Selecting Seeds.—As a rule, the best seeds are the heaviest and are colored more inside and outside. Seeds are better in melons which ripen later at maximum health of plant growth. Seeds are better which start to ripen later in the same variety or strain.

Seeds smaller in size and fewer in number in melons are better in quality, while those bigger in size and more in number in melons are not well refined—they are wild types.

Seeds are heavier in over-ripe melons and lighter weight in unripe ones.

The more healthy the melons the stronger the tendency for generation of seeds. The degeneration in successive plantings or breedings is the result of deficient health, which is mostly the result of unmatured and



YOUR CROP LIMITATIONS

Your crop yield will be limited by one particular plant food element which may be deficient in the soil. You may know that such conditions as temperature, lack of moisture, excess of moisture, poor drainage, alkali or acid conditions and soil texture, as well as poor cultural methods, such as lack or excess of pruning and imperfect cultivation, any or all of which, or all of them, will limit your crop.

But there is still another factor which is being taken into consideration by the progressive farmer and orchardist.

It is soil fertility.

Soil fertility depends upon the supply of available plant food. Notice, particularly, the word "available."

And when we talk about plant food we are talking about six important factors or food elements which make up an available plant food.

These are only a few important thoughts necessary for any orchardist or farmer to get the most out of his land.

There are a great many other thoughts which are as important and as valuable to you.

SEND FOR THIS FREE BOOK.

It contains 64 pages of vital facts—information condensed into this simple form which is ordinarily contained in two and three volumes on the subject; and all condensed so that you can get the information readily and easily.

Remember that if you get this book any questions that you would like to ask about soil fertility will be gladly answered by our experts free of charge. And it doesn't make any difference whether you write one or a dozen letters for this information.

Write today — because you might forget it if you put it off.

The Pacific Guano & Fertilizer Company.

804 Security Bldg., San Francisco, Cal.

THE PACIFIC GUANO & FERTILIZER CO. SAN FRANCISCO, CAL. TRADE MARK

Don't Plant CITRUS TREES

until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES,** embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to-name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.

Citrus Trees Exclusively **San Dimas, Cal.**

disease-infected seeds. Seeds raised on healthy plants in heavier soils suit better for sandy loam. Seeds infected by local diseases are not good for the same locality, as the diseases will increase on repeated croppings to menace the melon plants.

Rotation of crops with nitrogen-increasing legumes helps to supply the melon plants more food and frees the soil from diseases.

Those common expressions, "Imported seeds," "disease or frost resisting strains" contain some truth in them, but very little. Nothing can resist severe frost, yet very careful selections of a few of the healthiest plants for seeds year after year will show significant difference in size, taste, durability, shape, color, etc. Improved grades and better strains are obtained, which show some better resistance to disease and frost attacks.

In the process of breeding, the changes obtained are usually very little, mostly failures. But sometimes it strikes a satisfactory result which, being developed, promotes new varrieties and strains.

Melons ought to be left on their healthy vines to let them enjoy a good maturity by nature's fermenting and seed-feeding process. The seeds in the markets are mostly defective from being cured before full maturity of seeds in over-ripe rotten melons or being taken from unhealthy plants after good melons are shipped, or being cured from good plants in maturity but dried in the sunshine, or even if dried in shade are not kept in dry, cool and dark place, so the seeds are spoiled in the inside life.

Floods Rice at Planting.

To the Editor: After the land was leveled, checked and ditched, I plowed it for rice, and sowed about 40 pounds of unhulled rice to the acre—broadcast. It was my intention to have it all sown in April, but it was May before it was finished. I then harrowed it, and immediately turned several inches of water onto it. This water was never off the ground until the rice had well filled heads. I arranged my system of irrigation by placing three-inch well-casing between checks, through the levees, arranged to hold the water in each check to the depth required, then passing it on into the next check, and so on to the end of each string of checks, the water running out at the end of the last check all the time, but the amount of waste water was very small.

April was very cold, and the rice was discouragingly slow in coming up and getting above the water. The grains of rice with the tiny shoot of green and roots floated on the water at will, and were blown about with the force of the winds. Much of the rice appeared to turn yellow and rot when some six inches high, and each grain had but one slender shoot. Later the rice began to start and many shoots appeared where there had been but one, and of a bright green. The weather was not ideal but the older the rice got the more promising the outlook. Finally people began to remark about how well the rice looked, and were much surprised at the marvelous growth and heavy stand when they came from time to time to see it.

The rice is ripening rapidly at the present time (Oct. 8) and much of it stands more than sixty inches high, so thick the heads overlap and form a solid mass of richest brown. The grains are well filled and of large and heavy heads. Some single stools have more than a hundred heads, and each head more than 250 grains of rice. Our rice is the showspot of the country around here, and many are the real estate men who bring the land buyers to view what the "alkali" will do, then take them farther on, to try to sell perhaps some worthless spot of land. This land whereon the rice grows rank has considerable alkali, but not nearly so much as land farther to the west of here. We believe that rice will do well wherever tules will grow. Some of our land was heavily manured, and close adjoining without. The rice was fully as good—no noticeable difference—where there was no manure. Experts who have looked at the rice tell us it will make an average of 25 to 30 sacks to the acre, the heavier portions going much higher.

A picture was taken when the rice was just beginning to show the first heads. The man in the picture is over six feet tall and the rice is well up to his shoulders.

A. M. WOOSLEY, per Mrs. W. Delano.

MARKET FOR GREEN BEANS.

To the Editor: Please refer me to some concern that would buy green beans. Where is the California Jersey Breeders' headquarters?—C. L., Ripon.

[There is always a demand for all the green beans you can raise. Hot house beans are now on the market. Black Hawks are very good early beans—other varieties may be found by consulting catalogs our advertisers will send if you ask them. There are many concerns in the city here who will buy them, or sell on commission, when you have them ready. Secretary J. E. Thorpe of Stockton is at headquarters for the Jersey Club.—Editors.]

An electric power line is being run three miles into the country from Auburn, Placer county, to furnish power for irrigation pumping. The Bell Electric Co. of Auburn is doing this right in the country under the ditches of the P. G. & E., probably as a result of the agitation against the charge of $9 per acre customarily paid in that county for ditch water.

Four-year-old Charlotte had been having some trouble with her English, but she has entirely passed her difficulties on one point. "I see how it is now, mother," she said the other day. "Hens set and lay." "Yes." "And people sit and lie, don't they, mother?"—Golden Rule.

My husband, who is a minister, had occasion one afternoon while making calls to pass our home. Three-year-old Edward was playing in the yard. His father pretended not to see the child and walked past the gate without speaking. Amazement written on his face, Edward sprang up from his play and ran after his father, calling, "Say, is your name 'Daddy'?"

RELIABLE TREES

Get them from the most complete nursery in the world.

SEND FOR CATALOG A.

CALIFORNIA NURSERY CO., INC.
NILES, CALIFORNIA

Fruit Trees
ELMER BROS. NURSERY
AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

Ground Phosphate Rock
The Natural Plant Food and Permanent Soil Builder.
1000 lbs. per acre once in each four years will cost about $1.00 per acre per year. At Penn. State College $1.05 invested in Rock Phosphate gave increased yields of $5.85—over 500%. At Maryland Ex. Station $1.96½ gave $22.11—over 1000%. At Ohio Station each dollar paid for itself and gave $5.68 profit. At Illinois Station $2.50 gave the same return as $250 invested in land.
Each ton contains 280 lbs. of phosphorus, not rendered available artificially by high-priced destructive acids, but so finely ground as to become available in nature's own way.
UNITED STATES PHOSPHATE CO., Salt Lake City, Utah
Write for literature.
"Perfection of fineness in grinding," our motto.

FINEST
NURSERY STOCK
IN CALIFORNIA
20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to
TUSTIN PACKING CO.
TUSTIN CALIFORNIA

Orange and Lemon Trees
Big--Clean--Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
We Can Save You Money Write For Prices
McMillan-Graffen Nurseries
Established 1900 Spadra, Cal.

Citrus Trees With Pedigrees
Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
Balled and on the cars, 40c.
Write for special prices on quantities.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

OF INTEREST TO EVERY RANCHER
1,000 QUESTIONS ANSWERED
200-page, handsome illustrated seed catalog Surpasses all previous editions. Complete listing of seeds. Poultry Hints. Valuable to ranchers. Write for it.
AGGELER & MUSSER SEED COMPANY
6th AND ALAMEDA STS. LOS ANGELES, CAL.

DAIRY LAWS AND POULTRY.

To the Editor: Is it against the dairy laws to have a chicken house and cow barn in connection, a wall separating the two.—E. E. F., Parlier.

[As you will see by the following, taken from Section 2 of the Laws of California relative to the production and standard of dairy products, there is no clause prohibiting the erection of a building such as you describe, however, the law does read that no accumulation of manure be permitted within 100 feet of the milking stable. On that account you should be very careful to keep your chicken house well cleaned at all times, otherwise the dairy inspector would very likely have just reason for complaint. We would suggest that it would be better to put up the two buildings separately, as vermin from the poultry house could very easily gain access to the barn where so closely situated; and the cleaning of the poultry house often enough to comply with the following law might not always be practicable. The law says: "Any urinal, privy vault, open cesspool, horse stable, pig pen, stagnant water, accumulation of manure or other filth shall not be permitted within 100 feet of the milk house or milk room, or within 50 feet of any cow stalls or stanchions, or other place where milking is done; it shall be deemed insanitary."—Ed

California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

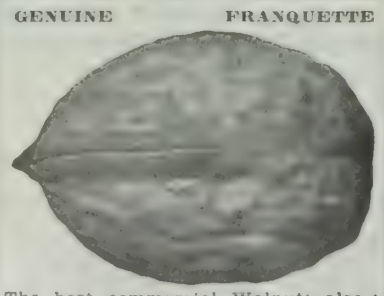
Price $2.00 Postpaid Anywhere.

Pacific Rural Press

Publishers.

525 Market St., San Francisco

GENUINE FRANQUETTE



The best commercial Walnut; also San Jose Mayette. All trees grafted on California Black Walnut root. 6 to 10 inches above ground. Sizes from 3 to 10 feet. Prices reasonable.

SUNSET NURSERY,
525 San Carlos St., San Jose, Calif.

"Back to the Land," Intelligently.

To the Editor: I am anxious to get the latest and best information on soil in southern California—how to tell what defects exist, and how to remedy them.—E. W. P., San Diego.

[We would prefer to let you apply to your own proposition the points made in our recent articles on alkali, subsoiling, seeing land before you buy it, the article on page 600 in May 23 issue for hardpan, etc., etc., per indexes in the last of each six months' issues. In addition, we print below a bulletin issued by the University of California last October. Notice the reference to the university and United States soil surveys which may have been made in your locality and may be on file in the San Diego library.—Editors.]

"Some Things the Prospective Settler Should Know." This is the weapon the University of California has placed in the hands of the newcomer to the State and of the man who has heard the call, "Back to the land!"

Here is a free publication of the College of Agriculture telling what it costs to go to farming, how much investment a competent farmer must make to get a reasonable living, how much yield of each of the standard crops of California may on the average be expected, and how large an acreage is on the average needed to support a family from each of the various types of California agriculture. Dean Thomas F. Hunt and the best experts of the agricultural faculty have combined in this publication their experience, knowledge, and judgment.

A man who can grow only the "average crop" is here warned that, generally speaking, he will do better working for a daily wage for others.

On the other hand, the settler is advised not to figure on raising more than two-fifths of the maximum yield possible in the neighborhood in which he is to locate.

So, for example, the average yield of barley in California is here stated as 25 bushels to the acre. A hundred sacks is declared possible but extraordinary. A competent man may hope to raise 50 bushels. But a safe basis for figuring, for business purposes, would be 40 bushels.

For potatoes, 125 bushels is stated as an average, 200 as a good yield, and 175 as a safe estimate; for Muscat raisins the figures given are half a ton, a ton, and three quarters of a ton to the acre; for butterfat per cow per annum, 150 pounds, 300 pounds, and 225 pounds; for alfalfa, 3½ tons, 6 tons and 5 tons, and so on for all the great standard crops of California.

How large must a farm be to furnish a satisfactory living?

What a satisfactory living is one must decide for himself, but to earn a gross income of $4,000 a year the acreage needed, figuring on a safe basis as before, would vary, according to the comparative table given, from a dozen acres for orange trees in full bearing to 33 for onions or potatoes, 60 acres for dairying, 100 for alfalfa-raising, 167 for barley, or 235 for wheat. Of the gross income, a large share would represent interest on the investment, another large share would go for expenses, and a moderate share remain as remuneration to the farmer and his family for their work. And of course figures as to yield and acreage vary greatly for differences in land and differences in skill.

Children are a material asset to the farmer, here declares Dean Hunt. Their labor is an advantage not only to the famliy income but "because this training in contributing to the family income which they receive before the age of 21 is one of the most valuable assets these children can acquire.

Here are some of the warnings to the settler now sounded by the College of Agriculture of the University of California:

Don't figure too high on prospective yield.

Don't figure too low as to the amount of land you'll need.

Don't expect to make a satisfactory living at dairying on twenty acres.

In selecting land be sure the soil is deep and well drained. Hardpan and alkali go along with lack of proper drainage.

Consult the University and United States soil surveys, when available.

Remember that the sale of land for purposes for which it is not adapted has caused great losses and great misery, so be sure the land is suited to the crop to be grown.

Watch out that the land title is secure.

And in buying land remember that no law can furnish men with judgment.

"Probably nothing can make a man keen in a horse trade save experience," says Dean Hunt.

A striking statement is that the average size of California farms is 317 acres and their average value is $16,447, yet three-fifths of the farm land in California is held in tracts of a thousand acres or over. These seventeen million acres, however, are only five per cent. of the number of farms. One-fourth of all California farms are less than 20 acres in area, one-fourth between 20 and 49 acres, one-fourth between 50 and 174, and one-fourth of 175 acres or more.

After discussing climate, soils, irrigation, farm labor problems, "how to start," and the affairs of the man who rents land, this publication concludes with a special discussion of each of the standard crops of California, written by a special authority in that special field. These tell of where to see the particular industry to best advantage, objections to the crop, things to avoid, methods in use, methods of renting, marketing conditions, land and rental values, etc.

The crops thus specially discussed are alfalfa, almonds, barley, beans, citrus fruits, cotton, figs, grapes, olives, onions, pears, prunes, potatoes, semi-tropical fruits, sugar beets, and walnuts.

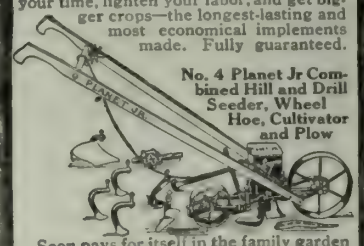
This publication, which promises to be of inestimable value to those who want to make their home in the open country in California, can be had for the asking by writing to the University of California at Berkeley.

DEWEY, STRONG & CO.
SCIENTIFIC PATENTS PATENT AGENCY
PRESS
211 Crocker Bldg

Circulars containing 100 mechanical movements mailed free.

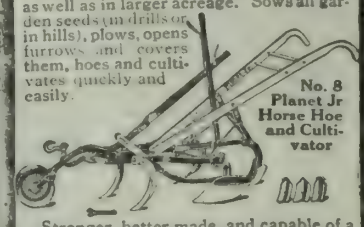
Planet Jr. Seeder-Cultivators

The farm and garden tools that save your time, lighten your labor, and get bigger crops—the longest-lasting and most economical implements made. Fully guaranteed.



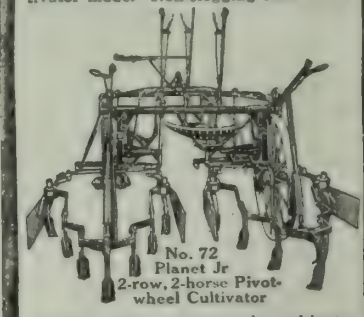
No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow

Soon pays for itself in the family garden as well as in larger acreage. Sows all garden seeds (in drills or in hills), plows, opens furrows and covers them, hoes and cultivates quickly and easily.



No. 8 Planet Jr Horse Hoe and Cultivator

Stronger, better-made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel.



No. 72 Planet Jr 2-row, 2-horse Pivot-wheel Cultivator

Saves a man, a team and a cultivator every day it is used. Cultivates 2 rows of corn, potatoes, beans, etc., at one passage, even if rows are crooked or of irregular width. No wood used except for break pins.

72-page Catalog (168 illustrations) free

Describes 77 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it.

S L ALLEN & CO Box 1203F Philadelphia Pa

Avocado Trees

Nursery stock grown under the most favorable conditions possible. Not the ordinary alligator pear trees raised under lath or in pots, but—

Every One Guaranteed To Be Vigorous Field Grown

I have made a special study of this new and promising fruit industry. Let me acquaint you with the wonderful possibilities.
Trees from 4 ft. to 7 ft. high, $2—$3.
Budwood—all standard varieties at reasonable prices.

W. A. SPINKS,
DUARTE, CAL.

The Ideal Gopher Trap

Result of years' experimental work. Poisons are dangerous, gases uncertain. Ideal is only Trap that catches large or small gopher. Being round, with thin edges, rodent walks into it before detecting anything in runway. 100% EFFICIENT. Farmers say it's worth dozen other makes. Saves lawns, gardens, valuable trees. Price, 50c at dealers. Circular free. Sent postpaid any address in U. S. on receipt of 60c; two traps $1.10; six, $3.00. Money back if not satisfied.

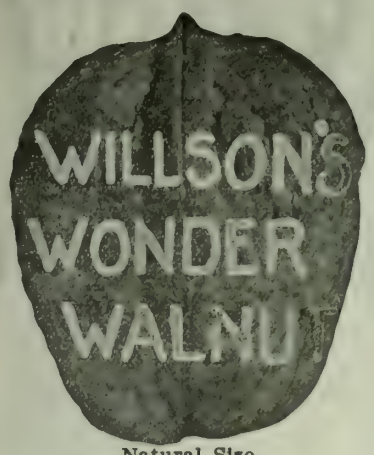
E. J. CHUBBUCK CO
731 MARKET STREET, SAN FRANCISCO, CAL.

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

50¢ POSTPAID!!

To introduce our guaranteed trees and plants we offer you any or all of the following at 50 cents delivered to you. 12 apple, 12 peach trees, 12 rhubarb, 100 strawberry, 6 gooseberry, 12 raspberry, 12 blackberry plants. Write for price list. Offer good only 30 days. Dept. No. 10.

ARKANSAS NURSERY Co GREENLAND, ARK.



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer

Customer on investigating trip says:

"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."

All trees grafted on Cal. Black Stock limited

Write for circular with prices.

Encinal Nurseries

Sunnyvale, Santa Clara Co., Cal.

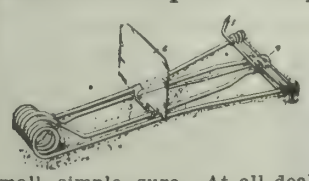
TREES

French and Imperial Prunes, Bartletts and other Pears; Tuscan and Phillips Clings, Fay, Elbertas and other Peaches, Cherries, Plums, Apples, Grafted Walnuts, etc. Stock pure and of best strain. Place orders promptly. Prices reasonable.

TABLE GROVE NURSERIES

Healdsburg, Cal.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.

NEWCASTLE, CAL.

"Bauer" Berries

Strawberry plants—Klondike, Aroma, Candy. Every plant guaranteed. Send for free 68-page catalogue.

J. A. BAUER, Judsonia, Ark.

Strawberry Specialist. Establ'd 1880 Box No. 7

ASK FOR SNOW'S GRAFTING WAX

In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

Saving By Co-operative Buying.

[Written for PACIFIC RURAL PRESS.]

To the Editor: Please give us what information you have on co-operative stores such as the Rochdale. Where are any in operation in the West?—A. J. Upland.

[One co-operative store operating with great success is located at Ukiah and is described in our issue of Feb. 28, 1914. The Rochdale movement originated in England. In California there are between 20 and 30 such stores, at Hollister, Healdsburg, Loomis, Dos Palos, Woodland, etc. The system in California, as in Great Britain, is for consumers in the country and rural towns to club together and contribute enough capital to run a local retail store. The store sells to the public at about the same prices as other retailers; the members are supposed to buy their groceries, drygoods, supplies, etc., there, and annually they declare a dividend with whatever profits there may be. The stores as corporations, in turn, own one share each in the Rochdale Wholesale Co., Inc., of San Francisco. Individuals also hold shares in the wholesale company, though it is claimed not a controlling interest. Theortically, with all local members getting all their goods from their own stores and all stores buying their entire supplies from their own wholesale company, the volume of business assured would make considerable profits likely to be distributed back to the consumer.

Eliminating Retail Costs.—Still, there would be all the usual retail costs, such as store rent, bad accounts, delivery, etc., to reduce those profits. Considering this, an organization or corporation called the Pacific Co-operative League was incorporated in October, 1913, to eliminate most of the retail cost.

They are not aggressively building up a top-heavy organization, but are proceeding slowly, doing business at present with the capital contributed in a few active membership fees of $100. This capital has covered the running expenses of getting started.

The League is a buying organization for its "associate" and "active" members of whom there are about a thousand in this State and Nevada. The "associates" pay a $5 membership fee and have all the buying privileges and reductions but do not get the 5 per cent dividend reserved for the money invested by active members. Goods are ordered by consumers on a cash or c. o. d. basis in large enough lots by clubbing together to minimize transportation charges. The central office of the League in San Francisco buys the goods in still larger quantities by combining the club orders and has them shipped direct to the local shipping points as ordered. The prices to members are based on the wholesale cost plus the cost of the buying, the members paying the transportation. Just now, groceries are being supplied at wholesale cost, other goods at an added percentage which, with the regular retail prices charged non-members, covers the cost of operation. A catalog of prices to non-members is published and local representatives of the League receive orders from members and non-members in the surrounding country, the members receiving a discount from catalog prices.

New communities, or locals, are constantly being brought into the "League"; usually without the local representative at first, the members being served on a mail-order basis until there are enough members to bulk orders. These members order regularly and stimulate their neighbors so that new applications for "associate" membership are regularly being received at the central office.

Grow Gradually.—Their aim is to grow gradually and solidly, doing strictly cash or c. o. d. business. As soon as business warrants, they expect to open branches in the large cities, which will all be supplied from the central office. Later, they hope to be their own wholesale company and have their own warehouses. At present they buy mostly from the Rochdale Wholesale Co., with whom there is a sympathetic connection, although a separate corporation.

For example, there are about 150 club members of the League at one point, to whom during the past year sixteen (16) carloads of best coal were delivered for $9.75 to $10.50 per ton, according to Sec. A. D. Klump, a saving alone of over $2000. Savings on other goods of all kinds were proportionately as great, the average percentage of saving to all members being fully 25 per cent over the usual retail prices, and this without waiting for dividends.

The distinction between "Active" and "Associate" membership in the League is for the purpose of meeting the desires of the buying public, in that all the buying privileges are extended to the associate member without his assuming the liability and responsibility of active membership; at the same time the privilege of equal voice and ownership in the League is open to all associate members to be entered into at any time.

TANK HEIGHT HALF OF DIAMETER.

By the principles of the calculus, the following conclusions are deduced:

To construct a cylindrical tank with open top the most economically, the height should equal the radius of the base if both are made of material that costs the same per square foot. (By most economically is meant the maximum capacity for material used.) If the tank is rectangular with open top, the base should be a square whose length is twice the height of the sides.

If a trough is to be made by curving a sheet of metal, the maximum capacity will be reached when a cross-section is a half-circle.

Sometimes in the construction of tanks the cost of material for the bottom is not the same as that for the lateral surface. If material for the bottom is twice as expensive as material for sides, the height should be equal to twice the radius; if one and one-half times as expensive then one and one-half times as great as the radius, and so on.

Col. Agr. Col. S. L. MACDONALD.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product.. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery

163 South Market St., San Jose, Cal.

Trees for sale and samples of nuts also at

HALLAWELL SEED CO., 258 Market St., San Francisco.

CALIFORNIA SEED CO., 151 Market St., San Francisco.

SUNSET NURSERY CO., 92 41st St., Oakland.

VALLANCE BROS., 31 Glen Ave., Oakland.

HARDIE SPRAYERS

The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Write for Catalog.

POINDEXTER & SNITZER, State Agts. 320 Market St., San Francisco.

TREES

Grown on Sandy Loam Soil

No Spike Roots.

Almonds on Almond & Peach Root.

All Varieties of Fruit Trees for sale.

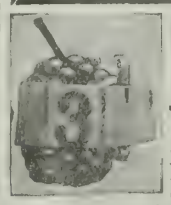
Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of water.

RIPON NURSERY and IMPROVEMENT CO.

J. F. STUART, MGR.



PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING

8 New Street, SANTA CRUZ, CALIFORNIA

Mechanical Power on the Farm.

SMALL CARS ADD BIG PROFITS.

[Written for PACIFIC RURAL PRESS.]

If we gain inspiration and valuable pointers in better ways of doing things, when we visit our neighbors engaged in similar pursuits—if we profit by attending conventions to hear the experiences of men far away—if it would be better to see what they talk about than simply to hear about it, then there is no question that we would gain by visiting the most successful farmers along our lines of agriculture. Then it is no question except as to cost of transportation. On the railroad this is about three cents per mile. But they run their trains at stated intervals, often very inconvenient. They stop their trains at stations far from your objective points. Then you must hire a livery rig or automobile at so much per hour, and thus the cost prevents you from attempting to get the benefit of widespread experiences.

With a little automobile, you can go when you are ready—you can go direct to the place that you want to see, you may stay there as long as you please without extra charge, and you can stop off any place you wish either going or coming. You can travel by dark and daylight, in mud, sand and asphalt, in rain and sun, in cold and hot weather, with friends or family at no extra charge; and if you wish the healthful camping out, can fix up a bed in your automobile and save hotel bills, too. The advantages of seeing how others do things and learning why they do things that way often makes the difference between profit and loss in farming—between being in a rut and being a widely recognized leader—between having a prosperous place and looking run down. Pacific Rural Press tells you what others are doing, how they do it, why, but even this not equal to seeing the thing yourself.

So the question is whether the cost is too great.

That the careful driver of a small automobile can keep the cost below railroad transportation, plus necessary expenses, is indicated by the figures below, computed liberally from experiences of numerous users of small autos. Taking for example a 20 h . p. five passenger car with rain-proof top, we base the following figures per 1000 miles on the assumption that the car will be run 4000 miles in a year on all kinds of California roads.

Interest at 6 per cent on first cost of $450, per 1000 mi.	$ 6.75
Depreciation (reckoned on a life of six years)	18.75
Gasoline (20 mi. per gal. at 15c)	7.50
Lubricating oil (75 mi. per qt. at 25c)	3.35
Tires (@ 4000 mi. per tire)	13.50
Lights (Prestolite 3½c per hr., carbide and oil cheaper, reckoned at 20 hrs. per total travel of 1000 mi.	.70
Garage (at 25c per night per 1000 miles)	2.00
Repairs (nominal with careful driving) per 1000 mi.	2.00
Total cost of traveling by auto per 1000 miles	$64.55

All of these costs are estimated very liberally. The depreciation and tire charges amount to over 3 cents per mile in this estimate. There is no doubt that the life of a carefully driven car would greatly exceed this estimate, which gives a total of 24,000 miles. Small cars still running have made over 50,000 miles. Tires commonly run 7000 miles and often over 10,000. J. Y. Beaty had his car run over 10,000 miles of Sonoma county mountain roads, mostly by men who had no proprietary interest in it. When he sold the car, there were four almost new tires on the machine. This included some weeks of running with mud chains, which are notorious tire destructors.

Now, figuring the time saved, the extra traveling, which would not have been done without the auto, the cost of traveling by other methods, the value of time saved at critical difficulties, and the ability of the machine to carry four or five passengers, the estimated cost of 6½c per mile dwindles to small proportions.

DETAILED TRACTOR COSTS.

To the Editor: Having noticed in several of your issues that you publish accounts of the performances of traction engines on the farm. I thought that the enclosed statements regarding the Best 70 h. p. track laying engines used on Marin Meadows ranch last summer might be of interest.

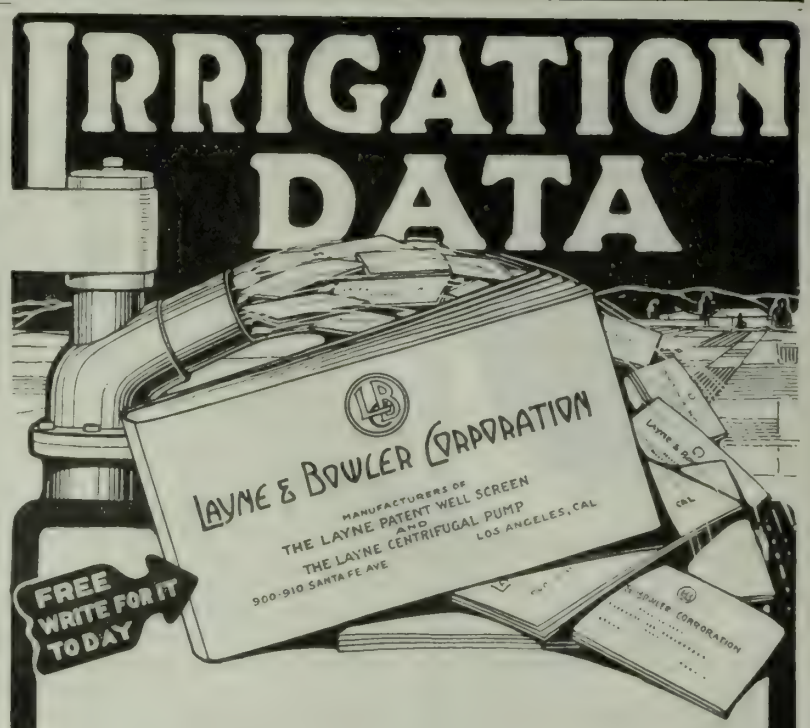
The reason that the expense on Engine No. 1 is so much greater than on Engine No. 2, on the plowing statement, is because Engine No. 1 had the hardest soil to break, consisting for the greatest part of very tough salt grass sod, which we plowed four inches deep. Engine No. 2 had partly salt grass sod to break but mostly land that was not soddy, and this we plowed seven inches deep. Both engines pulled ten 14-inch bottom plows, No. 1, working from April 17 to August 27, 1914, and No. 2 from July 17 to September 3, 1914.

In the statement of double disking and harrowing we were pulling two ten-foot double action disc harrows and one ten-foot spike-tooth harrow. The double action disc harrows were hitched behind each other so that there were really four series of discs going over the same land.

Ignacio M. JONGENEEL.

Plowing Costs	Engine No. 1	No. 2
Number of acres	1356	709
Hours worked	2016½	747
Number of shifts	209½	81½
Distillate used	5677 gal.	2495
Gasoline used	163 gal.	57
Cylinder oil used	272 gal.	87
Gear oil used	108 gal.	80
Cup grease used	257 lbs.	171
Distillate used per hour	2.8 gal.	3.3
Distillate used per acre	4.2 gal.	3.5
Number of acres per shift	6.5	8.7
Delay account of engine trouble	138 hrs.	17½
Per cent of efficiency	93	98
Detail of Expense:		
Engineer's wages	$ 678.60	$ 274.49
Helpers' wages	620.21	251.61
Cook's wages	97.21	34.39
Distillate	425.77	187.11
Gasoline	25.27	8.85
Cylinder oil	108.80	34.80
Gear oil	7.02	5.18
Cup grease	19.01	12.82
Repairs to engine	394.31	22.19
General repairs and supplies	98.07	34.30
Chief engineer's wages	222.29	77.75
Hauling distillate and moving camps	196.49	68.90
Sundries and odd jobs	34.37	12.02
Depreciation on engine	720.25	279.50
Total expenses including depreciation	$3647.87	$1303.91
Total cost per acre	2.69	1.84

[This looks like a very liberal detailed estimate of



WITH the beginning of a New Year the wide-awake rancher turns his thought to the subject of irrigation for the coming season. The manufacturers of the **Layne & Bowler Pump** have prepared a booklet which more than merely describes their pump. It gives valuable information every prospective irrigation should know. If you have any kind of irrigation problem to solve, write for Catalog No. 25.

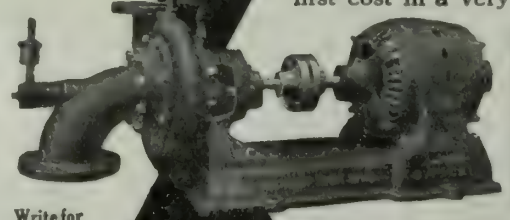
Layne & Bowler Corp'n

900-910 Santa Fe Ave., Los Angeles

READ-MILLER CO.

"Jackson MADE"

The pump you buy should raise the maximum quantity at the lowest cost per gallon, run constantly without repairs and with the minimum attention. "Jackson-Made" Pumps not only do this, but they are Self Payers because their saving in power and repairs will pay their first cost in a very few months.



There is a "Jackson-Made" Pump that will do the work you require at lower cost than other makes.

Write for Catalog No. 47A

Write us, tell us your pumping problem—our expert engineers, without cost to you, will help you.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and New

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4 Main and Howard Sts., San Fra

costs except the interest on investment, which would vary per acre according to the number of acres plowed per year.—Editors.]

Disking and Harrowing Engine No. 2.

Number of acres	1197
Hours worked	681½
Number of shifts	72½
Distillate used	2316
Gasoline used	38
Cylinder oil used	84½
Gear oil used	64
Cup grease used	145
Distillate used per hour	3.4
Distillate used per acre	1.9
Number of acres per shift	16.5
Delay on account of engine trouble	6
Per cent of efficiency	99
Detail of Expense:	
Engineer's wages	$ 244.18
Helper's wages	223.83
Cook's wages	*30.97
Distillate	173.70
Gasoline	5.89
Cylinder oil	33.80
Gear oil	4.16
Cup grease	10.88
Repairs to engine	10.95
General repairs and supplies	30.90
Chief engineer's wages	70.03
Hauling distillate and moving camps	62.56
Sundries and odd jobs	10.83
Depreciation on engine	258.00
Total expense, including depreciation	$1179.68
Total cost per acre	.98

READING ELECTRIC METERS

[Written for PACIFIC RURAL PRESS.]

If you have a modern electric meter it probably has in plain view indicator hands in four circles with 10 figures on the face of each and the figures 10, 100, 1,000 and 10,000 above the circles. Below them it says "Kilowatt Hours."

"Watt" is the name given to the amount of energy exerted by a current of one ampere under a pressure of one volt at the dynamo where the electricity is generated. A "kilowatt" is a thousand watts. In ordinary business we pay for so many "kilowatt hours" which means a kilowatt used an hour.

The figures just above each circle do not enter into the reading of the meter except as they indicate the number of kilowatt hours used by the time the indicator has traveled around the circle. It will be noticed that the figures on neighboring circles run in opposite directions, but this need not be confusing. "Kw" means "kilowatts" and "kwh" means 'kilowatt hours."

After you have used say 8 kwh, the pointer in the right hand circle labeled "10" will be at "8"; and the next one between "1" and "2" because the quantity is less than "1" quantity of 10 kwh. After use of 17 kwh, the indicator on the "10" circle will be at "7" while that on the "100" circle will be between "1" and "2" because it is more than one "ten" and less than two "tens." While the indicator on one circle is going around once, that on the next circle to the left is going one-tenth of the way around. When you have used 176 kwh the indicator in the right circle is at "6," in the next between "7" and "8," in the third between "1" and "2," in the fourth between "0' and "1."

Thus, to read the meter until you become thoroughly familiar with it, begin with the left circle and set down the figures last past to make the number which indicates the total kwh. If the indicator on some of the left hand circles seems to be directly over a figure, it has passed it if the circle to the right has just been completed and a new revolution begun.

For example, from right to left, the indicators point over "7," between "9" and "0," over "0" and over "1." Set down the figures from right to left so they make the number 0997. The second one is "9" because the indicator has passed 9. The third one is "9" also, because its indicator, while seeming to be over 0, is between 9 and 0. This is known because the circle to its right is not quite finished and therefore we know that the space between 9 and 0 on the third circle is not quite finished, but is over 9. Then, knowing that the third circle is not quite complete, we know that the fourth has not quite reached "1" and is therefore 0.

Some meters read in watt hours instead of kilowatt hours. Such are always indicated on the face. They are usually of the older makes and have five circles. They are read in the same way unless directions are given with them to multiply by "½," by "10" or "100," etc. Some have only three circles, for use in houses where the larger meters are not necessary because not enough electricity is used. In practice, the meter is usually read every 30 or 35 days. Each time, the last reading is subtracted from the present reading to determine how much has been used during the month.

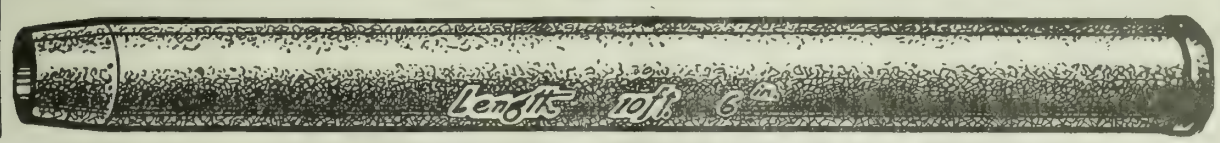
CAM POPPET VALVES.

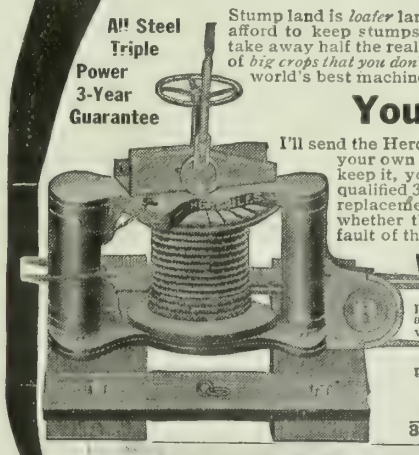
The possibilities of the springless type of poppet valve were pretty thoroughly demonstrated in some of the recent foreign road races. In fact, they worked so well that there is every probability that they will come into fairly general use in the not far distant future. The positively operated valve differs from the usual type in that the cam not only opens the valve but closes it as well. In the generally accepted type of poppet valve, the valve itself is closed by a heavy spring. It is claimed for the springless valves that a higher rate of speed is possible; that greater power naturally results and that the factor of safety is increased. With the spring controlled valve, the piston speed is limited by the inability of the spring to close the valve before cam has come around and started to open it again. Heavy springs and light valves have partly solved the problem, which still remains where springs are used. With the positively operated valve it is no longer the valve which limits the speed of the motor.

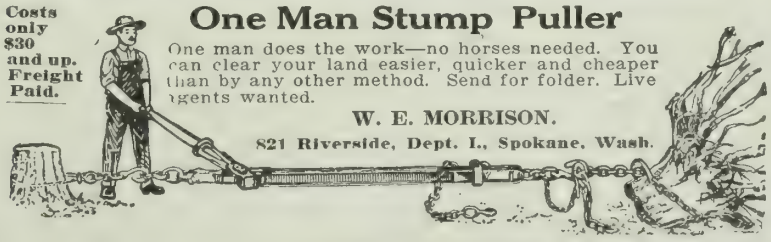
ENGINE FLOODS RICE.

To the Editor: In irrigating 20 acres of rice last season, keeping it flooded from about May 1 till Sept. 30, several inches deep, in checks connected by pipes through the levees, and always having a little water running off from the last check, we used a simple oil engine—12 horsepower with No. 4 pump; about 30 ft. lift, and got between sixty and seventy inches of water. An average of 5 hours a day was all the pumping required for the rice. The engine fuel used cost 4c per gal., and took near a gallon per hour.

Delano. A. M. WOOLSLEY.

"BEST ON THE SURFACE OF THE EARTH"
"AMERICAN" SURFACE IRRIGATION PIPE
The pipe with the original double-locked turned seam — stronger — more durable — more convenient—more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character. In lengths 10 feet 6 inches.
Let our irrigation engineers solve your problems—FREE.
Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.
AMERICAN STEEL PIPE & TANK CO., 354-56 Pacific Electric Building LOS ANGELES
Branch: 1228 "H" St., Fresno.


Get My Low Price On The Hercules Stump Puller
SEND me your name if you have stumpy land, or even a few stumps in your fields. I want to make you a price that will save you at least 50% on the regular price of the famous Hercules! This is the best chance that you have ever had, to get rid of the stumps in the quickest, cheapest and best way.
Pull Out The Stumps!
All Steel Triple Power 3-Year Guarantee
Stump land is *loafer* land, *robber* land, *failure* land. You can't afford to keep stumps. They cost too much money. They take away half the realty value of your land—and they rob you of *big crops that you don't get!* Let me quote you my price on the world's best machine for clearing land.
You Take No Risk
I'll send the Hercules on 30 days free trial—you to try it in your own way, on the stumps in your fields. If you keep it, you are still further protected by any unqualified 3-year guarantee which insures the free replacement of all broken castings for 3 full years, whether the broken castings are *your* fault or the fault of the machine!
Write Quick For Big Free Book
You will be glad you wrote. You'll be pleased with the photographs, letters and facts about the Hercules construction. My price will make it easy for you to own a Hercules. Nothing to be gained by waiting—much to be lost. Write me now while my special price offer holds good. Address me personally,
B. A. FULLER, President.
HERCULES MFG. COMPANY, 812 23RD Street, Centerville, Iowa.


Costs only $30 and up. Freight Paid.
One Man Stump Puller
One man does the work—no horses needed. You can clear your land easier, quicker and cheaper than by any other method. Send for folder. Live agents wanted.
W. E. MORRISON.
821 Riverside, Dept. I., Spokane, Wash.


Second Hand PIPE Screw Casing
ALEXANDER PIPE COMPANY
— 254 No. Point Street, San Francisco, Cal. —
501 Clarence St. Los Angeles, Cal.

Plan for High Priced Market
INSURE biggest and best crops by planting *accurately* with the Aspinwall. Just the driver required. Planter opens furrow, drops seed—any size—covers, marks next row, and and if desired sows fertilizer—*all in one operation.*
Aspinwall Potato Planter
Attachment for corn, peas and beans. World's Oldest and Largest Makers of Potato Machinery. Will answer personally any questions on potato growing. Send now for free booklet.
ASPINWALL MFG. CO.
480 Sabin St., Jackson, Mich.
Cutters, Planters, Sprayers, Diggers, Sorters

An Engine of Quality
OUR ENGINES ARE GUARANTEED FOR FIVE YEARS

All Engines are furnished with Magneto.
The Patent Roller Valve Gear reduces the moving parts and upkeep costs. **Armstrong Engines** are a quality product at the price of the inferior. 1½, 2½, 4½, 6, 8, 10, 15, 20-h.p. sizes. Write for catalog and state requirements. **Miller Pumps** are World beaters. If interested get our catalog.
Norman B. Miller Co. San Francisco, Cal
503 MARKET STREET

Agricultural Review

CITRUS AND SEMI-TROPICAL.

Horticultural Commissioner C. B. Weeks is planning to fumigate the citrus trees in Tehama county.

The Strathmore packing house of Tulare county has shipped nearly 120 carloads of fruit this season.

The Call Lemon Association of Corona is to construct a lemon packing house 70x150 at a cost of about $6000.

The Cloverdale Citrus Fair Association met recently, electing C. E. Humbert as its President. Preparations will soon commence for the annual fair.

Over $100,000 will be expended on the Fifth National Orange Show to be held Feb. 17 to 24 in San Bernardino; $80,000 of this is expected from outside growers of the State.

The Coachella Valley Date Growers' Association exhibit at San Diego is creating a great deal of interest and many folks are expecting to visit the Valley on this account.

The Hemet Valley navel crop this year amounts to about 30 cars. They are expecting about ten cars of St. Michaels, Mediterranean Sweets and Seedlings and about 35 cars of Valencias.

Armenian dates grown on deciduous trees different from the ordinary date palm and producing fruit two or three times the size of ordinary dates, have been fruited in Fresno county this year from seeds imported five years ago.

The opening of the Panama Canal is claimed by the Canadian people to have inspired the planting of several thousand acres of oranges in Australia to be shipped to our eastern markets. It is a question whether the Australia oranges will worry the Californians' market.

The opening of the enlarged Graduate School of Tropical Agriculture next August is announced by Dean Hunt of the University of California. This school is part of the new Riverside Station whose location was recently selected. Dean Hunt says that they have $125,000 to begin with at present.

There are about 600 imported date trees bearing fruit in the Coachella Valley and about as many seedlings. Besides this, there are seedlings grown by the date producers and imported by the United States Government to the number of a million and a quarter that are not in bearing. A good exhibit will be made at San Francisco as well as San Diego.

A feature of the National Orange Show next spring will be the possibilities of citrus by-products. Three classes will be arranged—one of commercial manufacturers; one of the by-products made by the housewives; and one of the by-products made by the domestic science classes in various educational institutions. Interest in citrus by-products is widespread and growing.

The drying of lemon and orange peels has been investigated by the people about Redlands. It is found that America imports about ten carloads of dried peelings every year; that 100 pounds of fresh fruit will produce about 10 pounds of dried orange or lemon peel; but the work has to be done by hand, so that the expense of the California product laid down in the East at about 12½c or nearly twice what it costs to import the same product. It is hoped that machinery may be devised to take care of enough oranges to market the total consumption of the United States at least, from California culled citrus fruit.

It was recently that a number of the largest lemon growers in the State formed a co-operative corporation capitalized at $100,000 to be known as the Exchange By-Products Company. This corporation is a subsidiary organization to the California Fruit Growers' Exchange and will handle only the lemons formerly culled out or sold as low grade. This will approximate about 10 per cent of the total crop of one-quarter of a million boxes of lemons. For the first year or two only citrate of lime and lemon oil will be manufactured. Later, low grade oranges will be used. Orange and lemon peel may be candied as soon as preparations are well under way.

OLIVES AND NUTS

The Government is sending D. N. Marlatt to Butte county to investigate thrips on olive trees.

Ten thousand olive trees have been contracted for planting in the district near Porterville.

Two hundred acres are estimated to be planned for olive planting in the Wyandotte district of Butte county this season. Most of this will be additions to present orchards.

About 200 acres of Mission olives are to be planted on the Horst Ranch near Wheatland, so that the Yuba county acreage will amount to about 800 acres, about one-half of which is in bearing.

The Banning Almond Growers' Association recently received the second series of pay checks from the State Association for the 1914 crop. This payment amounted to about $8000 at the rate of from 10 to 14 cents per pound.

The Arbuckle Almond Growers' Association has been so well pleased with the returns this season that about 1100 acres more will be planted this spring, totaling something like 12,000 acres in this district alone.

DECIDUOUS FRUITS

Things look bright for a cannery at Napa, thanks to the farm adviser.

Twenty-three acres of French prunes are being planted near Reedley.

W. B. Bemit of Paso Robles is planting several hundred fruit trees on his newly acquired ranch.

The Hemit Cured Fruit Association has sold 280 tons out of its 400 tons of dried apricots, and since the price is rising, they are refusing offers for the rest.

A number of the Hemet Valley fruit growers have incorporated to put up a deciduous fruit cannery at Pomona. All the machinery has been ordered and the building will be commenced soon.

One company at Clovis handled 85 tons of dried peaches last season. The price of 3½c per pound for unpeeled peaches and 8c per pound for peeled peaches has inspired many of the growers to plan to peel their peaches for drying next season.

A novel request was made to the Placer County Board of Supervisors when permission was asked to lay a pipe line of 2000 feet along the county road to convey water from the terminal of the irrigation company's ditch to Mr. Francis' proposed orchard of 4000 trees near Newcastle.

E. P. Burnham of Riverside is planting 20 acres to cling peaches and walnuts, while G. P. Hill is planting 40 acres to apricots and walnuts. Mr. Deers of the same place is planting 40 acres to apricots, peaches, and walnuts.

The California Dried Fruit Association is to incorporate an arbitrary clause in future contracts between its packers and growers. This clause will provide that in case of dispute, a committee of five will be appointed by the growers and the packers to settle the case and save the expense of a lawsuit.

Investigation of the fruit possibilities of several sections of tule land in Sutter county has been begun by a commercial company and will probably result in the planting of suitable orchard trees. Results of this venture will be watched with considerable interest.

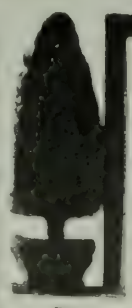
A carload or more of nursery stock is being shipped from Fresno every day. Horticultural Commissioner F. P. Roullard reports 549 export inspections during December and 28 import inspections; only two of which were found guilty of harboring horticultural pests. These were destroyed.

Porterville merchants expect to patronize home industry in the coming year by handling the product of the local co-operative cannery, which has just put up its first season's product. The prices are to be made favorable to the consumers as well as to the cannery company by avoiding transportation charges.

Tree planters around Live Oak are thoroughly convinced that the use of dynamite before planting their trees will prove very beneficial. This is true in hard-pan soils and other places where impervious layers may me thoroughly broken up; but it is likely to result in the death of the trees by root-drowning if the hard-pan is not broken clear through.

The Board of Trade of Placerville is so anxious to have the Lotus Cannery operated by Mrs. Jessie Hall located in their city that they are offering her a suitable building free of rent for two years, and claiming that she can market her products at Lake Tahoe by auto truck as cheaply as by the roundabout rail connections.

The quarantine against Hawaiian



Landscape Gardening a Specialty

Immense stock of
ORNAMENTAL SHRUBS, TREES AND PLANTS,
including
75 Native Californian Species.
also
FRUIT, NUT TREES, ETC.
Pedigreed French Prunes.

LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds are too large. They will tell you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our Slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

WEST COAST
The Cut Rate
Seed House
116-18 East 7th St.
LOS ANGELES, CAL.

Hallawell Seed Co.
258 Market St., San Francisco, Cal.
SEEDS PLANTS TREES
Write for our 1915 catalogue.
SPECIAL OFFER OF FRANQUETTE WALNUT TREES

California Native Plants
Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.
THEODORE PAYNE,
345 Main St., Los Angeles, Cal.

AGRICULTURAL LIME
HIGH GRADE MANURE
H. B. Matthews, 1623 La Loma Ave., Bkly, Cal.

Write for a copy of
Morse's 1915 Garden Guide
Just off the press
Mailed Free.

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Every packet of
Morse's Seeds
Vegetable or Flower, are dependable seeds. Fully tested before packed.
For Sale Everywhere

fruits is being vigorously enforced. All baggage and all suspected mail packages, as well as all shipments of horticultural products, are thoroughly inspected before allowing them to land. Several hundred packages of ornamental beans affected with a destructive weevil have been found in the mails and confiscated.

The Armona Cannery of Kings county is to increase its capacity, especially for peaches and apricots, to 5000 tons. Its manager says that last year's pack was the largest ever canned in Kings county. Strawberries and tomatoes, as well as other products, will be handled during the coming season and the total output is expected to reach about 10,000 tons.

Retail stores of Nevada county are still holding canned fruits put up last year, probably because the local consumers have plenty of their own fruit. Its quality is all right and the vegetables put up by the same canneries have been well sold. To promote cleaning up of the stocks, it is proposed to hold a Nevada County Cannery Day, on which there will be exhibited fruit put up both by manufacturers and by high school students, and special efforts made to induce folks to buy a can.

GRAPES.

The Clovis branch of the Associated Raisin Company has received more than 8,000,000 pounds of raisins to be stemmed for the growers of that district. After stemming, these are sent to Fresno for seeding and packing.

A new brand of Associated Raisin Company's raisins called the "Sun Maid" is to be put on the market soon. This fills the want of a characteristic label for the California grapes, and the desire of somebody to make a pun.

Sutter and Yuba county raisin growers recently formed an organization to affiliate with the Associated Raisin Company of Fresno. A number of contracts were signed up at the meeting.

The Reedley plant of the Associated Raisin Company has one quarter of a million pounds of Sultana raisins ready to ship on a single order received from a New York firm.

The packing of half of the Emperor grape crop in sawdust for the late markets reduced the amount on the fresh fruit market and helped to hold up the prices this season.

GRAIN AND FIELD CROPS

Asparagus in the delta has an especially promising look at present.

Grain is competing with fruit in Sutter county for the planting of a large acreage.

A combination of several Coreans in Yuba county has been formed to grow rice.

The Valley Grain and Warehouse Co. of Fresno recently closed its Porterville branch office.

Shrill whistles marked the recent opening of the new rice mill at Gridley when a large number of guests inspected the mill.

The Graham Company of Chowchilla has over 4000 acres of barley planted in Merced and Madera counties.

A number of delta celery growers, who were holding their fine large crop for a raise in the market, lost it by frost.

Jas. H. Jones & Co. of Chico recently bought 65,000 sacks of Tehama county wheat and barley, which had been held for higher prices than most buyers were offering.

In Ripon, farmers are signing up considerable acreage for sugar beets. The Spreckels Sugar Company agrees to pay $5.50 per ton delivered at the depot. The average crop is 8 or 10 tons per acre.

Three hundred white men and 200 Japanese received nearly a half a million dollars for their work for the Betteravia Sugar Works in Santa Barbara county this year. About one-quarter of a million bags of sugar were produced from the 7,500 acres of beets.

The Swedish government has decided to purchase 120,000 tons of wheat to keep as a reserve in case their shipping is curtailed. This amount will cost about $4,000,000 and is estimated to be enough to last two months. It will be bought during January and February.

Carloads of potatoes are being shipped into Stockton. Horticultural Commissioner Wm. Garden says that they are remarkably free from the eel worm and tuber moth. A vigorous inspection service is being carried on to prevent further importations of potato diseases.

MISCELLANEOUS.

The Wood Colony Unit of the Stanislaus County Bureau was recently organized.

Farmers' Institutes are being held all over the State, including Grass Valley, Selma, Merced, Hanford, Kerman, and Modesto all this month.

The Napa county Farm Adviser has the reputation for being a crank on the application of lime to adobe land. It is a very good crank to turn.

The California Bee Keepers' Association has found a central distributing point for the entire output of honey for the State in Oakland.

Mendocino county has issued a call for a meeting on February 2 for the purpose of organizing a Farm Bureau and applying for a Farm Adviser.

The San Joaquin Valley Counties' Association has received many compliments on its exhibit at San Diego and has already shipped its exhibit to San Francisco for the Panama Pacific.

Over 2000 miles of State Highway have been completed, involving every county but one in the State; and over 1000 miles are under contract. Plans are under way now for the construction of mountain roads, especially in the Coast Range.

The Esparto Farm Unit of Yolo county held a discussion on swine raising recently at which the points were made that it is cheaper to put a pound of fat on a 50 pound hog than a 200-pounder and that only 20 per cent of the hogs slaughtered in California are raised here.

At the Farm Bureau of Merced county the members took up the matter of improving their roads. Several parties volunteered the use of themselves and teams for several days on the plan of each man improving the road along his own place and the ranch companies improving it along the unsold tracts.

The Farm Adviser of Ventura county has assisted in the organization of the Fillmore Union High School Agricultural Club and hopes to push such organizations in the other high schools of the county. Such work seems to be of high importance for the future of California agriculture.

The agricultural faculty of the Siskiyou county high school is planning to undertake an agricultural survey of the Little Shasta and Yreka valleys during the winter and spring. This will include a record of soil, moisture, temperature, and other farming conditions which have involved the failure and success of various lines of agriculture.

IRRIGATION.

District No. 10 in the Sacramento valley is selling $100,000 in bonds.

A Reclamation District for the vicinity of Lakeport in Lake county is being pushed by their Assemblyman.

A representative of the Australian Government is in California investigating our irrigation methods for a report to be made to his government.

A petition for the formation of the Alpaugh Reclamation District was recently made. Two-thirds of the owners of land were represented.

An extensive revision of the irrigation laws of the State to make them more compact and put them in a separate code is proposed for this session of the Legislature.

Reclamation District 1001 recently called a special meeting for the purpose of voting on the issuing of $500,000 bonds to pay the recent assessment for reclamation and drainage work.

A few days ago a little friend of ours, three years old, stopped for her daily visit, but as we had other company we did not pay much attention to her chatter until she said that she would go home. I asked her to come over again, and she answered, doubtfully, "Well, if you'd like to have me, I'll stay now."—Chicago Tribune.

KILMOL SQUIRLGOPHENE

DEAD
Squirrels-Gophers
ARE GOOD
Squirrels-Gophers

KILMOL
SQUIRLGOPHENE

WILL KILL 'EM ALL
With U. S. Destructor
or by Waste Ball Method
Your Money Back
If Not Satisfactory

New information, the result of Uncle Sam's experiments, *Free* to you. A postal card today may save you hundreds of dollars this year
WRITE NOW—RIGHT NOW
HERBERT F. DUGAN
Dept.C
1170 Sutter Street San Francisco, Cal.

Cut down Your Irrigating Expense

The use of old or inefficient methods means an excessive outlay of money—to say nothing of the time, labor and land wasted. The up-to-date rancher and irrigator nowadays considers the
K-T IRRIGATION SYSTEM
a necessity for efficient ranching. It is a well-proven fact that this dependable system is the most practical and economical means of irrigation known. You cannot afford to take chances with obsolete or inferior methods.
Our Brown Book on Irrigation should be carefully read by every rancher. It's Free.
KELLAR-THOMASON CO.,
"Originators of the Valve System of Irrigating."
1234 East 28th St., Los Angeles.
(Ask Your Dealer or Contractor)
KT
SAVES
WATER, LAND AND LABOR

Notable Holstein Grandson.

[Written for PACIFIC RURAL PRESS.]

Next in importance to sons of a world's champion milk cow, come the grandsons, for while a cow may have but few sons to carry her producing powers on down to future generations, there are as a rule a sufficient number of grandsons born and raised to insure wide distribution of the cow's blood lines.

In the accompanying photograph is seen Prince Jetze Alcartra, the first and oldest grandson of Tilly Alcartra, whose recent record of over 34,000 pounds of milk has created wide interest in dairy circles and more especially in Holstein circles.

This bull was dropped July 31, 1913, on the J. S. Gibson company's ranch near Williams, he having been sired by their herd sire Prince Alcartra Korndyke. The photograph was taken when the calf was two days old and also shows his dam, Princess Jetze 106029, an A. R. O. cow with a seven-day record of 488.7 pounds of milk and 19.03 pounds of butter. She was by Jetze Zwarlbak and out of Roma Princess 49650, an A. R. O. cow with a seven days record of 17.17 pounds of fat. Roma Princess is out of Roma Aggie's Beauty 49192, the dam of Minnewawa Salambo, and who has an A. R. O. record of 21.11 pounds of butter in seven days.

Tilly Alcartra's Oldest Grandson, and His Dam.

While this herd has been founded for several years it was impossible at first to give the herd the time and attention which it has received during the past year and a half owing to other pressing work on the company's large ranch.

During the past year and a half, however, great headway has been made with the dairy, two silos having been built this year as well as a new modern barn and the official testing, which was commenced last year, will be taken up in a larger way this year than ever before due to the success which has been attained in that respect in the past.

While on a recent visit to this ranch the writer was impressed with the young stock on the ranch, which are almost without exception fine individuals and with the lineage imparted by Tilly Alcartra into the herd; and with plans for the future which will permit of developing each female to the highest possible point of production, the present herd should do much toward advancing the purebred Holstein as well as the industry generally in this State.

WELL ARRANGED DAIRY AND HOG RANCH.

(Continued from page 65.)

ing between the two enclosures was left, which allows the sows free access to the entire pen at all times.

In order to supply the hogs with an outside runway, for use in good weather, pens eight feet long and 7½ feet wide were built adjoining the main building, a small opening with a door connecting the outer and inner enclosures.

The other side of the building was cut up into five farrowing pens and two fattening pens, the former being duplicates of those already described and those for fattening purposes being 22½ feet wide and 16 feet deep. Concrete floors were also laid in these pens, drainage being provided in the same manner as with the farrowing pens.

Outside enclosures were also built on this side, those for the fattening pens naturally being wider than for the farrowing pens.

By having the feeding alley down the center of the building wide enough to allow of driving through with a wagon it is possible to haul grain or hay directly into the building where it may be stored in sufficient quantities for the entire rainy season. To those who have experienced feeding and caring for hogs, especially during the rainy season, the advantages of this building will be easily understood as it allows of greatly reducing the labor cost and aids in the successful raising of larger litters, also of fattening feeders at times when outside feeding pens would be of little value.

Implement House.—At the end of the hog house will be seen a long building which is known as the wagon and implement shed, one end of which serves as a granary.

This building is conveniently located to the horse barn in the rear, as well as to the general barnyard, both of which are important factors, as all tools, wagons, etc., can be quickly put under shelter which is their rightful place when not in use.

Caring For Cattle.—Thus far nothing has been said of the breeding and caring for the dairy cattle and hogs, although that is of course one of the all important factors.

The cows in the herd at the time of our visit were highly bred grade Holsteins, with the exception of two or three registered ones. At the start it was realized that the value of good calves lies largely in the size, and accordingly a registered Holstein bull of good parentage was purchased. Since then another one has been secured for use on the heifers, and as it was the aim to eventually own a purebred herd, gradually working into that branch, both bulls were selected with a great deal of care.

The advantage of this good breeding is manifesting itself in no small way, as the average production of the herd has been materially increased in the past three years and a ready market has been open at all times for the heifer calves when dropped at $25, or as young heifers at $40 each. None of these offers have been accepted, however, as it was necessary to keep them, if the herd was to be improved in future years.

As before mentioned, all hay is chopped and fed in that form and this ration will be added to in future years by corn silage as it was proven the past season that corn for silage purposes could be profitably grown on the river bottom land, where a small acreage of Indian corn produced an average of 10 tons to the acre, with one irrigation and one cultivation. This field was planted between July 15 and 23, a good crop of barley hay having previously been grown on the same land.

The Swine Herd.—Realizing the importance of hogs on a dairy ranch, and being of the opinion that they as well as the cattle should be well bred, Mr. Harrold purchased 10 purebred Poland China sows and 10 purebred Duroc Jersey sows, also a registered boar of each breed, with which to lay his foundation. Since then from 200 to 300 head of hogs have been turned off each year, with a resultant high price for the skim milk fed.

In feeding the hogs, there are three main feeds used, namely, skim milk, chopped alfalfa and whole barley. The milk is hauled daily from the milk house and poured into barrels, which set in the feeding alley of the hog house. Into these barrels is also placed the chopped hay and whole barley. This is then allowed to soak, till the milk has become clabbered and then fed in the troughs as before described. While this ration has proven highly satisfactory for fattening as well as for the brood sows and pigs while suckling, the brood sows receive coarse hay and larger pens, after weaning their litters, thus giving them more vigor and better constitutions, also keeping them from becoming too heavy for breeding purposes.

While development work on this ranch was only started four years ago, the land at that time being absolutely barren, the results speak for themselves, and at present there are few if any similar undertakings in that part of the Sacramento valley which hold out more encouraging prospects for the future.

DE LAVAL BUTTER
Best as usual
at the great 1914
National Dairy Show

BUTTER made from cream separated by De Laval Separators made the usual clean sweep of all highest awards at the great National Dairy Show held in Chicago in October, 1914, as it has always done at every convention of the National Buttermakers' Association or a Dairy Show since the beginning of these important annual contests in 1892.

The Sweepstakes and Gold Medal awards in the various classes were as follows:

Whole Milk Creamery Butter

The highest award in the Whole Milk Creamery Butter Class was made to Thomas Sadler, of Oelwein, Iowa, upon butter made with a De Laval Power or Factory Separator—score, 96½.

Gathered Cream Creamery Butter

The highest award in the important Gathered Cream Creamery Butter Class was made to the United Dairy Co., of Chicago, which uses both De Laval Separators and Milk Clarifiers, the prize-winning butter being made from cream gathered mainly from farm users of De Laval Hand Separators—score, 96½.

Farm Dairy Butter

The highest award in the Farm Dairy or Home-Made Buter Class was made to Austin C. Higgins, of Andover, Mass., who happily is not only a De Laval user but a De Laval Local Agent—score, 96.

De Laval Superiority Indisputable

Aside from the Sweepstakes and Gold Medal awards in all classes, the great majority of all other awards and higher scores were likewise given to De Laval users, again overwhelmingly demonstrating the superiority of De Laval dairy products, as at every important quality contest the world over for more than thirty years.

The reasons for the superiority of the De Laval on the farm and in the creamery, will be made plain by a De Laval catalog which will be mailed upon request.

DE LAVAL DAIRY SUPPLY COMPANY
165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER.

For Sale or Exchange,
One Black Percheron Stallion
"GANTRAN"
8 years old—weight 1940.
Sound and sure.
LINDEN HORSE CO.
Linden, Calif.

AXLE & GREASE
LARGE HANDY C&S BUCKET — SMALL CAN
WHITTIER COBURN CO. S.F. SOLE MFRS.

TAMWORTHS
The Big Red Bacon and Block Hog.
Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

Veterinary Queries and Replies

[Answered by Dr. H. B. Wintringham, Petaluma, Graduate of San Francisco Veterinary College.]

FATTY GROWTH ON PIG.

To the Editor: I have a young hog six months that has been bruised by a bite of another hog on the shoulder blade at the top. At first it swelled up and looked as though it wanted to run. I lanced it and quite a bit of pus came out. It was all right for a while, but now is swelled again.

This morning I lanced it again about one-half inch deep and cut it two inches wide, but found no pus. What I cut through looked like fat. The lump is about the size of a small china cup. The pig is a sow and I am anxious to save her.—E. E. F., Parlier.

[Your pig has a fistula of the shoulder. The fatty tissue you speak of is not normal and must be removed. An operation is the only satisfactory means to effect a cure. Would suggest you consult your nearest veterinarian.]

GROWTH ON TEAT.

To the Editor: I have a cow with a growth on one of her teats. It sometimes grows to an inch and a half in length and then breaks off and grows again. Can you suggest a remedy to permanently remove same?—L. E. C., Clovis.

[Go to your druggist and get a stick of Lunar Caustic. Rub this over the raw surface exposed when growth is broken off. Keep the part soft with a little vaseline while healing. You may have to apply the caustic several times.]

PIG CAUGHT COLD.

To the Editor: My four-months pig is sniffling all the time with an awful cold.—W. V. P., Napa.

[Have your druggist put up the following: Quinine sulphate 1½ drachms, Pulv. Nux Vomica 1 drachm, Pulv. Ammonium Carbonate 2 drachms, Pulv. Camphor 1 drachm, Pulv. Potassium Nitrate 3 drachms, Pulv. Gentian Rod, 3 drachms. Make this into 12 powders and give one powder in syrup every 3 or 4 hours.]

CREOLIN FOR CALF LICE.

To the Editor: What is the most satisfactory method to rid calves and young heifers of lice?—O. G. C., Turlock.

[Wash animals all over with a 2 per cent creolin solution three times at intervals of 4 days; 2½ teaspoonfuls liquor Cresolis Compositus to the pint of water will give a 2 per cent creolin solution.]

DIED AFTER CALF BIRTH.

To the Editor: In case I should have similar trouble in the future, would appreciate your advice as to cause and treatment of the following cases: Had two cows die, one yesterday, one this afternoon. Yesterday's death was a cow about 12 years old, weight about 1450; would milk about 45 lbs. when fresh; calved three weeks ago—did not "clean" well; douched her with creolin solution, gave one dose Glaubers salts and one dose castor oil. About four days before death she commenced urinating blood; bowels very loose, then constipated; refused food; gave no milk; got very weak. Called veterinarian, who cleaned vagina with creolin solution; left laxative and instructions to force feed with oatmeal gruel (both of which we administered) and expressed opinion that she had good chance to pull through. She died about 15 hours later. We dissected her 24 hours after death and found as follows: Stomach full of black putrid matter; one half the liver black, other half normal; lungs as large as small milk buckets; heart swelled considerably; gall very large (about size man's head); uterus slightly enlarged. Death number 2 was a cow 7 or 8 years old, also calved three weeks ago; all symptoms and conditions exactly similar, except that she did not get weak or down, and fell off in flesh very rapidly and not in milk, milking over 4 gallons yesterday. I gave no laxatives in this case. The veterinarian gave her same treatment as other, except force feed, as she was eating some, and said she would be all right—died 40 hours later, very suddenly; showed no signs of being near death 20 minutes prior. Have not opened her yet, but will in morning. These cows had not bloated recently, or ailing in any way. Have 32 head, besides bull and heifers. All stock are fed alfalfa (Nevada) hay and dried beet pulp (soaked between milkings, 2 sacks per day—two feedings), and are well taken care of. Apparently there is no other ailing stock in the herd.—H. F., Colfax.

[Answered by Dr. E. J. Creely, San Francisco Veterinary College.]

[This is septic metritis, due to the absorption of infected matter from the womb. The second cow was infected from the first. Disinfect as you would with contagious abortion.]

FEED FOR MILK GOATS.

To the Editor: What is the best feed to increase the flow of milk goats?—G. W. P., Banning.

[As you do not state what feed you are already using it is impossible to say what additions to make in order to increase the milk flow. We are indebted to George Langnois of Sebastopol for the following ration, which he has found most satisfactory in feeding milk goats: ½ pint rolled oats or rolled wheat, ½ pint of dried beet pulp and ½ pint of bran, together with all of the alfalfa hay that they will eat. With goats as with all other kinds of milk-producing animals, the better the feed the larger the milk flow will probably be and while the above ration may be of higher quality than necessary, Mr. Langnois says that he finds it profitable.—Editors.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

2-YR. OLD SHIRE STALLION FOR SALE

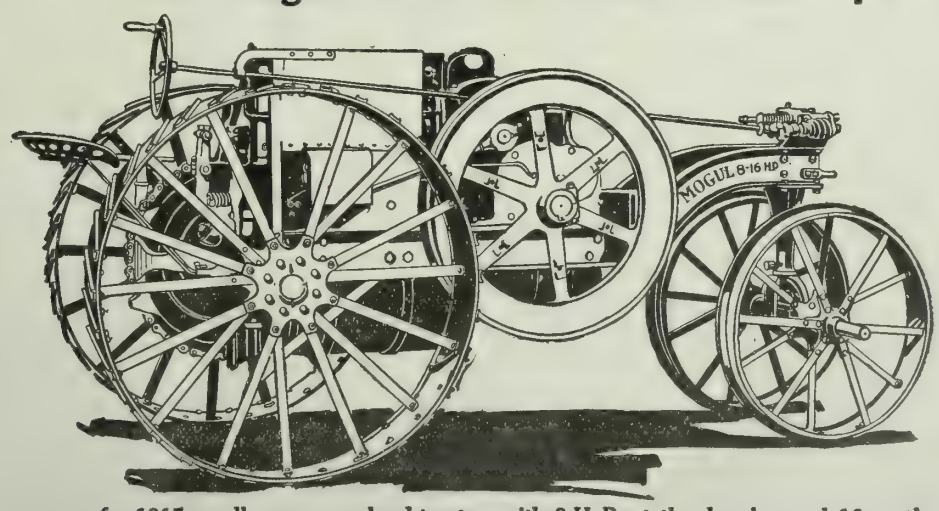
SEVERN DONALD 13957 by Severn Pilot 11587
DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399

This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1800. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.

For further particulars write

J. McCORMACK, Rio Vista, California

Our New Year's Announcement
A Mogul Orchard Tractor for $675



We announce for 1915 an all-purpose orchard tractor, with 8-H. P. at the drawbar and 16 on the belt

An Easily Handled, Short Turning, All-Purpose Tractor

This new Mogul 8–16 tractor will do the work of eight horses in the orchard.

Being a four-wheeled, all-purpose tractor, you can use it every day.

It will do plowing and seeding as well as orchard cultivating.

It will draw manure spreaders, mowers or binders.

You can take it into a hay field to draw a wagon and hay-loader.

Any farmer can buy this new Mogul 8–16 tractor for $675.00, cash, f. o. b. Chicago.

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8–16 tractor can be sold.

If you want to use a Mogul 8–16 tractor for spring work, your order should be placed now with the I H C dealer.

Write us for full information.

International Harvester Company of America
(Incorporated)
Chicago U S A

San Francisco, Cal.
Denver, Colo.
Portland, Ore.

Spokane, Wash.
Salt Lake City, Utah
Helena, Mont.

With the Live Stock Men

DAIRYING.

J. W. Avilla of Novato recently purchased a dairy and alfalfa ranch near Modesto for $26,000.

Mrs. M. Pozzi of Santa Rosa recently purchased the Miller dairy ranch of 610 acres near Petaluma.

V. Gordon of Hanford has purchased the interest of M. S. Rodriguez of Buena Vista. This includes 32 dairy cows besides other stock.

W. W. Stice of Tulare county has sold 36 high grade cows to N. E. Carnine of Fresno county at an average of $125 per head.

Rag Apple Korndyke, 8th, a Holstein bull, was recently sold in New York at auction for $25,000 to Oliver Cabanna of Buffalo.

The Manteca Creamery is averaging about 600 pounds of butter per day, paying the patrons about $1000 per week in creamery checks.

A Holstein calf now giving milk at the age of six months, near Turlock, is to be exhibited at the San Francisco Exposition.

F. E. Mobley of Elko, Nev., has been figuring that he gets $30 per ton for his hay in the shape of butter from his registered Jerseys.

W. E. Gird of Bonsall recently sold 60 Devon cows and 44 calves to J. W. Sullivan of Prescott, Ariz. Mr. Sullivan intends to breed up a big herd.

The Gridley Cow Testing Association is inspiring many of its members to weed out cows that eat more than they produce. It is also leading its members to buy purebred sires, and feed more concentrates.

The total production of butter in Kings county for 1914 was 3,164,620 pounds, a gain of nearly one million pounds over 1913. Only seven counties in the State produced over 3,000,000 pounds this year.

Plans have been completed by the Petaluma Chamber of Commerce by which all dairy cows for view herds and those competing for prizes at the Panama-Pacific Exposition will be conditioned near Petaluma. This is due to favorable climatic, feed, and transportation conditions at that point.

W. H. Smith of Hanford, who bought four purebred Holsteins at the recent consignment sale, kept a record for November and found that the total value of production for the month was $52.55. This test was made at advanced stages of lactation, and one of the animals was a heifer freshened six months before.

The U. S. Department of Agriculture proposes to register purebred stock which has been tuberculin tested, free of charge, and an open record will be kept of all herds certified free from tuberculosis. Those who avail themselves of this privilege will be expected to slaughter animals affected seriously and quarantine those which react but show no visible signs of the disease.

L. E. Cline, Government Agriculturist for the Truckee-Carson Project, prophesies a great future for farmers there, who are taking up dairy and hog raising. He says that because they are starting a new line of work they are anxious to profit by expert instruction. One creamery is being supplied with milk from 1000 cows and Mr. Cline is acting as manager of the testing association for those who wish to know whether their cows are paying.

BEEF CATTLE.

Lovelock, Nevada, recently shipped 20 cars of horses supposed to be destined for Great Britain.

Winnemucca, Nevada, recently shipped 40 cars of cattle westward and 22 carloads eastward.

A shipment of cattle from Iowa was recently received and none of the foot and mouth disease found.

A. E. Burge of Oakville recently vealed a calf 10½ months old, weighing 925 pounds. The calf had been fed ground barley.

E. J. Blossom recently sold his stock ranch of 1560 acres in Tehama county to Alonzo Swain for upwards of $12,000.

The Whitehall Estate Company recently imported three carloads of Shorthorns to their ranch near Tracy, from Minnesota.

The Fresno county livestock inspector reports that vaccination for blackleg is improving conditions in that county.

Twenty carloads of Mexican cattle were recently brought to Oakdale to be fattened for the Exposition market. They will run on the range for a while.

The Lassen Forest Service is now issuing grazing permits. The total of livestock for which permits may be issued is said to be 12,500 cattle and horses and 30,000 sheep and goats.

Blackleg vaccine is supplied free of cost by the U. S. Department of Agriculture to those who have cattle grazing permits on the national forests. This is likely to save half of the calf crop in many instances, provided advantage is taken of the Department's offer.

The Porterville Alfalfa Company recently shipped 225 steers to San Francisco. They averaged about 1225 pounds. The company is now feeding about 700 head and expect to bring in about 300 more from southwestern ranges soon. They fatten the stock on alfalfa and crushed barley.

Scrub breeding animals are not to be allowed free range in the national forests of El Dorado county within certain districts. The El Dorado national authorized forest grazing permits include about 10,000 cattle, 400 horses, 50 swine, 16,000 sheep and 1000 goats. They don't want the range hogged.

SWINE.

W. H. Mikesell has bought four purebred Berkshire sows recently.

A 370 pound hog, 14 months old, was recently marketed in Oakville.

Ventura county again has hog cholera, but it is being controlled by vigorous measures at the beginning of the infection.

J. P. Daggs of Modesto writes that he sold 30 head of bred gilts within the two weeks about New Year's and has 18 left. He sold ten of them; but gave the money back in order to have enough to breed from.

A 715-acre hog ranch near Ripon is being undertaken by a company of that city incorporated for one-quarter of a million dollars. Alfalfa and silage are to be grown. Duroc-Jerseys are the breed.

Dr. V. J. Cady of the U. S. Department of Agriculture recently addressed the farmers on the Chowchilla ranch on hog cholera, giving a demonstration of the methods of vaccination. He says that California alone lost 35,000 hogs by cholera last year.

HORSES.

Horse buying for the English and French governments continues. Buyers are scouring Stanislaus and Lassen counties and collecting the horses at the Los Banos ranch of Miller & Lux ready to ship.

SHEEP.

J. H. Peterson of Dixon recently purchased 400 sheep from Geo. Stover of Arbuckle for $22.60.

King and Wohlfrom of Arbuckle recently sold a band of 500 ewes at $6.50 per head.

The British government recently modified the embargo on wool so that some might be shipped to the United States from Australia. It is said that immediately the New England manufacturers began exporting

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old; also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Hereford. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood this, increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. E. W. Abbott, Milpitas, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, write E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

FOR SALE—40 head grade Holstein and Jersey heifers, from 6 mos. to two years old. J. S. Smith, P. O. Box 515, San Jose, Cal.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland, Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

M. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Call Building, San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

PURE-BRED Duroc-Jersey Swine. Prize winners. Limited number only. $10 each F. O. B. Western Hog and Land Syndicate, 919 Hearst Bldg., San Francisco.

REGISTERED POLAND-CHINA HOGS. Limited number young stock from prize winners. Golden Gate Stock & Dairy Farm, R. 1, Box 34, Galt, Cal.

REGISTERED BERKSHIRES—Weanling board pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and uality. Herd bear won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Allison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in state. $30 up. M. Bassett, Hanford.

28 HEAD registered O. I. C. boars and sows, 8 weeks old, $10 up. Enterprise Farms, Newark, Cal.

REGISTERED O. I. C. SWINE—Special sale of young sows. C. D. Conway, Lakeport, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera immune. W. D. Trewbitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

DUROCS from first prize winners State Fair. $15.00 up. Ed. E. Johnson, Turlock, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REDAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. B. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. E. J. Miller, Llewellyn Ranch, Lathrop.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP

FRANK MEACHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

to Germany, and Great Britain warned our State Department that the embargo would be closed down tightly again if this breach of faith could not be stopped.

MISCELLANEOUS.

The Nevada quarantine against the foot and mouth disease has been greatly modified so that stock may be transported across the state into California.

Enos M. Barton of Chicago recently lost his prize herd of purebred cattle valued at $80,000, which were killed by the order of the Government Inspector on account of the foot and mouth disease.

The 18th annual convention of the American National Livestock Association will meet for three days beginning March 24 in San Francisco. March 26 will be American National Livestock Association Day at the Exposition.

Gov. Johnson recently issued a proclamation qualifying the previous quarantine against the eastern states on account of the foot and mouth disease. By the latter proclamation, 17 states west of the Mississippi, excluding Iowa and Montana, are open to livestock trade with California. It is said that the disease east of the Mississippi is far from being under control.

Receipts of cattle at the Portland Union Stock Yards for the week ending January 8th were rather light and the prices good. Over 10,000 hogs came in and the prices dropped slightly; paying $7.15 for the best on that day. The demand for sheep at good prices was continued. The total receipts for sheep for 1914 at the Portland Union Stock Yards were 281,300; cattle, 74,360; calves, 2,506; hogs, 237,725. These are approximately the same as in the previous years. The Portland Stock Yards are wide open for anyone to bring his stock and sell it himself to the best advantage, or place it in the hands of bonded commission men.

YOLO COW TESTING REPORT.

[Written for PACIFIC RURAL PRESS.]

The report of the Yolo County Cow Testing association for the month ending December 31, has just been received from J. F. Grass, Jr., official tester for the association.

During that time the report shows that there were six head of cows which produced 50 or more pounds of butterfat, the following tabulation giving the data on each cow:

Owner of cow	Breed	Lbs. milk	Pct. of fat	Lbs. of butterfat
A. B. Welch	Grade Holstein	1209	4.3	51.98
J. Gould	Grade Holstein	1435.3	3.8	55.43
J. Gould	Grade Holstein	1565.5	3.6	56.35
G. Griffes	Grade Durham	882.5	6.	53.01
Chas. Hoppin	Grade Guernsey	1016.8	5.1	51.86
Chas. Hoppin	Grade Guernsey	1175.6	4.7	55.25

The best average for a herd during the month was made by the herd belonging to J. Gould with an average of 35.10 pounds of fat per cow.

The best herd average for the six months ending December 31, was made by the herd belonging to A. B. Welch, with an average of 38.53 pounds of fat per cow per month or an average of 231 pounds of fat per cow for the six months. This is doubtless far in excess of the yearly records of most grade cows in the State, and should be an object lesson to the man with doubts as to the value of good dairy cattle.

There were three cows in the association, however, that gave better than 300 pounds of fat each in the first six months which indicates that it is possible to average considerably more than Mr. Welch's herd has done.

There is nothing more illuminating than the reports of cow testing associations as they tell the dairyman in a reliable fashion, which are his paying and which his boarder cows. The increased interest in this line in the State is the outcome of a need for better business methods on the dairy and a most urgent need at this time is for more and larger associations of this kind.

GREEN ALFALFA SILAGE.

"I would like to have you answer me through your valuable paper the following questions: I am thinking of buying a green feed silo but first I wish to know if it would pay me this year as I would have to buy the hay to make it and haul three miles. I have very little pasture and for that reason I thought a silo might pay. How much could I pay per ton green if it should be worth $5.00 cured hay? Could I move it fast enough that distance? My silo would be 10x20 or 24. How large cutter should I use? Is a blower necessary? I have a 5 HP engine. Is that enough power? —O. G. M., Parlier, Calif."

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[I am satisfied that it will not pay you to fill the silo this year when you will have to haul the green alfalfa three miles, and cured hay is worth $5.00 per ton. It will take about four tons of green alfalfa to make a ton of hay, so that at the price given the green alfalfa would cost $1.25 per ton. You can probably not make more than four trips or haul more then eight tons of alfalfa a day, making the expense of hauling the alfalfa about 44c per ton, with man and team worth $3.50 per day. This would leave only about 80c that you could afford to pay for a ton of green alfalfa. I do not believe that it will be worth while to make alfalfa silage when alfalfa hay can be bought at $5.00 per ton, and would not at any rate recommend the building of so small a silo as 10x20 or 24 ft. unless you buy a stave silo. It is hardly practicable to build a resaw silo of smaller diameter than 12 feet, and 30 feet is none too tall for a modern silo; 30 or 40 feet would be better. A blower is not necessary, but silos are now generally filled by this method instead of by means of bucket carrier. A five H. P. engine would furnish sufficient power for some makes of silage cutters, but not for others. It is quite an advantage to have ample power in filling silos, as it saves labor and enables the farmer to finish the job with the least possible delay.]

SOUTHERN CALIFORNIA POULTRY SHOW.

The tenth annual exhibition of the Poultry Breeders Association of Southern California held in Los Angeles, Jan. 6 to 12, was even larger than last year's exhibition, 2070 specimens being on exhibition, exclusive of pigeons. This makes four consecutive years that this organization has held a show with over 2000 entries. The exhibit of nearly 300 rabbits was the feature of the show. The quality was exceptional. This year, as in previous years, breeders throughout the Pacific Coast sent entries to this show making the exhibition in no sense a local show, but one really representative of the best poultrydom on the Coast.

The single comb Rhode Island Red class was the largest in the show, 186 birds being entered. The Barred Plymouth Rocks were also a large class, but the distinctive characteristics of the show as compared with previous Los Angeles shows was the large number of varieties of fowls which were well represented, making the show seem more complete to the average visitor that the average small show in which a very large percent of the birds are grouped in a few popular varieties.

The attendance at the show was as large as in former years, making this exhibition in every way a great success.

FOUR-ROW CULTIVATORS

[Written for PACIFIC RURAL PRESS.]

As a boy, we cultivated corn and potatoes one row at a time, with a two-horse cultivator and even then had trouble in covering some of the plants. But those days are past. Planet Jr. has a two-row two-horse cultivator which is claimed to work safely in rows of irregular width, with "humanlike exactness and superhuman capacity." That isn't all. They have cultivators to loosen the dirt and discourage weeds on four rows at a time, of beets, beans, etc. This might be called the weary back's mechanical friend—also the friend of him who would buy sweetness for his sweetheart. For this is proposed to make possible the raising of more beets which will make sweetness handier in the land where sugar cane has only begun to be grown for that purpose.

Richard, aged five, was being interviewed in regard to his school work.

"And where do you go to Sunday school?" was next asked.

"To the Episcopal," he replied.

"What have you learned there?"

"'Honor thy father and thy mother.'" he said. "And do you know, I went down to the Methodist Church the other day and they were teaching the same thing there!"—Lippincott's.

We Want Every Farmer to Learn About

Alpha Engines

Self-Contained, Closed-Jacket-Type Alpha Engine.

There are two things you should consider carefully in buying an engine for farm use—

RELIABILITY and FUEL ECONOMY.

Both depend on design and construction.

SIZES—2-H. P. to 100-H. P.

TYPES—Hopper Cooled. Closed Jacket, Tank or Screen Cooled. Portable or Semi-Portable.

FUEL—Gas, Gasoline, Kerosene and Low Grade Distillate.

GOVERNOR—Hit and Miss, or Throttling Type.

IGNITION—ALL ALPHA ENGINES have the new "built-in," gear-driven, gear-timed magneto. Guaranteed for the life of the engine.

NO BATTERIES,
NO COIL,
NO CRANKING,
EASY STARTING.

Send for Special Circular 2B that tells

HOW ALPHA ENGINES ARE BUILT,

and why they give

SERVICE PLUS ECONOMY.

Ideal Green Feed Silos.

James Sanitary Barn Equipment.

De Laval Dairy Supply Co.

SAN FRANCISCO SEATTLE

Everything for the Dairy

BUY IT NOW

Get what you will need in the Spring, now, and help pass prosperity along.

Small Farmers; Pure-bred Mares.

[Written for PACIFIC RURAL PRESS

A question which frequently arises is "why are there not more purebred horses bred and raised in California—and while there are many and varied reasons advanced, the one which would seem to be of most importance is the fact that the breeding of purebred horses has never become a small farmer practice, as is the case with most of our other farm animals.

While there have of course been notable instances where other breeds have been advanced through farmers having large ranches and capital, it may be safely said that the greatest number of purebred breeding animals in California today are located on comparatively small farms, where the owner is able to give his individual attention to the breeding, feeding and general care of each animal.

Regardless of the fact that these breeders as well as an ever increasing number of farmers generally have recognized the value of high-class purebreds, it is seldom that one visits a ranch where one or more purebred brood mares are maintained, even though such mares could profitably replace one or more of the mediocre mares or geldings in use.

Why this should be so in face of the fact that such farmers have, and always will need horses for power is hard to understand, especially when they could with a comparatively small outlay for the purchase of one good young mare lay the foundation for a stud of horses which would not only be profitable but a great source of pleasure also, and at the same time act as an incentive to the neighboring farmers to improve their stock.

Quite often the writer is asked by farmers who would fill the above description, "Where could I buy a good team of purebred mares at somewhere near a reasonable figure?" At times the question is embarrassing, for while we know of some mares, in various parts of the State which would exactly fill the requirement and which are for sale, they are for the most part badly scattered over the State and on this account the prospective purchaser has no way of comparing them, without spending considerable time and money traveling over a large area.

In our estimation this lack of facilities for economical comparison is one of the chief reasons why more farmers are not owning one or more purebred horses, for it is a well-known fact that comparison of both quality and prices are necessary to arrive at the true worth of an individual animal, whether it be horse, cow, swine or sheep. If the purebred horse were raised more generally on the average farm as above outlined, it would be a comparatively easy task to visit several sellers at a small expense, thus improving conditions for both buyer and seller.

Knowing a condition does not, however, remedy it, but it is evident that before we can expect the purebred breeding of horses to extend itself into every county and district we must have better methods of distribution.

That is, there should be an organized effort on the part of those most interested in the advancement of the purebred horse to afford buyers an opportunity of purchasing one or more sound young mares at such places that a comparison of both quality and values would be possible.

In all other branches of the livestock industry the public auction sale has come nearest to solving this problem and it was for that reason the directors of the California Draft Horse Breeders' association decided upon holding a sale at the University Farm at Davis the latter part of February. It was believed that an annual sale of this kind would be an advantage to every breeder or prospective breeder as it would allow of a comparison of individuality and also set values at their true worth and accomplish it in a co-operative way with a resultant lowering of sale costs to both buyer and seller.

At this time we are informed that many prospective buyers have signified their intention to attend the sale. Several of the large breeders have also promised consignments, and in order to make the selection even larger than had at first been hoped for every horse-breeding company and owner in the State is being sent a blank contract upon which is stated the terms of the sale, etc. Those who by any chance have not secured one of these blank contracts should write immediately to J. I. Thompson, Davis, California, who is secretary of the association.

BOYS PRODUCE PORK.

The boys in the North Dakota Pig Clubs have worked out some very interesting information during the present year. Charles Russell produced 2,903 pounds of pork from one litter of pigs in 203 days, at a cost of a little less than 3c per pound. The sow was a Yorkshire; number in litter, 14; number raised, 14; total cost of feed, $83.12; profit, with pork at 6c, $91.06 for the litter.

Of all the pigs entered in the contest, the Poland Chinas averaged 193 lbs. at the age of 213 days.

The Duroc Jerseys averaged 185½ lbs. at the age of 227 days.

The Yorkshires averaged 182 lbs. at the age of 219 days.

The Chester Whites averaged 180 lbs. at the age of 210 days.

The Cross breeds averaged 188 lbs. at the age of 217 days.

The average weight of the hogs in the 24 litters that stood highest was 212 lbs., at an average of 213 days.

Successful mail order houses are prompt in their correspondence and honest in their statements. Most breeders of livestock are in the mail order business to a certain extent and should be governed accordingly.

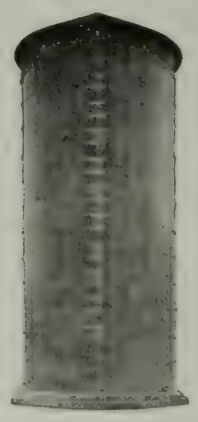
It is easier to make misleading statements regarding breeding hogs than it is to rectify them. A dissatisfied customer usually means a lost field in his section, for bad news travels fast.

California dairy barns need not be built so expensively as those in eastern States where severe winters are the rule. A good roof and floor are the all-important things about construction here.

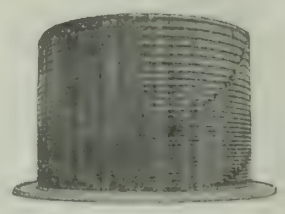
SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

808 KOHL BUILDING SAN FRANCISCO

GRANDSONS OF TILLY ALCARTRA

At Prices Within Reach of Every Breeder and Dairyman.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write us for prices, or call and see our herd.

J. S. Gibson Co., Box 97 Williams, Cal.

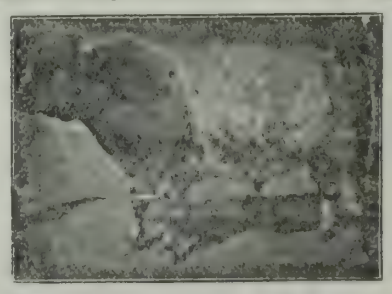
"The name Gibson insures quality."

Hillcrest Stock Farm

Breeder of Shorthorn Cattle, French Merino and Shropshire Sheep.

DAVIS, CAL. T. S. GLIDE, Prop.

At 1914 State Fair our Shorthorns took first prize in every class we entered except two, and in these were beaten only by stock of our blood. We took all the herd prizes, first and second prizes in produce of cow nd first in get of sire.



KING LANCASTER, 3 times Grand Champion

Below is a list of our Grand Champion bulls for the last eleven years—a list that will stand for quite awhile:

1904—Hillcrest Hero
1905-1906—King Edward (Also Grand Champion World's Fair at Portland.)
1908—King of Greenwood
1909, 1910, 1911—King Lancaster
1912—Greenwood Knight
1913—Greenwood Knight
1914—Greenwood King

All except the first two of the list were bred by us. We have beaten a number of bulls that were bought in the East at prices ranging from $500 to $3000 and brought out here to beat us.

Range raised young bulls for sale, single or carload lots.

60 HEAD-- POLAND CHINA PIGS FOR SALE --60 HEAD

Both Large and Medium Type

Ready for Delivery January 15. Ten weeks to three months old. Prices reasonable and will guarantee to please or refund your money.

W. A. YOUNG, LODI, CALIF.

Selecting Feeding Cattle.

The business of fattening feeder cattle for the markets is a comparatively new feature of agriculture in California, especially on anything but a very extensive scale, but with every indication pointing toward a more general taking up of this line the following information taken from bulletin 224 of the Wisconsin Agricultural Experimental Station at Madison, should be of value:

The block is the supreme and final test of beef animal. The butcher desires an animal that will deliver the highest percentage of good cuts, and show refinement in parts that are not edible, in order to reduce waste. Fineness of bone, lack of paunchiness and a small head are thus desired by the butcher, but the steer with light bone, small paunch and a frail head would be unable to go through the feeding period and make economical gains.

Even though the strong, vigorous, capacious feeder may not turn out at the finish into the exact idea of the butcher, he is the one that puts on the largest and steadiest gains, endures heavy feeding for the longest time, finally finishes out with the greatest weight, and yields the highest percentage of prime beef.

In selecting feeders, there is perhaps no point more important than the back. A wide, straight, strong back, with a well-sprung rib, is essential. The girth of the steer should be large—that is, the distance around the body back of the shoulder should be as large as possible. This means more room for vital organs and insures a better constitution than is otherwise likely to prevail. Associated also with a large girth is a well-sprung rib, making a wide back on which there is room for the deposition of a large quantity of high priced meat. There is also greater depth of chest and greater digestive capacity with a large girth.

The head is an excellent index to the character of the feeder, because there is a relationship between the different parts of an animal's body. The steer with a wide head is usually a good feeder, for a wide head goes with a food capacity for putting on a large amount of flesh. Usually the steer with a wide head will grow thick through the body and wide across the back. Width of muzzle is also important because it indicates capacity for feed consumption and for good breathing. The eye should be prominent, clear, and placid, indicating health, and a quiet disposition which is desirable in an animal destined to take on flesh.

Although the neck is not a choice cut, it is thick and short on a good steer, for a thick compact body, a necessity in a good feeder, usually accompanies a short, thick neck.

The brisket, which is the flesh covering the point of the breast bone between the fore legs, is not choice meat, but on the well-built steer it is well let down and has good width, thus conforming to the general thickness throughout and helping to complete the parallelogramic form desired in the good feeder.

The shoulder should be evenly covered, compact, and wide at the top. While width of shoulders at the top is a mark of a good feeder, steers with extremely wide shoulders should not be selected, for they are usually coarse and have unduly prominent hip points. The shoulder should blend smoothly with the neck, leaving no crease or definite line where the neck and shoulder meet. This imaginary boundary line between the shoulder and the neck is known as the "shoulder vein." The expression "a full shoulder vein," means that the neck and the shoulder are well blended. Toward the rear, the shoulder should blend well into the back and sides of the animal so that there is no tendency toward "tying in" which is always characteristic of an animal with a poor heart girth.

The coupling, that is the distance from the last rib to the "hook," or hip joint, should be short in accordance with the general compactness desired throughout. The steer should also be wide in this region and well muscled, with no indication of being sway backed. This is the region of the loin from which valuable cuts are taken.

The rump of the steer should be long, wide, and level. This is the region bounded in front by the hooks, or hip points, and extends backward to the tail head and downward as far as the pin bones on either side of the tail head. While width at the hooks is desirable, too much prominence is objectionable. Smoothness of covering is the thing most desired in the finished steer, and this is difficult to obtain when the hooks are too prominent. "Patchiness" or the assembling of fat in patches is most common on animals with prominence either at the hooks or at the pin bones. The pin bones on the good type are set wide apart and smoothly covered. A drooping rump is undesirable, but not more objectionable than one too prominent at the tail head. A prominent tail head, usually associated with prominence at the hooks and at the bones, tends toward patchiness, and generally goes with a rump that is hard to cover smoothly.

"Twist" is generally used to refer to the flesh between the thigh bones. "Thigh" is used to refer to the flesh on the outside of the thigh bones. Taken together they constitute the quarters. Plumpness, fullness, and thickness, with good muscular development and flesh well carried down both on the inside and outside, constitute good thighs and twist, and consequently good quarters. Guard against the steer with a poor thigh and a high, scanty twist, for he will not develop well fleshed quarters.

In the region of the flank, the steer should be full and low so as to make the underline from the brisket to the flank level and to complete the parallelogramic form obtained from a side view.

Select steers with short legs, for short legs decrease the amount of offal and increase the killing percentage. Also, short legged animals do not travel about much. They thus save their energy and use their feed for gain. A strong bone without coarseness is to be desired. Too much refinement is associated with a weak constitution.

Symmetry of outline, or balancing of parts, is a very important point in selecting steers. By symmetry is meant a general uniformity throughout with no part out of proportion with any other part. Depth of chest should be balanced by depth of twist, and width of shoulders should be accompanied by width throughout.

In addition to the foregoing points, the steer should have a pliable skin of reasonable thickness, covered by a heavy mossy coat of hair. Pliability of skin and mossiness of coat indicate thrift and general well being. Thickness of skin and hair indicates good consitution.

JOHNSON GRASS HARD TO KILL.

To the Editor: Enclosed is a sample of grass which I would be pleased to have you identify and tell its value or means of control, if a weed.—Subscriber.

[Answered by Prof. P. B. Kennedy, University of Cal.]

[This is common Johnson grass, in regard to which a great deal is known as to its obnoxious weedy characteristics. It is more likely to be troublesome on higher land than in wet places. No easy method of controlling Johnson grass is known—but we would recommend by all means if the amount is not too great, that you dig the plants out, getting all of the roots if possible.]

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

I HAVE PULLED 3000 STUMPS

Big Pacific Coast Stumps, ALONE, without horses, powder or digging, with a "K" HAND-POWER STUMP PULLER

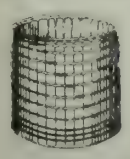
I KNOW you can pull your stumps with the "K," cheaper, quicker and better than with any other known device.

WEIGHS ONLY 171 LBS.

One man easily handles—made of Krupp steel; can't break or get out of order. Simple, compact, developing 48 tons' pull. Pulls any stump that ⅝-inch steel cable will hold. 200 feet steel cable and all equipment included. Works anywhere. Used by U. S. Gov't in Alaska and by several states and counties.

You can make $25 land worth $200 an acre in spare time work. Write today for catalog showing actual photographs of the "K" in use and special money-saving offer.

W. J. FITZPATRICK
Box 32 1926 2d Ave.
Seattle, Wash.



Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Moulding, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

RHOADES & RHOADES
EXPERT LIVE STOCK AUCTIONEERS

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

NOTICE!

To Horse Breeders

The future of the horse-breeding business is very bright, but this is no reason for throwing prudence to the winds and paying prices for stallions, which are not only much higher than necessary, but in many cases so high that it is practically impossible for the investment to prove profitable, unless he is to be used on high-class purebred mares, and the horse is an extra good one.

It is the stallion buyers who are responsible for the high prices, for I venture to say that there are very few company horses sold in this State which could not be bought for half the money and often less, if the buyers went to the barn with the cash, and if your note is good to the salesman it is certainly good in your own bank.

It has always been my endeavor to import high-class stallions, and that I have succeeded is proved not only by my winnings in the show ring, but by the general satisfaction to purchasers.

I have never sold an unsound one or had one returned as a non-breeder. I have an assortment of high-class Shire Stallions on hand, including champions and first-prize winners.

They are for sale for cash at prices which are less than half of what others ask for horses of equal quality. My guarantee is absolutely good and I shall be here next year to stand behind it. I have also a few good young mares for sale at reasonable prices.

For further particulars address

HENRY WHEATLEY
Salvador Stock Farm
Napa

No Pit is required with the Krogh Deep Well Turbine Pumps

For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company
SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

Oak Grove BERKSHIRES
Cholera Immune

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit. We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Poultry for Profit

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

Mating Breeding Pens.—In a goodly portion of this State, breeders are mating up their yards for the summer's work. Up north it is perhaps a little early but we aim to help all, so take time by the forelock.

Now it does not matter whether the flock is kept for what is called "fancy" or "utility," they should be mated up so as to bring out the best results. What is meant by best results, is that there shall be a uniform color, shape, and size, as near as possible. If you mate up one or two long-legged, scrawny looking hens and several good ones, the chicks will not be uniform in any way, hence it pays to take a little trouble. The male bird, if he has good color, will often remedy that defect in the hens, because it is the male bird that gives the color to the progeny. The female line gives shape or type. If you are breeding strictly for eggs, be sure that your male bird is from a good laying strain, and if possible from a hen whose record is known. This is not always conclusive proof that his get of pullets will be heavy layers but it is most likely they will. Anyway one does not take as many chances as when the parentage is not known.

In smooth legged varieties be sure you do not mate up a bird that has feathers or stubs on its legs. Nor a bird that has any serious defect in its comb. Combs like the Minorca's must not lop over in the male, as that is a defect.

In all breeds the male may stand a little higher on his legs than the female, and the chicks will, in the majority, be of the same length of leg as the hens. Choose a male that has a rather large comb for the breed he represents, a good, bright eye, good lusty crow and quick, alert manner. If a cockerel, he should be ready to fight at the drop of a hat, but older birds learn wisdom and are not so quick to fight, though they may be just as vigorous in service. A male that stands with his legs well apart is always a good breeder. One other point, a long back shows great egg capacity in hens, and denotes that the male is of that type.

Some people are of the opinion that what they call "utility" can only be found in mongrels or cross bred fowls, but the fact is that all the good qualities the modern hen possesses have been built in bit by bit by the man or woman fancier. All the bad or poor qualities can be bred out while the good ones are being bred in. And as the fancy has progressed, let it be noted, we have been reaching the 200 and 250 egg hens. This may be utility and it is, good utility, because these hens are good anywhere, as a rule. If you raise a hen that will score 95¼ in a poultry show and lay over 200 eggs you have a utility hen at its best. But such hens are not bred by haphazard matings; they are bred by close selection one year after another.

Mr. Quisenberry, of the Missouri Experiment station, says, "These egg-laying contests have proved that a reasonable amount of beauty and a reasonable amount of eggs can be combined in the one fowl. One hen at the station in the contest just ended has a record of 286 eggs for 12 months, beating "Lady Show You" by five eggs. A Barred Rock that laid 254 eggs in the contest was exceptionally good in color and shape."

Every farmer should begin to improve his flock along these lines. Select the hens that look most feminine about the head (a coarse, broad head does not go with a good layer); select good size for the breed, and a hen that is active and alert. Have all in the flock or yard as near alike as possible, both in size and color, and the male a little taller.

Females per Male.—The next question is, "How many hens to a male?" and this is a question upon which a good deal depends. Among the small, active breeds one male will take care of twenty hens, provided he is well fed; but in the large breeds, such as the Orpingtons, Rocks, Wyandottes, etc., and with Langshans and al feather-legged fowls one male to eight hens is enough.

But all these rules depend upon what we want to get from the matings. If we want to hatch more pullets than usual I believe it pays to let the hens dominate the pen by giving the male more hens than he can handle. In this way we do not get so high a fertility, but we get a larger per cent of pullets. If we put a young, vigorous cockerel in a yard of older hens the cockerels will outnumber the pullets. But to get an even balance, both males and females must be in good health and vigor and be about as well matched in shape, color and other good points as possible.

Double Mating.—In all parti-colored fowls, irrespective of breed, we must resort to double mating to get good specimens of both sexes. This means that we must have two males. Two pens would be better, but many get along very well with a change of males, and these must be alternated every week. In buynig a parti-colored male such as the Barred Rock the purchaser should know whether he is pullet bred, or cockerel; if he is cockerel bred he will breed better cockerels and so with a pullet bred cockerel.

As the standard calls for male and female of one shade the double mating is necessary. Barred Rocks are among the hardest breeds to get exhibition stock from, but to the man or woman with the true fancier's instinct the work is a pleasure all along, and is all forgotten when he sees the result of his work with the blue ribbon hanging at his coop.

Short on Information.—One of our subscribers writes for information and fails to tell us whether his chickens are old or young or how they are yarded or cared for. This makes it difficult and unsatisfactory in the way of advising remedy.

The first that I notice is the drooping of one or both wings or a lameness in one or both legs, which gets worse from day to day until they die. Am feeding Gyp corn as a scratch feed, and Surelay as a mash. Plenty of grit and shell.—W. H. K.

It may be that the Gyp corn has mold on it, or the mash may have some mold. From the description I would infer that the trouble comes from either moldy feed or damp quarters. Your information is hardly full enough. I would give the birds a little tonic such as tincture of iron and Nux Vomica, or the following: tincture of red cinchona, one fluid ounce; tincture of chloride of iron, one fluid drachm; tincture of Nux Vomica, 4 fluid drachms; water and glycerine to make four ounces. Give a teaspoonful to a quart of water, not allowing any other drink. Without a doubt the trouble is in the digestive tract and this will help no matter what the cause is.

Duck Troubles.—I have a flock of young ducks that seem to be weak in the legs and fall backward. Please tell me what causes it and the cure.—Subscriber, Gridley.

You are yarding your ducklings too close. Give them more exercise and plenty of good, sharp sand or grit, something with plenty of lime in it. That is what ails them, shortage of mineral matter.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

TO THE POULTRY FARMER—We now have under construction a modern Hatchery, and are booking orders for BABY CHICKS from our heavy laying strains of S. C. White Leghorns and White Plymouth Rocks. We solicit your order for 1915 delivery, and know that you will be well pleased with the high quality of our stock. Write for prices on Sept. and Oct. hatched pullets, and year-old hens for breeders. Hopland Stock Farm, Hopland.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

FOR SALE—Nine White Plymouth Rock females and one cock bird. Every female but one a winner. First hen and best White Rock in Stockton Show, 1914, included. Cock also a winner of first at Fresno, 1913. First check of $25 gets the bunch. Reason, am keeping Reds only. B. C. Quessenberry, Lodi, Cal.

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336 C. Phone S. J. 1889.

BLACK MINORCAS!—The hen that lays the big white eggs and lots of them. Baby chicks, January prices, 14c, from heavy-laying vigorous stock—the kind you want to keep. Write for circular and delivered prices on any quantity. Hatching Eggs, $6 per hundred. Roofden Poultry Ranch, Campbell, Calif.

PEERLESS POULTRY YARDS, Orland, Cal.—Buff Orpingtons, Silver Wyandottes, Partridge Plymouth Rocks. "Quality, not quantity," my motto. Hatching eggs, $3.00 per 15. Fertility—eight chicks or a setting free. Buff cockerels for sale at from $3 to $10.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

ORDER NOW Thoroughbred Bronze Turkeys from largest Turkey Ranch in Stanislaus county. Large Spring gobblers, and hens for breeding stock. Address, Crow's Landing Turkey Ranch, Crow's Landing, Cal. Box 227.

HICKS JUBILEE HATCHERY 36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs [illegible] Write for particulars. Prices reasonable. Tom Seals at the helm. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

INCUBATORS The Geo. H. Crosby Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 373 Meridian Road, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality, the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wyckoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

WHITE ROCK BABY CHICKS.—Winnings at Modesto, White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper, Ceres, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BARRED ROCK COCKERELS—Stock from Holterman's Roosts, Fort Wayne, Ind. These birds are well barred and good individuals. $5 each. Allen Thompson, Tulare, Cal.

SILVER SPANGLED HAMBURGS, Silver Laced Wyandotte, White Wyandotte and Light Brahma cockerels. Beautiful individuals. Tribble Nurseries, Elk Grove, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

BLUE RIBBON White Wyandottes. First prize winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale, Fleming, San Jose, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enock Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

TOULOUSE GEESE—direct from Philadelphia. Win everywhere. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View, Cal.

RHODE ISLAND REDS—Winners at leading California shows. Hatching eggs. Fine cockerels and pullets for sale. Wm. Larm., 746 Lincoln Ave., Alameda, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS—Breeding and foundation stock eggs for hatching. Rancho Del Martino, Mrs. E. B. Martin, Downey, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W., Stawetski, San Jose, Cal., R. 2.

DAY-OLD CHICKS—Regularity Egg Machines. We are booking orders for spring delivery. H. & F., Mortensen, Suisun, Cal.

INCUBATOR CHICKS—White Rocks and White Leghorns. High-class stock. Send for booklet of prices. Mahaio Farm, Box 597, Sacramento, Calif.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. C. W. Suits, 378 Bandini Ave., Riverside, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

LANGSHANS—Best on coast. Stock, settings booked now. Lohr, 689 Kansas St., San Francisco.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

GIANT BRONZE TURKEY Toms from prize-winning stock. Mrs. Nellie Hart, Holtville, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

BARRED ROCKS—Prize winners stock and eggs. W. L. Kennedy, Fowler, Cal.

EGGS SHOW FAULTY FEEDING.

[Written for PACIFIC RURAL PRESS by Edwin T. Lindley.]

In my first article in the Pacific Rural Press it was stated that if sufficient interest was shown in the matter I would, as a sort of patriotic service to the State, continue in my endeavor to point out the causes for this great loss and offer remedies for its cure. Both the publishers of the Press and the officers of the Federated Poultry Association insist that reports show I am undoubtedly elected to do this.

I am not a trained writer but hope to be able to make a few clear statements that will bring about some needed improvements in feeding the fowls before the egg is produced, as well as caring for them from nest to market, thereby saving much of this waste.

As a professional tester of eggs for special purposes, requiring the most careful examination and assorting, I am daily brought face to face—or eye to egg—with illuminated and convincing evidence of wide-spread shortcomings on the part of a very large percentage of poultry raisers.

For instance: Uncle Joe, you remember when you cut down your good substantial feed and made the hens rustle for most of their provender in the alfalfa patch? And Uncle Jim, how about those eggs you gathered in a wet bucket that had some bran or other feed sticking to the sides and bottom; you recollect leaving them in the bucket all night and next day so that fermentation commenced before you took care of them? Then, not long ago Aunt Martha washed some eggs in sour milk whey; they looked very pretty and white, but how disappointed we were when returns stated they were sold to a baker at a low price because they would not keep even in fair condition for more than a few days and could not safely be sent out for family use. And you know we made many other little mistakes too numerous to mention at this moment.

Producers should understand that very few eggs now reach the consumer until they have first passed before the modern "electric candle." We can almost see you performing these bad acts when we glance at your eggs; something like watching a moving picture. As well try to fool the recording angel when you call for your returns from old St. Peter as to deceive the proficient egg tester of today. He will get you every time.

I have prepared a number of drawings of eggs in colors, just as they appear before the "candle," showing some that are good, others bad and a few that are worse. Just as soon as the artist decides what he can do in the way of cuts in black and white that will fairly well illustrate them I will begin to tell you all about it, using one or two illustrations in each issue.

Editor's Note. — Following up what Mr. Lindley has written in this and a previous issue we present the following items:

In Logan County, Colorado, over 300 boys and girls are enrolled in the Poultry Club. Lessons in poultry raising will be sent to them monthly from the State Agricultural College, and we believe from these clubs will come many successful poultry raisers of the future. Careful records of food cost, labor cost, and egg production will be kept. No bad eggs, no small eggs, no dirty eggs, will be sent to market. Perhaps better methods of marketing will bring better prices. Perhaps these boys and girls may be able to get closer to the consumer with their products. Perhaps they may be able to prove that the hen on the farm more than pays her way.

W. E. VAPLON.

Would it be proper to state that this puts Mr. Lindley's thirteen poultry club in the infant class?

The following is an extract from a report issued on Dec. 22, 1914, from the office of the New York State Attorney General, who is investigating the sale of butter and eggs in New York City.

"Fifteen butter and egg firms, which have representatives in New York City, virtually control the prices of these two commodities throughout the United States."

The State of Idaho includes poultry culture in the list of studies in the public schools and each school is equipped with an incubator and other things necessary to conduct industry in a modern and successful manner.

What is California doing? What have you done about it?

FEDERATED POULTRY ENDORSED.

To the Editor: Referring to the article in the Pacific Rural Press of Dec. 19, in which the Federated Poultry Association is discussed, will say that such a move is in itself a great step toward securing the proper recognition in the Legislature.

I am heartily in favor of the movement, as too little has been done in California to advance the "Billion Dollar Industry."

California can show every state in the Union "how" when it comes to proper climate for the quick development of poultry from the egg to the laying period.

I think it about time something was being done to develop this industry further. People are beginning to see the important position poultry is taking in all farming, and are going in for pure bred stock in place of the usual "mongrel" flocks seen so often on the average farm.

With proper legislation combined with our natural climatic advantages, California should, in a few years lead them all as a State for poultry. I wish the movement the best of success and hope the Federated Poultry Association will get the support it so well deserves.

Modesto. R. A. McHENRY.

CURES WHITE DIARRHOEA.

To the Editor: I have lost several hens with white diarrhoea. What is the cause of the disease and what will cure it?—F. R. C., Upland.

[Answers taken from California Poultry Practice.]

[Simple diarrhoea is an inflammation of the digestive organs, causing a looseness of the bowels. The discharges vary in color, sometimes being whitish, and this is usually designated "white diarrhoea." At other times the discharge is greenish or yellow, the color varying according to the cause of the disturbance. The causes are too much meat in the diet, climatic changes, cold wet floors for the hens to stand on, foul drinking water, overdoses of mustard, pepper or condition powders of any kind, overcrowding, and vermin. Some one or other of these things is at the bottom of all cases of diarrhoea, and sometimes too much bran or other food of a laxative nature.

The treatment consists in removing the cause, cleaning up in general, and changing the ration gradually. Violent remedies rarely do any good. Keep plenty of charcoal where the fowls can have access to it. Feed sparingly and put in the drinking water a few homeopathic pellets of ipecac, about a dozen pellets to a quart of water. If the cause can be traced to bad food, such as moldy grain or smut, give arsenicum tablets.

If it is white diarrhoea, give two or more dozen pellets of aconite in the drinking water for the first three days, then wash out the drinking vessel and scald, after which give some arsenicum pellets. These homeopathic medicines act gradually but surely. Don't think because they are not violent that they are inactive, for the finer the drug is, the surer its action. For old, obstinate cases, give a tablespoonful of olive oil and follow with Carbo Veg. pellets in the water.—Susan Swasygood.]

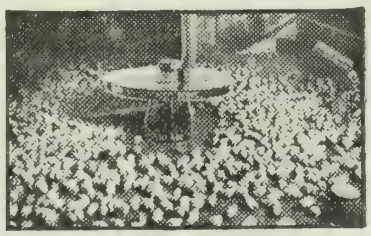
FUNNY EGG TALK.

Delightful vagaries in the official title of eggs express themselves the world over. In Berlin the various grades, in deciding order of excellence, are: Fresh drinking eggs, drinking eggs, fresh or country eggs, and finally eggs. In England "new laid" denotes the best grade, and apparently no egg can claim membership in this class for more than five days after birth. The "breakfast" egg, a few days older, is excellent for poaching or frying. The "fresh" eggs are "good for cooking, but nothing more," and usually come from foreign countries. Of "cookers" it is announced that "faith is necessary for their consummation," while as to mere "eggs" we are told that "the curtain may be drawn." Doubtless it is not generally known that the label "fresh," so far from meaning new laid, simply means that the egg has not been preserved, and as it may have attained the age of three months the experts advise against its use.—Boston Transcript.

It's the Chicks You Raise That Count."
THE VICTOR BROODER RAISES EVERYONE
Our Brooder is perfect; so is our Incubator. Send for free catalogue.
THE VICTOR INCUBATOR CO.,
Decoto Alameda Co., Cal.

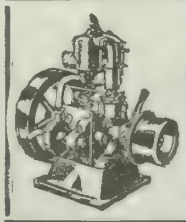
Leghorn Chicks
White, Brown and Buff selected, thoroughbred stock. Book your order now. Scored stock for sale, $2 up. Write today.
JAMES D. YATES, Poultry Judge, Modesto, Cal.

BABY CHICKS
Standard Bred.
The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.



The Fresh Air Brooder Stove
Our 1915 model is now out with splendid improvements, and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it,. It's free to you.
J. E. KRESKY
PETALUMA, CAL.

GET THE BEST
For Your Baby Chicks.
Coulson's POULTRY FOODS
SPECIAL CHICK FOOD
Write for Particulars to
COULSON CO., Petaluma, Cal.



CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Write for Catalog
Light Weight
THOMAS R. BROWNE, Stockton, Cal.

FREE BOOK
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
F. F. SMITH & CO.,
1006 J St., Sacramento.

The Home Circle

TO A FIELD SPARROW.

By Witter Bynner.

Chirping frequenter of meadow and tree,
Merry confrere of the mowing,
I am watching you sadly and aching to be
As deft, in my coming and going

As you are who delve in the nooks of the sky
And swing there and dive in the blowing,—
Accepting and singing without caring why
And letting the Lord do the knowing.

—Harper's Weekly.

THE APPLE-TREE CLUB.

By Juliette Golay.

The older girls in the village belonged to the Lilac Club. The club was so called because its members often met under the great clump of lilac bushes on the Robinson lawn. Here the girls brought their sewing and made pretty trifles for the church fair, for the village church needed painting, and every one was helping to collect the money.

When Kathie King came to the village she heard much of the Lilac Club, and she saw the girls on Thursday afternoons with pretty sewing bags on their arms, going to the Robinson house. To be a member of the club she thought would be a very proud and happy lot, yet no one asked her to join. As she was only six, that was, perhaps, not very strange, but Kathie wasn't content to be left out. Little girls like to do what big girls do.

"Let's have a club of our own," she suggested to her friend Christine, who was just her age.

"Just you and me?"

"Yes, we'll be very select."

Kathie had lived much with older people and had quite a grown-up way of talking. "And we'll call our club the Apple-tree Club and meet here under our apple-trees."

So the Apple-tree Club was formed. Mrs. King made Kathie a gay little sewing bag, and one for Christine, too, out of the same piece of silk, and she basted a towel for each child to hem. The little girls were pleased with the bags, but neither was an expert seamstress. Christine's stitches were apt to be irregular, and Kathie must have her needle tied to her thread when she sewed. They liked the idea of sewing, but as a matter of fact the pretty bags were usually left on the ground while the children played house in the apple-trees. The branches were invitingly low, easy for little girls to climb.

Soon the apples began to look inviting, too, turning a rosy cheek to the sun.

"But mamma says we mustn't eat them," said Kathie. She thinks they are not ripe. They look ripe, though."

"My mamma says the seeds are brown when apples are ripe. We might bite into these and see," suggested Christine.

Kathie looked doubtful. "It gives an ex-cru-ci-ating,"—Kathie pronounced the long word with care, impressed by the sound of it as her mother meant she should be,—"an ex-cru-ci-ating pain, if apples are green when you eat them. Suppose, suppose, we try them on the Higgins pig? If he acts queer, we'll wait a week; if he doesn't, we'll eat one today to see the seeds."

That seemed a good idea to Christine. Each little maid filled her sewing bag full of apples, and hand-in-hand they ran down the hill to the Higgins' barn.

Piggy was grunting cheerfully in his sty, and he came to the trough when he saw the children.

"You may throw him one," said Kathie to Christine.

This speech was prompted not so much by politeness as fear; piggy, with his feet in his trough, thrusting his nose through the bars of the pen, looked very big and dirty to the city child. She didn't want to go near enough to give him an apple.

"You first," said Christine. "It was your plan." She didn't guess Kathie was afraid of the pig, as she had no fears of pigs herself.

'All right," said Kathie. She wasn't going to let Christine know that she was afraid. She walked resolutely to the pen threw an apple in the trough, and hastily retreated.

"It's your turn now," she said with a sigh of relief.

Piggy had swallowed the apple, and was grunting for more. Christine pulled at the strings of her bag to open it.

"Hey, what are you children doing here?" There was Farmer Higgins leaning on his rake in the barn door.

Christine dropped her bag and all the apples rolled out. She wasn't afraid of the pig, but she was a little afraid of Mr. Higgins.

"We were just seeing if your pig liked apples," said Kathie. She had not thought before whether or no Mr. Higgins would like their experiment. He looked now as if he didn't.

He picked up one of Christine's apples.

"Green," he said positively. "Now, youngsters, I'm a good-natured man, but I can't have you feeding green apples to my pig."

Crestfallen, the children departed from his yard.

"Guess I'll go home," said Christine. "You come with me?"

"Think I'll go to my home, too."

Each child felt the need of a comforting mother. So ended the first adventure of the Apple-tree Club.

The summer days passed and the children still took great satisfaction in thinking that they belong to a club, though they made fewer attempts at sewing, and played more, and their sewing bags were put to other strange uses besides carrying green apples.

Then the Lilac Club gave a candy sale. Kathie went with her mother, her grandmother, and her aunts. She was very quiet, but she watched and observed all the details. The next day she announced, "Christine and I have decided to have a candy sale tomorrow."

"A candy sale!" "Tomorrow!" "Who will make the candy, pray?" so exclaimed her mother and aunts.

Kathie's chin trembled. "We'd help. We want to raise money for the church like the Lilac Club."

"Let the children have their sale," said the grandmother. "I think it is a cunning idea. We can make candy enough for the neighbors. I'll make some old-fashioned butterscotch myself."

What a comfort grandmothers are! Suddenly the sale seemed possible.

"If we are to have a sale, tomorrow is as good a day as any," said her mother, "for the summer's almost gone. It is Nellie's afternoon out, too. We can have the kitchen to ourselves."

"I'll make some chocolate fudge," said Aunt Julie. "I have my college recipe."

"There are some good candy recipes in the last number of Good Housekeeping," said Aunt La.

"You girls make a list of what you need," said Uncle Frank, "and I'll fetch them from the grocery store."

Now Kathie's eyes were shining. "Will the minister announce our sale at the meeting tonight?" she asked.

"No," said her mother. "The best plan will be for you and Christine to go about the neighborhood and tell our friends. Tell them very nicely that you are to have a candy sale for the church and ask them to come. Go to all the houses near, but don't go down Meeting House Hill."

Boy Today
Man Tomorrow

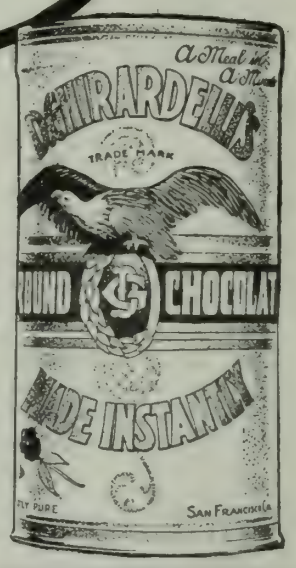
The health of the growing boy depends upon the food you give him. See that he drinks Ghirardelli's Ground Chocolate. He'll like it and it will do him lots of good. It is a real health food and drink and costs no more than those beverages that are universally considered to be harmful. Begin serving Ghirardelli's tomorrow. It will please every member of the family.

In hermetically sealed cans.

Ghirardelli's Ground Chocolate is the only original ground chocolate. It has been used in Western homes for over a third of a century and its popularity is growing day by day

D. GHIRARDELLI CO.
Since 1852 San Francisco

Despite the European war there is no raise in prices.



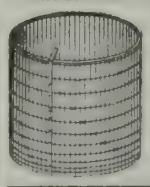
GHIRARDELLI'S GROUND CHOCOLATE

BURN OIL
SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO.,
Pasadena, Cal.

TEACHING PAYS
Teachers Receive From $70 to $150 Per Month and Have a Pleasant Occupation - Free Catalog
PREPARE AT
WESTERN NORMAL
STOCKTON, CAL.



REDWOOD
TANKS—SILOS.
Water troughs, tank Windmills.
Prices the lowest.
frames, and towers.
Steel and Wood
BROWN & DYSON,
610 So. Center St.
Stockton, Cal.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO.
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

So that afternoon Kathie and Christine, half proud, half shy, made their calls.

"The Apple-tree Club," Kathie would say—Kathie did most of the talking at Christine's earnest request —"is to have a candy sale at my house tomorrow. It's at three. It's for the church. We hope you'll come."

"Who is the Apple-tree Club?" some of the neighbors asked. Strange, but they had not heard of it.

"Just we two."

Then the women would look at the rosy little girls on the front steps and say heartily, "We'll come."

When Kathie came back from her calls, she found all her family in the kitchen. Grandma was cutting a pan of butter-scotch into squares; her mother was stuffing dates; Aunt Julie grating chocolate; Uncle Frank cracking nuts; Auntie La stirring something on the stove; and little sister Ruth was trotting about and putting an inquisitive finger in every plate she could. The kitchen was as full of nice odors as it was of people.

Kathie was soon as busy as the others. She helped Uncle Frank pick out the nuts, she ran to the pantry after more sugar or more chocolate. She must have one stir at everything cooking on the stove. She thought there would have been no candy made without her.

There were only a few accidents. Once Ruth upset a plate of nuts, and once she sat down in a dish of molasses candy which was put by the window to cool, that it might be ready for pulling.

"Children are in the way in the kitchen," said the aged Kathie, as weeping Ruth was carried away to have her dress changed. But it wasn't long before Kathie herself dropped a plate of Aunt Julie's fudge down the cellar stairs. A little dusting would have made that all right, Kathie thought, but Aunt Julie preferred to stir up some more in her chafing dish. Grown people are apt to be fussy.

Still, by supper time there was a goodly array of different kinds of candy on the pantry shelves. Kathie thought it hard that she must go to bed as early as usual after supper. She wanted to help fill the boxes.

The porch the next afternoon was a pretty sight. Uncle Frank had decorated it with flags; and there was a table in one corner covered with candy, and on the table in the other corner was a great bowl of lemonade. Christine's mother had made that.

Kathie was dressed in white, with a pink sash, pink bows for her hair, and pink stockings. Her cheeks, too, were pink, with excitement. "A real apple-blossom," her mother called her. Mrs. King also had put on white in honor of the sale, and both the aunts.

Christine came early, dressed in blue and white. Then every one came. Christine had charge of the lemonade and Kathie of the candy, but there was always a mother or an aunt hovering near to help with the change. In half an hour every piece of candy was sold and every drop of lemonade. Then the candy sale turned into the pleasantest kind of a party for the rest of the afternoon.

When it was all over, Uncle Frank counted the money. "Three dollars and five cents," he announced.

Next morning Kathie and Christine carired all the pennies, five-cent pieces, and quarters—Kathie insisted on taking the actual money that was made at the sale— to Mrs. Robinson, the president of the Ladies' Aid.

They felt very proud and important when at the end of the week they received a letter. It was addressed to "Miss Katharine King and Miss Christine Coleman," and it read, "The members of the Ladies' Aid gave a rising vote of thanks for the money contributed to the church fund by the Apple-tree Club."

HOUSEHOLD HINTS.

Window glass thoroughly washed can be dried and polished with old newspapers.

Never scrub oil pictures; simply wipe with a damp cloth and if picture cord is used, wipe it off to secure against moths.

If windows are given a careful wiping with tissue or other soft paper every few days, window washing days will not arrive so frequently.

Ingrain and other carpets, after shaking, are brightened in color by sprinkling a pound or two of salt over the surface, and sweeping carefully.

Oxalic acid will remove iron rust.

When the sparrows become a nuisance on the porch or over windows, just put a little molasses on their roosting places, and they will bother you no more.

If baked potatoes are greased all over thoroughly before being put in the oven, they will have a rich, satiny look, and the outer skin will peel off as thin as tissue, leaving the rich, nutritious part next the skin to be eaten instead of wasted.

Household Uses of Salt.—A jar of common salt should always be kept handy in the kitchen, as it is useful for so many purposes. A little salt rubbed on cups will remove all tea stains; in the same way salt will remove most stains or marks on dishes and glasses. Put some salt into the whitewash, and it will stick better. In washing willow furniture and straw matting, some salt should be added to the water; this prevents the furniture turning yellow and discolored. In the washing of colored material, a little salt added to the first water will prevent the colors running. Silk blouses, handkerchiefs, and ribbons should be washed in salt water to obtain good results. Strong salty water is an excellent emetic in cases of poisoning. Salt also makes a good tooth-powder and gargle for a sore throat. Bathing the feet in hot salt water is very refreshing for tired feet, and is said to cure neuraglia. (It should be noted that salt in excess is extremely unwholesome, and a cause of gout and its allies.—Ed.)

Pat came to the dentist's, but when he saw the gleaming pair of forceps approaching his face he positively refused to open his mouth. The dentist quietly told his page-boy to prick his patient with a pin, and, when Pat opened his mouth to yell, the dentist seized the tooth, and out it came. "It didn't hurt as much as you expected, did it?" the dentist asked, smiling. "Well, no," replied Pat, hesitatingly. "But," he added, placing his hand on the spot where the boy pricked him with the pin, "begorra, little did I think the roots would reach down like that."—Northwestern Advocate.

The Value of STILETTO

The banker's endorsement on a certified check is an absolute assurance to you of its value—the name STILETTO on any piece of hardware—any tool—any farm or garden implement or can of paint is equally as great an assurance of value. STILETTO stands for the highest quality attainable in the article which bears its name—it is a positive guarantee of worth—see to it therefore when buying anything for the house, garden, factory, farm, bench or shop—that STILETTO is stamped upon it. It warrants your confidence.

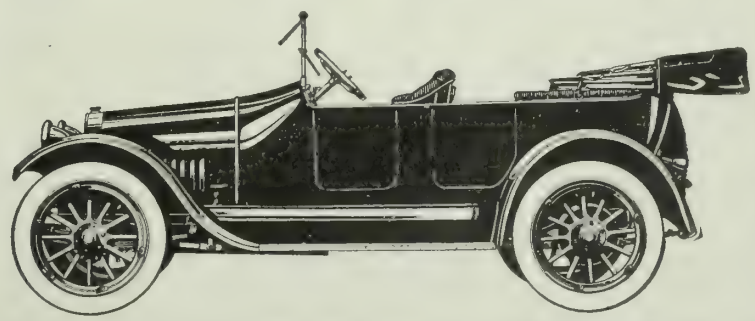
Wherever good goods are sold you can get STILETTO brand.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

THE ELECTRIC WAY

From San Francisco and Oakland to and through the Sacramento Valley.

Look Up the Rate On All Your Freight. Train Schedules Designed For Busy Travelers.

Oakland, Antioch and Eastern Railway

Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.

TICKET OFFICES:

Key Route Ferry, In S. F., Sutter 2339 | Fortieth and Shafter Ave., In Oakland Piedmont 870 | Third and I Streets, In Sacramento Main 261

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Jan. 13, 1915.

WHEAT.

With a heavy export demand, the growers still hold back, prices continue to advance, the local figures being about $1 per ton higher than last week. A few good sized sales are reported in the country, though the local market is not very active.

Cal Club, Ctl	$2.20@2.25
Forty-fold	2.30@2.35
Northern Blue's	2.40@2.45
Northern Blue	2.20@2.25
Northern Red	2.20@2.40

BARLEY.

Speculative business is active at higher prices. The spot market here is quiet, with limited offerings, but prices show another sharp advance, and considerable business is being done in the country.

Brewing & Shipping	$1.45@1.50
Choice feed, per ctl	1.40@1.45

OATS.

The heavy northern demand has resulted in a slight advance locally, but this market shows no great strength, as there is plenty of oats in the state, and most of it is not of the best grade.

Red feed	$1.50@1.55
Seed	1.80@1.90
Gray	Nominal
White	1.60@1.65
Black Seed	1.75@2.25

CORN.

The heavy feed demand resulting from the advance in wheat has brought an advance in eastern corn, supplies of which are not large here. Some California corn is also moving at about the same figures, and Egyptian, etc., have been marked up sharply. Some Manchurian is due to arrive.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.80@1.85
Milo Maize	1.80@1.85

BEANS.

Business is quite active for this time of year, and good sized inquiries are coming in right along. As stocks have already been greatly reduced, and a continued demand is expected, prices show considerable advance all along the line. According to reports from the lima district, the supply will be inadequate to meet requirements from now to the next harvest. Sales from the 1914 crop so far have been very large, leaving only about 700,000 sacks, of which 120,000 will be required for seed. Inquiries are coming from Europe, as well as from the east, and growers are holding firmly.

(On Wharf.)

Bayos, Cal., per ctl	$5.00@5.40
Blackeyes	3.75@3.85
Cranberry Beans	4.25@4.50
Horse Beans	3.50@3.75
Small Whites	4.25@4.50
Large Whites	4.00@4.40
Pink	3.50@3.70
Limas	5.25@5.35
Red Kidneys	5.25@5.50
Mexican Red	5.00@5.25

SEEDS.

The market is featureless at present, with little business coming out in any line. Values are fairly steady at the former level.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3½@4 c
Millet	2¾@ 3¼c
Timothy	7½@ 8 c

HAY.

There is very little to report on the hay situation, offerings running about the same as for some time past, while the market is duller than before, owing to the rainy weather. It is accordingly difficult to dispose of the current arrivals, and while quotations stand as before, the market is decidedly weak. Little alfalfa is coming in, but there is no demand worth mentioning.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	40@ 45c

FEEDSTUFFS.

The continued upward movement of the grain market has resulted in sharp advances in several lines, including bran, shorts, middlings, cracked corn and rolled barley. Cracked corn is in active demand. There is little oilcake meal offered, and cocoanut meal is dull.

Alfalfa Meal, ton	$15.00@16.00
Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	30.00@31.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	40.00@41.00
Middlings	35.00@36.00
Rolled Barley	30.00@31.00
Rolled Oats	32.00@33.00
Shorts	31.00@32.00

VEGETABLES.

Business in green vegetables has been rather quiet this week, and prices show considerable fluctuation, owing to variations in supply and quality. Los Angeles tomatoes are firmer, and Imperial stock brings still higher prices. All lines of beans are higher, good string beans being scarce. No eggplant is coming in at present, but further supplies are expected before long. Delta celery shows a wider range, and Palo Alto stock is lower, with ample supplies. Lettuce has dropped sharply, on excessive supplies, and northern stock is hard to dispose of. Hothouse cucumbers are coming in freely and sell at a wide range. Bell peppers are scarce and higher.

Mushrooms, lb	5 @10 c
Peas, lb	8 @15 c
Peppers, Bell, lb	7 @ 9 c
Chili, lb	3 @ 4 c
Carrots, per sack	30 @40 c
Tomatoes, crate	50 @75 c
Beans, wax, per lb	6 @ 8 c
String	10 @15 c
Lima	8 @10 c
Eggplant	Nominal
Cream Squash, box	25 @35 c
Celery, doz	10 @15 c
do, crate	$1.00@ 1.15
Sprouts, lb	2 @ 4 c
Lettuce, crate, So.	50 @75 c
Rhubarb, box	75 @$1.25
Hothouse cucumbers, bx	$2.25@$2.75

POTATOES AND ONIONS.

Oregon potatoes are now coming in more freely, and all varieties show considerable reduction in price. Sweets also are easier, and Delta onions will hardly bring as much as last week.

Potatoes, Oregon, ctl	$1.15@ 1.35
Salinas, ctl	1.50@ 1.70
River Burbanks, ctl	1.00@ 1.10
Sweet Potatoes, ctl	1.50@ 1.75
Onions, yellow, sack	90 @$1.00
Garlic, per lb	12@ 15c

POULTRY.

Poultry has been very quiet most of the week, but the demand is now reviving and values are pretty steadily held, with an advance in small broilers. Turkeys continue plentiful and find a very fair demand.

Live Turkeys, lb	20 @21 c
do, dressed	22 @25 c
Broilers, small	23 @26 c
Fryers	19 @20 c
Hens, extra, per lb	17 @18 c
Small Hens, per lb	16 @17 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb	9 @10 c

BUTTER.

All grades reached a rather low level a few days ago, with continued large offerings and no outside demand. Business has picked up a little now, however, and prices stand about 2c. above last week's figures.

	Thu.	Fri	Sat	Mon	Tu.	Wed.
Extras	24½	24½	26½	26½	26½	27½
Prime	24	24	24	24	24	25
Prime	23½	23½	23½	23½	23½	24

EGGS.

Eggs show more fluctuation than for some time past, a slight variation in supplies causing rather sharp price changes. After picking up a little at the first of the week, prices have dropped again on larger receipts and a sluggish buying movement.

	Thu.	Fri.	Sat	Mon	Tu.	Wed.
Extra	30	27½	30	33½	33½	28½
Sel. Pul.	28	26½	26½	30	30	26½

CHEESE.

Fancy flats, which have been rather easy of late, have now stiffened up a little, advancing 1c., while Y. A. and Monterey cheese are in fair supply and unchanged in price.

Fancy California Flate, per lb	13½c
New Young America, fancy	13c
Monterey Cheese	14@15c

Los Angeles dairy prices.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	26	26	26	26	26	26
Eggs	34	32	33	35	34	32
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

The deciduous fruit market is in very poor shape. There is practically nothing offered but apples, and a few cold storage pears and cranberries, though a small lot of strawberries appeared this week. None of the offerings find any great demand, the call for apples being extremely sluggish. Prices stand nominally about as before, but it is understood that a good deal of business is being done at concessions. Supplies are excessive, and a lot of northern stock is expected soon.

Cranberries	$9.00@10.00
Apples, Newtown Pippin	50@ 90c
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, box	1.00@1.50

DRIED FRUITS.

The dried fruit market is comparatively active for this time of year, and it is evident that many buyers in outside markets are making up for their scant purchases during the fall. Some foreign business is also being done, though little definite can be learned about it. The local trade looks for increasing strength all along the line. Apples are getting more attention than for some time past, and are quite strong at the old figure, while apricots and prunes are closely cleaned up and very firmly held. Packers are also picking up a good many odd lots of peaches, apparently on speculation, as there is only a limited demand from consuming markets as yet. The New York Journal of Commerce says: While arrivals of late via the Panama Canal have been large, comparatively little of this stock remained in New York, the larger bulk of it, according to current report, being consigned to interior markets. Consequently distributors here are working, it is believed, on small stock, and it is only a question of time when they will have to come into the market as buyers.

In Prunes the Coast situation is particularly strong. Packers are said to have paid more than 6c. base to growers for orchard run and are not inclined to shade 6c. f. o. b. basis for the four sizes in bags. On the spot here buying interest at present seems to center in the larger sizes, particularly 40s and 50s, but offerings are rather light, and no important business came to the surface yesterday. Peaches are expected to sell more freely to the South as a result of the improvement in the cotton situation. Apricots are strong but quiet.

Evap. Apples, 1914	4½@5½c
Apricots, 1914	6 @9 c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5 c
Prunes, 4-size basis, '14	5 @6 c
Peaches, new	3¾@4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

Owing to the cold weather through the East during the past few weeks, much of the citrus fruit offered on the auction markets has been frosted, which has tended to weaken the demand and lower the prices. However, as the weather has moderated, the poor fruit will soon be out of the way and better prospects will appear for orange shippers.

On the New York auction, Monday, January 11th, navel oranges averaged from $1.35 to $2.25 per box, and lemons about $1.40 per box. Other auction points averaged about the same as New York on that date.

While orange packers in the south have marked their prices up a little, arrivals in the San Francisco market have been greatly in excess of the current demand, which is below normal. Accumulations are heavy, and local prices are easy in most lines of citrus goods, though grapefruit is fairly steady.

Oranges: Navel, box	$1.00@1.75
Tangerines, small box	1.10@1.50
Grapefruit, seedless, box	1.50@2.00
Lemons, box	1.00@3.00

NUTS

The southern walnut association reports exceptionally heavy sales since the holidays, and expects to clean up everything shortly. Local dealers also report a fair movement, getting about 16c. for good soft shells, though off grade nuts which come in competition with the Manchurian are slow of sale. Almonds are dull, and it is said that the Association is making efforts to clean up a lot of unsold stock, while many independent growers are very anxious to sell. Prices are very irregular, offers being reported of about 16 to 18c. for first-class Nonpareils, 8c. for Drakes, and 5 to 6c. for hardshells.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

There is practically no market for honey. Letters are coming in all the time showing heavy stocks at producing points all over the country, and there is a lot of honey here that does not move. Efforts are being made to find an outlet, but so far with little success. Holders of good stock are still unwilling to sacrifice it, but values are little more than nominal.

Water White, extracted	7 @ 8 c
Light Amber	8 @ 9 c
Water White, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

HOPS.

Some contracts for 1915 crop are reported in the north. Business in 1914 stock locally has been rather inactive of late, the greater part of the crop having been disposed of, while what remains is rather firmly held.

1914 Crop	8 @13 c

LIVE STOCK.

Beef cattle are coming in fairly well from interior points, and find a good demand at the old prices. A good many sheep sales are being closed around the country at satisfactory prices. Live hogs are again coming in more freely, and are a little easier in price.

Steers: No	7 @ 1¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½@ 5¾c
Bulls and Stags	3 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs	7 c
100 to 225 lbs	7½c
Prime Wethers	6¼@ 6½c
Ewes	5¼@ 5¾c
Milk Lambs	7 @ 7½c

DRESSED MEATS.

Steers	10¾@11½c
Heifers	10½@11 c
Veal, large	13½@14 c
Small	15 @15½c
Mutton, Wethers	11½@12½c
Ewes	11 @11½c
Suckling Lambs	13½@14 c
Dressed Hogs	11½@12 c

DRIED FRUIT BULLETIN.

The following has been sent us by the California Cured Fruit Exchange, which covers the dried fruit situation very completely:

"We wish everybody a Happy

New Year and hope that the coming season will be a prosperous one for us all. The year 1914 just past, especially as far as dried fruits are concerned, will go down in history as one containing a great number of serious problems. Many things happened which had never happened before and for which we had no precedent. In the first place, the European war coming at a time when dried fruit packers were receiving fruit and getting ready to commence forwarding the apricot crop to Germany and other foreign countries, left everybody in a very uncertain state of mind as to what the outcome might be; with not only the possibilities of shipment and the financial and other abilities of export buyers practically wiped out, and the uncertainty as to what amount of fruit would be used by the foreign trade, the values of dried apricots declined very materially, and it looked for a while as if all the dried apricots which in former years had been exported would have to be consumed in this country (the major portion of the dried apricot crop produced in California has in past seasons been shipped to foreign countries), but after awhile things commenced to shape themselves around so that England and some of the other European countries commenced to buy dried fruit, but at a much lower range of prices than if conditions had remained as they were before the declaration of war. It looks now as if the dried fruit crop of 1914 will be entirely cleaned up before the 1915 crop comes in, Today apricots are held firmly at advancing prices, and there is a slightly better demand.

"Prunes, in the earlier part of the season, commanded a high price, but after the war commenced they dropped; they are now being held at fairly good prices, and on this commodity we are looking for good prices to be obtained after the buying season starts in again.

"Exports have been heavier than at first anticipated, and domestic markets should take the balance of the crop now on hand. Many of the European markets which in former years bought fruit through Germany have been buying direct, and the matter of credits is shaping itself up in a very much better way than was expected some few months ago.

"There is very little change in the raisin situation; the little new business which is being done is done at prices slightly under the prices of the Associated Raisin Company.

"Dried peaches have been somewhat of a drug on the market. The cotton situation in the South has affected this line very materially, and, while there is practically nothing doing in peach sales now, there is an indication that prices will be better before long as this line is being held a good deal more firmly than it has been in the past.

"The dried fruit tonnage in this State was very much heavier than last year, and considering the conditions which have existed, together with the increased tonnage we have, while the prices have not been as good as they might have been they might have been a great deal worse.

"Dried fruit shipments by water have been very much ahead of last year, owing to the opening of the Panama Canal. The larger percentage of dried fruit has been shipped by water instead of by rail. Reports on the movements of the German navy have been the cause of a great deal of anxiety to the water carriers, and things are not in quite as good shape in the way of shipping as they were a little while ago, but we feel that the note which the United States government has sent the British government will probably have an effect before long and that the result of it will be most advantageous to the Americans in doing business with neutral countries.

"This being the time of the year when buyers are taking stock, and generally winding up the year's business, orders will be slow, until things get back into normal condition. The conditions in Europe will probably have a good deal of effect on the coming year's business, but we are looking, generally, for a better feeling all over the country and also for a quick revival of business. A nation-wide campaign to assist in the revival of business was launched in Omaha a few days ago; the movement proposes to quicken commerce and manufacturing by hastening purchases which must be made sooner or later.

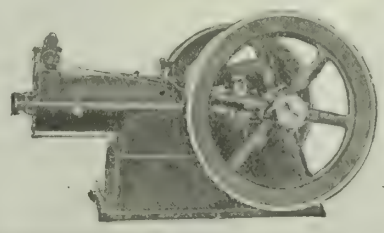
"It looks as if in time our government will pass a law dealing with loans to farmers Today's paper states that President Wilson has received pressing requests from different parts of the country that rural credit legislation be taken up during the present session of congress. He is considering the advisability of changing his plan and putting the subject over until next December; Chairman Glass of the House Banking Committee told the President that it would not be advisable to take up the subject until time had been allowed for the working out of the farm loss features of the federal bank law. If this becomes a fact, after a while it will tend very much to relieve the necessities of the farmers all over the country. How much lower rate of interest, if any, they will be able to get money at, we do not know, but, unquestionably, the government will be very particular in making loans, just the same as banks are now, and will not loan money indiscriminately, but only on good security.

"CALIFORNIA CURED FRUIT EXCHANGE."

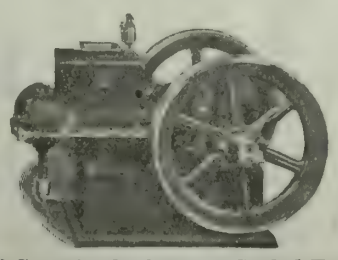
Publisher's Department.

A letter from a subscriber at Escondido calls attention to advertisements appearing in local papers over the State offering cheap loans to farmers. The writer states that he used all the means available to start with in an effort to learn what he could of a company offering large loans at low rates, before entering negotiations for a loan. But the agents for the company, which is an Eastern concern, were too smooth for him and he lost $30 before he found he was duped and that he could not get a loan. Such companies offered this journal advertising contracts some time ago, which were not accepted on the ground that they had not conformed to the State requirements. It is to be hoped that the present session of the legislature will make provision for a system of farm loans that will give borrowers a fair deal, low rates, and above all, have money enough to take care of farmers' needs at the time when the usual avenues are closed—such as all have felt during the past year.

In the large display advertisement of the De Laval Dairy Supply Co. of San Francisco, which appeared last week, the legends under their Alpha Engine illustrations were reversed. The illustrations and descriptions should have appeared as below:



Self-Contained, Closed-Jacket-Type Alpha Engine.



Self-Contained, Hopper-Cooled-Type Alpha Engine.

FOR SALE 3000 Pounds of Bitter Almonds

CALIFORNIA FRUIT GROWERS' EXCHANGE

Sacramento, California

While we haven't all the copy in hand for our new book, "California Garden Flowers," yet we believe we can safely promise complete, bound copies of the book by February 1st. The price will be $1.50 per copy. You need a copy to help you in the spring garden.

Two hundred and eleven new paid subscribers were added to our list during the past week, which we consider pretty fine when the rainy weather is taken into consideration.

BUY IT NOW

We farmers can bring back prosperity at once by buying our Spring needs now, instead of waiting.

Classified Advertisements

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

160 ACRES—8 miles from good R. R. town; good house, barn, etc.; fine oak timber, partly cleared; plenty of water; fine climate, $2,000. Also several claims of government land, relinquishments, etc. W. Wallace Baldy, Raymond, Madera Co., Cal.

160-ACRE MOUNTAIN RANCH, Tulare county, near Mt. Whitney. Power plant, mail service, school, plenty of water could be developed; enough oak wood to more than pay for place. $1600 cash. Mrs. C. Clayton, Visalia.

HAVE VERY DESIRABLE place on the Sacramento river, but being short of money to improve, would sell half or would consider taking partner with A1 recommendations. For full particulars, address Box L, this office.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg. San Francisco.

FOR SALE—Biggs Rice Farms. Proven the finest land in this section. Improved land, $110 to $150 per acre. Terms. Wm. H. Boyles, Biggs, Cal.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

WHOLESALE PRICES on merchandise of all kinds. Truly co-operative. Write for plan. Pacific Co-operative League, San Francisco.

FOR SALE—Baled Alfalfa Hay in carload lots Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AGRICULTURAL HYDRATED LIME—Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

BEARLESS BARLEY or sale. Apply E. B. Harley, R 2, Woodland, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spence Apiaries Co., box 12, Nordhoff, Cal.

BELGIAN HARES.

THOROUGHBRED Belgians with or without pedigrees Old Hickory Supply Co., Dept. 3, Capitola.

TREES AND NURSERY STOCK.

PEACH SEEDLINGS, twenty thousands, all sizes and prices. Must be ordered before the 20th of Jan., 1915, pay on delivery. One thousand pounds of Pollock strain of Rocky Ford Cantaloup seed. If you want profits, try it. A few of Burbank's latest creations, Beauty and Formosa plums. Standard prune trees and scions for grafting. Grafted Walnuts and ten thousand black walnuts. All guaranteed to be as good as any at any price. A. P. Henning, Clements, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

CALIFORNIA GROWN SOUDAN GRASS SEED—Absolutely free from Johnson Grass or other weed seeds. I have a limited amount of this seed. Until sold will fill orders less than ten pounds for $1 per pound; over 10 lbs., 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

HIMALAYA BERRIES — Fragrant, sweet, luscious, melting. Bear heavily till frost. Sure crop. Fine shippers. Postpaid, direct from Sebastopol grower, 3 for 30c, 7 for 60c, 15 for $1.20. R. E. Hodges, Underwood Building, San Francisco.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

BURBANK'S THORNLESS BLACKBERRY—A very limited supply of this new wonderful plant, a new creation, fast grower and heavy producer of fine berries for sale at $1.50 each, or $1.00 each for 5 or more. J. I. Jewell, Santa Rosa, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail. Placentia, Eureka, (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia ave., Whittier, Cal.

PLANT RUSSIAN RIVER non-irrigated trees. More hardy. Better root system. Self-reliant; didn't have to be weaned. Got the go—you get results. Price list, all kinds, mailed an opplication. Miller & Gebbi, Healdsburg, Calif.

CHOICE MANZANILLO OLIVE TREES—Will be two years old this planting season. Cuttings taken from some of the heaviest bearing trees in California. Diameter ⅝ inch and larger. F. F. Palmer, Box 235, Claremont, Calif.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

WALNUT TREES—Eureka and El Monte varieties a specialty; also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

APRICOTS, Royal-Newcastle, Pears, Apples, Peaches, Cling and Freestone, guaranteed, large trees. Don't buy until you get our prices, which are cheap. Newton & Cavanah, Nurseryman, Hemet, Calif.

BUY FRUIT TREES of the grower. Finest apricots and Pears, 12½c, 10c and 8c. Apples, 5c. Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robetrson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

FAMOUS ST. REGIS EVER-BEARING Red Raspberries, Strawberries, Blackberries. Postage paid. Old Hickory Supply Co., Dept. 3, Capitola.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

WANTED.

YOUNG MAN, who is now foreman on large stock ranch, wishes to lease an improved property—on shares or for cash. Wishes to raise hogs and dairy cattle. Has a technical agricultural education and small capital. Address Box N, this office.

WANTED—Reliable milkman for 10 cows, care of poultry. Must be thoroughly moral and understand work. State age. Reference. Box M, this office.

PRACTICAL RANCH SUPERINTENDENT desires position. Experienced in all lines of horticulture and general farming. Box K, this office.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

WANT five hundred Bolton Oil Heaters for sixty days. Advise "Apricot Grower," Box 235, Suisun.

buying and maintaining

The highest grade materials available for each particular purpose are used in building The Yuba Ball Tread Tractor.

It costs us more to use manganese steel than cast iron; high duty roller bearings than the babbitt or bronze type; to have our motors built at the same plant that builds the highest standard motors for automobiles and motor trucks.

When we add a reasonable profit it naturally makes the first cost of The Yuba Ball Tread Tractor slightly higher than most others.

The economy of The Yuba Ball Tread Tractor shows at the end of a year's service, when the cost of maintenance is added to the first cost and compared. It will show more forcefully at the end of each year following.

THE YUBA BALL TREAD TRACTOR

High grade materials and careful workmanship reduce the number and cost of repairs.

This booklet tells what materials are used, where and why.

The coupon, filled out and mailed, brings it.

- - - - - - - - - - - - Cut Here - - - - - - - - - - - -

THE YUBA CONSTRUCTION CO.
433 California St., San Francisco
Dept. C-12

Gentlemen: Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor."

Name.....*Address*.....

Size of Farm.....*Acres.* *(Check main crop raised.)*

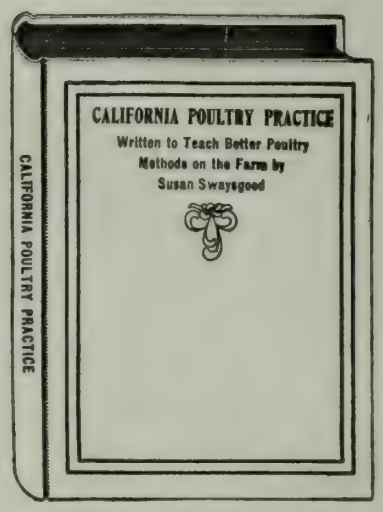
Fruit ... *Rice*
Grapes.... *Alfalfa*
Grain ..... *Hops* .....
Hay ...

CALIFORNIA POULTRY PRACTICE

Written to Teach

BETTER POULTRY METHODS

On the Farm



BY

SUSAN SWAYSGOOD

Contents by Chapters.

1 Some of the Advantages of California Poultry Raising.
2 When and How to Start in the Poultry Business.
3 Location.
4 The Colony Plan.
5 Open Front Houses.
6 Large and Small Plants for Eggs.
7 The Care and Management of Eggs.
8 How to Build an Incubator Cellar.
9 How to Run the Incubator.
10 Raising the Chicks.
11 Why Chicks Die in the Shell.
12 A Few Don'ts in Raising Chicks.
13 Brooders and Brooding Systems.
14 The Building of Brooder Houses.
15 Poultry Appliances.
16 Raising Broilers.
17 Feeding for Eggs.
18 Balanced Rations, What are They?
19 Feeding the Breeders.
20 Fattening and Preparing Fowls for Market.
21 Balanced Ration for Heavy Breeds.
22 The Mold that Injures Poultry.
23 Egg Foods, or Condition Powders.
24 The Value of Milk in the Poultry Yard.
25 The Management of Poultry During the Summer.
26 The Molt in California.
27 The General Purpose Fowl.
28 Capons.
29 Prepotency and Prolificacy.
30 The Mediterranean Class.
31 The American Class.
32 The French Breeds.
33 The Asiatic Class.

Just from the Press

Mrs. Swaysgood has spent a lifetime in raising poultry, mostly in California. This cloth-bound book of 160 pages, besides half-tone pictures, tells of the up-to-date methods now used on California poultry farms. Every reader of this journal should have a copy.

Price, $1.00 Postpaid

Pacific Rural Press

525 Market Street

San Francisco

Vol. LXXXIX—No. 4 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, January 23, 1915 LOS ANGELES

State Library

Do Your Own Grafting.

[Written for PACIFIC RURAL PRESS.]

Having the required equipment, as described in the issue of November 7, and knowing that the proposed scions are properly cut and of a variety which has affinity for the stock, the first thing is to cut off the main limbs. One man can do this, saw the notches, and wax the grafts, while the other one trims the notches and inserts the grafts. Start the oil stove, crack some grafting wax (see formula on page 246 of the issue of February 21, 1914) into the pot and set it to heating. Watch the stove and don't let it soot up the wax-pot, for this wastes the heat and doesn't warm the wax. The oil stove may boil the wax. If so, it should be turned lower, to save wax. H. E. Butler is authority for the statement that you can't get the wax hot enough to hurt the scions, and this seems to have been corroborated by the writer's experience. But keep the brush out of the wax at this time, or at least not directly over the fire, for the hair part burns easily.

Cutting Off the Top.—While the wax is heating, size up your tree, and decide which limbs to cut off. Ten or twelve feet of leaf-bearing branches will be enough brush to leave to draw the sap next season before the scions make much growth, if the tree is not over six inches in diameter. This applies to California irrigated land, where not a great deal of water need be applied next summer, till the scions have made several feet of growth. Cut off those three or four limbs, which will make a well-balanced tree when the scions have grown. They should not come from the same point on the trunk if other good ones are available, to avoid a bad crotch. All limbs not needed for grafting or brush are cut off as smoothly to the trunk as possible and the cut surface covered carefully with grafting wax later when the scions are waxed. The stubs left for grafting should be sawed with the cut surface sloping slightly toward the outside. In this work the pruning saw which cuts on the pulling stroke is the only satisfactory tool. Grasp the limb as high as convenient with the left hand and cut it off six inches to two feet from the trunk. Ordinarily, you can hold its weight when nearly cut through, so that it won't split off. The last stroke will bring the saw clear through and the branch will drop an eighth of an inch to the stub and then fall without splitting off any bark. If the limb is too heavy to hold this way, cut an inch into the underside before cutting the upper side. The meat-saw style of pruning saw is a continual strain on the wrist to hold it square and to cut on the push stroke. When the finishing stroke is made, the saw is more or less in the way, and likely to be broken by the falling branch.

To make a workmanlike job, all stubs should be cut at about the same level. But of greater importance than this is that they be cut where the bark is smooth and sound—where the limb is practically round. This will permit three scions equidistant around the edge of the stub, and all placed where the essential bark and cambium layers are sound and vigorous to make an early vital union with the cambium of the scion. You can soon learn to give the branches a shove as they fall, to place them at once out of the way of the grafter when he comes to work on the stubs .

Sawing the Notches.—The next operation is to saw the notches into which the scions are to go. The same saw makes the best tool for this work. Stand, leaning over the stub, so you can sight squarely down over the saw and lengthwise of the stub. Select a point where the bark is smooth for two or three inches down, hold the saw strictly lengthwise of the grain of the wood, and cut a notch an inch or more deep toward the center of the cut surface. This notch should extend about three inches down the stub. If you look off to the mountains or down the road while sawing the notch, you will get it across the grain and make the rest of the work difficult and probably botchy.

Many Kinds of Peach Trees Will Be Grafted to Other Kinds of Fruit.

Trimming the Notches.—The next step is to trim out the notch with the thin-bladed sharp harness-knife. This could be done with any thin knife, but not so well or quickly. Standing on the opposite side of the stub from the sawed notch, place the lower point of the knife at the bottom and just over the edge of one side of the notch and the handle exactly in line with the cut surfaces of the notch. If the handle leans either way, it should point so as to cut the shaving inside of the notch thicker than the shaving of the bark, thus tending to hold the scion in place later; rather than allow it to loosen. In crooked-grained wood, or in straight-grained wood sawed across grains, the shaving is likely to split out back of the bark and make such a notch that no scion could be placed so as to

(Continued on page 107)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., January 19, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.88	23.13	21.52	58°	32°
Red Bluff..	.46	11.70	12.42	60	34
Sacramento.	.03	6.46	9.16	56	36
S. Francisco	.59	9.68	10.70	58	42
San Jose...	.15	7.69	7.77	58	30
Fresno	.22	3.57	4.60	58	34
Indep'nd'nce	.00	.52	4.53	56	20
S. L. Obispo.	.32	7.83	8.80	70	32
Los Angeles.	T	4.58	6.76	72	42
San Diego..	T	4.18	4.47	64	42

The Week.

Passing the middle of January, after which no serious frost has ever occurred in our chief citrus regions, brightens the horizon of this important interest, and the features of the crop now being shipped from Southern California lead the prophets to predict a fifty-million-dollar product for the State during the current citrus year. It is fitting that the local resident and the visitor should both hold their eyes open for citrus fruit displays. The two great expositions will have them and the special citrus fair at San Bernardino, which will hold February 17 to 24, has already accepted exhibits beyond its apparent area, and fullness is therefore to be expected. It will be good to be there.

At San Diego Exposition the open-air exhibition of growing fruit and other plants is of course a part of the general policy of process-showing by doing it, of which Mr. Davis received a prompting no doubt from his participation in modern agricultural instruction at his college, where pupils are required to do in laboratory or field what they are told about in the class-room. When he was called to the charge of the San Diego Exposition, he expanded the idea into a distinguishing feature of a great institution. While we were enjoying, a few years ago, the demonstration of his method at his hog-exposition near Marysville, it did not occur to us that he might be doing it on such a grand scale so soon—but then you never can tell what these young chaps will do, but you may be pretty sure they will put something over on the old men.

And then, speaking of horticultural displays, the Panama-Pacific will have ten acres of them: five acres out of doors, and the other five acres—under the glass roof and domes of the palace of Horticulture—the largest and most beautiful structure ever to be devoted to such a purpose at any exposition. About three acres within the building are devoted to commercial horticulture and pomology—mostly working exhibits of an educational character covering the practical processes of growing, grading, packing, canning and processing the many fruits and other horticultural products; and about two acres—under the domes—are given over to a display of wonderful tropical and subtropical fruit and ornamental trees and plants. Surely there is something good coming for the plant-user and the plant-lover.

Why We Speak of This.

We note these great doings with plants merely as an indication of the fact that we are starting in vigorously at our 1915-year job of showing the world what great products are and how they are made. Besides plants there will be 65 acres devoted to the first continuous live stock show ever held, with half a million dollars in prizes; then two palaces of Agriculture and Food Products, with a floor area of twelve acres; and overflow agricultural machinery and forestry exhibit of three acres out of doors—all enclosed in a wonderland of landscape gardening possible nowhere else in the United States than in California.

And the rest of the country is surely getting ready for this world-beating activity in California. See what is happening in a line of goods which would not be expected to have much buoyancy. At a convention of his craft in Kansas City last week, W. M. Vickery, president of the Western Retail Implement, Vehicle and Hardware Dealers' Association, said this: "I see a big wave of prosperity coming. It is due to better prices for crops and a larger acreage. The financial cloud is lifting and every one is gaining confidence. There is no reason for any of us to be frightened, because prosperity is hurrying toward us."

How can you be heavy-hearted when hardware rises in waves? But that is not all there is of it. The president of a leading brick company in New York, speaking at a dinner, representing interests handling $150,000,000 worth of building material every year in New York City, said that the demand for such material in 1915 would be greater than for any year in the past seven! Some one of our pessimists will be waking up soon with a bump on his nob and the outcry: "Who frode dat brick?" Thus the very heaviest and most fundamental of our industries feel the twitching in their toes as the music of prosperity strikes up. Get into the tango, every one of you!

"Buy It Now."

Of course the public humor and attitude depend upon what every man thinks and does. If you are known to be well to do and you go around under a shocking bad hat, and apologize to everyone that you "would buy a new hat if the times were not so ding hard," you are apt to make every other man of your acquaintance go about in hobo headgear. And that forces your hatter to put cut-price cards on all the stock in his show window, thus confirming neighborhood sentiment that times are hard—and finally you compel the hatter to borrow money to pay for the stock he must carry over and all that. The result is financial depression in Podunk, and the Podunk bank calls for money from Gomorrah, and Gomorrah is refused credit in Sodom, and there you are—your old hat has sprung a panic. And so some bright people in the Central West have started an agitation under the slogan, "Buy it now"—exhorting people not only to buy what they need at once, but to buy now what they will need in a reasonable time. This surely will start up trade. For instance, farmers in the Central West are being urged to buy now the plows, seeders, harrows, etc., which they will need during the coming period of spring work, and it is easy to see that if a million farmers, which is really not a very large number, for it would be only about one in seven of the farmers of the country, should buy an average of fifty dollars' worth of tools or supplies now, which they would require 60 to 90 days hence, it would immediately throw fifty million dollars into the trade and the influence of it would be felt all the way from the local agent to the manufacturer's workmen; through trade, transportation, manufacture, etc. It would be, of course, more effective than the mere millions mentioned would themselves cover, because it would be in addition to regular purchases for immediate use. It would be, however, just the push which would move things over what seems to be a sticking-point, and would start up wheels at once which other abundant forces would afterward keep turning, for the coming volume and values of crops is sure to be exceptionally large and high in view of the productive effort which has been made and the coming needs of the world.

But Everybody Should Do It.

There is, however, one form of the exhortation to "buy it now" which does not commend itself to us. In one of the appeals to join in the promotion of this effort these words occur: "The chief results of this campaign must come from the farmers. The farm papers reach every intelligent farmer, and the farm papers must bear the big burden of this campaign in their own columns." We do not mind "the burden in our columns"; the readers have to stand that, and they are very kind about it, but we do object to conceiving such a promising scheme and then say that the chief results of such an effort must come from the farmers. If it is as good as it seems, it is everybody's business to let out some money in advance of actual need just as much as it is the farmer's. One form of exhortation to farmers of the Middle West is this: "You are planning to spend some of your extra profits from your grain and live stock. You are going to buy new clothes or build an addition to your house, or buy new rugs or build a new barn or a new fence or buy new machinery. Do it now: you will keep the money moving, and it will soon come back to you in better prices for farm products." And so it will to everybody else who does or makes anything for which people will pay more in prosperity than on the contrary.

We are willing, then, to join the "buy it now" promoters, providing everyone who has money or credit is exhorted in the same way. Let everyone loosen up and buy now what he has expected to buy during the next two months, and the best thing for everybody to buy immediately is—the Pacific Rural Press: 52 issues for one dollar, if paid in advance.

Another Blame on the Farmers.

The current disposition to blame the farmers for everybody's hardship and exhort them to

cure it, is seen in the attitude of the Chicago grain buyers toward the U. S. inquiry now in progress as to who is to blame for high prices for wheat. Caleb H. Canby, president of the Chicago Board of Trade, when accused by the millers and bakers of contributing to the high cost of flour, passed the blame up to the farmers, and declared that the farmers holding their wheat were sending its price skyward. This is exactly opposed to the statement which we had last week from Mr. Brand, head of the market bureau of the U. S. Department of Agriculture, to the effect that the farmers had largely sold out and the middlemen were enjoying the squeeze of the consumer. And the Kansas people are taking the matter very seriously, for in the Kansas legislature last week an investigation was started to determine, for that great wheat state, what amount of the 1914 wheat crop is now on hand, how much was sold, the price it brought and its effect on the markets. The resolution ordering the inquiry which passed with but one dissenting vote is said to be the result of the statement in Chicago blaming farmers for the present high cost of wheat, flour and bread. A farmer surely has just as good a right to hold wheat as anybody has, if he is forehanded enough to do it, but naturally he does not desire to suffer even sentimental blame if he does not dserve it, nor does he care to be made a scapegoat to carry commercial transgressions, and yet he seems always to be made the culprit in current comment on everything which needs to be done or not done.

State Marketing.

Readers who have written to us from time to time, urging that the State should take a hand in regulating the marketing of farm products, and that such effort would be more beneficent than rural credit and other reforms, will be interested to note that the matter will have an airing at Sacramento. At least two measures have been introduced, and if there are no more they two will be enough to start discussion freely during the talking end of the two-part legislative session which the laws now provide. We have not the details of the measures at hand. One introduced in the Assembly by H. E. McPherson of Santa Cruz provides for the creation of a State commission market for all farm products. It provides for the appointment by the governor of three market directors, and gives them full power to establish branches of the market throughout the State whenever conditions justify. An appropriation of $150,000 is asked, but the object of the bill, according to the author, is that the market be self-supporting. The producers would be kept informed of actual market conditions at each market center and to "insure them a sale of their products where there is a demand." We do not know exactly to what the last clause refers, but presume it looks toward distribution. Usually a thing sells well enough where there is a demand. It would be handy sometimes if we could have the State insure a sale where there is no demand. Perhaps we can take the scanty outline above to mean that the State will provide public market-places and full information of supplies, prices, etc. That would be a great advance, for then the seller would be sure of the grade of his goods, the weight of them, the price which the buyer paid for them, and other things which it is now impossible for him to find out, and they all cause him a lot of anxiety. It is now time to consider all such matters in connection with proposed laws.

Local Wheat Affairs.

California bids fair to escape the wheat sensations which have arisen from the pinching of the loaf in the East. At a meeting in this city last week the following resolution was adopted after a conference of two hours: "In hope that the present abnormal price of flour will not be permanent, the California Bakers' Association, at a meeting this 14th day of January, 1915, decided not to disturb the present price of bread." And the wheat growers of the Pacific States are apparently disposed to guard against wheat shortage by increased production. It is announced from Fresno that the San Joaquin valley expects to pass even its historic records of wheat production. It is said that the acreage in wheat is 20 per cent greater than last year, and the stand now promises to be heavier. From the State of Washington the acreage increase over last year will be 5 per cent. Other indications of increased production are also available, and irrigation is being insured in case of need. It really looks as though there would be the awakening in wheat which we have been urging for some time past.

Queries and Replies

Querists must give name and address.

Grafting on Old Vines.

To the Editor: Is there any objection to grafting Malagas onto Feher Szagos? I have been told that the berries will be small.—S. S. S., Sanger.

If the old vines are very large it is a question whether they are worth grafting, for perhaps you could do better by starting anew. In grafting on old vines you graft under ground as deep as you can, and the scion afterwards makes roots for itself. Therefore, the old vines do not permanently affect the new ones, though they do give them a start. For this reason, if you get small berries it cannot be charged to the old root, for the vine is then probably on its own roots, and the cause of small fruit must be in lack of thrift from some other cause.

Olive Trees for Planting.

To the Editor: I am about to plant Mission and Manzanillo olives. A party that wants to sell me trees tells me that olive trees are not grafted, but should be from good-bearing stock. I noticed in your last issue that you mentioned the grafting of olives. Are the grafted trees better, or will it make any particular difference?—G. W. C., Klink.

Young olive trees are not usually grafted but are grown from cuttings, which should be taken from thrifty bearing trees of the kinds desired. Sometimes young trees are made by grafting on seedlings or on rooted cuttings, and they may be good trees also. But most trees that are planted are grown from cuttings, though grafting is becoming more common than formerly.

Faith in the Peach.

Those who distrust the peach may get some stiffening perhaps from the fact that four miles of private railroad is being built from Visalia to the Mineral King orchards for the express purpose of handling the peach crop of 1915, and distributing supplies, etc., through the large fruit property. Standard gauge track is to be used and the railroad will be electrically operated with current from the lines which run to the orchard company's irrigation plants.

Treatment for Berry Scale.

To the Editor: My raspberry canes are "lousy" with white scales. What can I do for them?—J. C., Newcastle.

Cut out and burn all the canes which fruited last year, top the new canes back to four or five feet, and burn those trimmings also if they show the scale. This leaves you a good amount of new canes which will bear on laterals of this year's growth. Before these start, spray or paint these shortened canes with kerosene emulsion, properly made. This will kill the berry scales, for their covering is easily penetrated.

Forms of Lime and Marl.

To the Editor: For some years I have used with success gypsum and ground limestone on a clay loam. There is now being offered ground marl. Would you please tell us about the effect of a marl application. I have seen it used in Western Europe on thin soils, but at much lower price. Does marl contain phosphoric acid?—A. M., San Jose.

Only an analysis of the material will determine what you desire to know. There are many forms of marl and some of them do contain phosphoric acid and some are almost pure lime. So far as the stuff is lime it will act like other forms of lime you have used. But all white stuff is not marl at all. Therefore, the analysis is indispensable.

Do Not Paint the Bark.

To the Editor: We have about two acres of fine apple trees that should bear this year for the first. The rabbits got after them, eating clear around the trunks of some of them. I read in your "One Thousand Questions" that in such cases the wounds should be painted. A few days ago we did so, using some oil and lead paint mixed with a little mineral paint that we had left. We went over the good tree trunks as well, thinking the rabbits would not bother them any more, if we painted them. The color of the paint is dark red. Now, some of our neighbors tell us that we have ruined the trees. Please let us know if this is so, and if it was not the thing to do what we can do to remedy it. We intend to go over them about April with whitewash.—Planter, Templeton.

In "One Thousand Questions" we suggested painting the exposed wood if the injury had been done some time before, and this was to prevent the bare wood from checking and decaying. We did not suggest painting the bark; in fact a few months ago we answered another question of this kind and expressly advised not putting any paint on the bark, for it is always dangerous. The use of oil paint in place of whitewash will not do, though once in a while some one says he has successfully used paint. It may depend upon the paint; some kinds that dry quickly and become like dust, might be harmless, but we would not try any paint on any tree which we cared for, unless we should learn more than we now know. If the paint has not yet killed the bark you may wash it off with concentrated lye (caustic soda) one pound to four gallons of water, but don't burn your hands. If your trees have made a good deal of rough bark, they may come through. If the bark has been cleanly removed all around, the only way to save the trees is by "bridge grafting"—described on page 22 of "One Thousand Questions." Whether you try to wash off the paint or not, put on the whitewash as you propose. It will protect what life there may be left.

Breeding Cannery Strawberries.

[Written for PACIFIC RURAL PRESS
By Albert F. Etter, Briceland.]

With another year's observation on the behavior of my new strawberries, which are only slightly related to the regular varieties, I am pleased to say that here at home they are not failing in their past promise, and newer varieties are exceeding the older ones as predicted. Indeed, so far as we are concerned here, some of the newer varieties are marvelous.

During the past season my principal work among the older varieties, and also so far as possible among the new ones, was to test them out for canning purposes. I am not a professional canner, but I have some very decided ideas of what a canning strawberry should be. To me it would seem we have paid too little attention to this side of strawberry breeding for progress, and the general welfare and development of the industry.

The manufacturers can no more make the best products from the overrun of the strawberry market than could one make raisins from wine grapes, or prunes from Damson plums. Certain qualities are as essential in a strawberry for canning as in a prune for drying, or in a grape for raisin making. When we are willing to concede this point we are in line to consider that certain districts will exceed in the production of high grade canning strawberries. These districts need no more interfere with the general market for table berries than do French prunes interfere with the plum market. This is my view and my ambition, and how well I have already worked this out for this region, no one who has not visited Ettersburg knows.

Localized Plant Breeding.—I speak of "for this region," for the strawberry is erratic at best. Since I have been getting in reports from many points from the Pacific to the Atlantic, and from the Gulf to the Canadian line, I feel more than ever that a trial alone is of value in getting at facts in testing out a new type of fruit. Again, it occurs to me that, without a doubt, I am casting aside more that is good for different environs, than those I select as of probable value here at home.

Taming the Wild Ones. While I have used the regular named varieties of strawberry to a certain extent in my work, I have used the wild species more, literally fitting the natives for service and making them carry the "white man's burden," some of my best now carrying only three-sixteenths of the blood of our regular strawberry, and that removed five generations. Small wonder if plants so little removed from nature are easily influenced by change of environment.

Too Good Treatment.—Years ago, when Humboldt county was young, so one of our old settlers told me the story, he bargained with the natives to cut some brush for him. They came bright and early and worked like white men until noon, when our good pioneer gave them a big "eat" to show his appreciation of their morning's efforts. But in the afternoon he was less proud of the natives. They insisted on lying in the shade and when he appealed to them to go to work, they made sport of him and laughed at him. All berries in general, and these new hybrids much more so in particular, cannot stand too much prosperity.

In going over my reports every instance of failure seemed traceable to too generous treatment. This may have been applied artificially, or the soil in which they were planted was by nature too moist and fertile. One man writes that "with all the care he gave his, he got nothing, while a careless neighbor to whom he gave some of his plants got a big crop of berries." Another writes that "with much care he got very few berries, but the next season when he neglected his beds, they bore a great crop of very fine berries. My experience here is in perfect accord with this, and I can easily see that when I get the cultivation beyond a certain point the fruit grows smaller and the foliage and fruit stalks, and even the fruit itself, is much more affected with the leafspot.

Don't Boil to Pieces.—Of the older varieties No. 121, and No. 89, the former is a hybrid, Alpine X Cape Mendocino Beach, and the latter a Dornan X Cape Mendocino Beach. Both of these thrive to perfection only on soil that is not too rich. Just as soon as they are overfed, the fruit becomes small. Both are very firm, of very deep red color, and will neither break up in cooking, or fade in color after canned. They are easily husked, or if picked especially for canning they can be picked without the husk and are firm enough to carry well for a considerable distance. Thus the entire expense of husking is eliminated as any one can pick them about as fast without the husk as with it. These two varieties are ideal berries for Northwestern California, and both of them seem to reach their highest development at a considerable elevation. They are strong growers and are long-lived plants, ultimately making very large crowns. They will yield from 1 to 2 quarts of berries to the plant in hill culture, with about 8000 plants per acre. No. 121 is a very late bloomer here, and No. 89 is practically immune to frost according to my observation the past season.

Rose Ettersburg, which is a hybrid between the beach strawberry of Peru, S. A., and a third generation Sharpless X Parry, is still in the ring with a certain class. With its great crop of large light pink, white fleshed berries it finds those who admire its flavor even though it is low in quality. To my notion it is worthy of a place because it is so different from all other strawberries and gives variety. It is particularly fine as a canned fruit and for preserves. Of course the preserved article is white, but after all we accept a white cherry even though cherries are red, and we prefer a white fig. So when we have a white strawberry it ought to be worthy of attention, especially when it is quite different from red varieties, with delicious flavor all its own.

In the lot of about 100 varieties that are being tested out for the second time are two that have fruit of similar texture to the ordinary strawberry. These are not interesting to me because they go to pieces when boiled. My ideal of a canning berry is one that not only will not go to pieces when boiled, but so good that you can't boil to pieces.

It is interesting to note that the Point Arena Beach strawberry produces a characteristically different hybrid from that obtained from the same species from Cape Mendocino. One of these new hybrids has a deep pink fruit of large size, and the other a deep red with seeds deeply set. The pink one has a distinctly beachy flavor, while the red one has a new and distinct flavor unlike any other variety. I rate it as one of the finest table berries I ever had the pleasure of tasting, and all visitors take a great fancy to it. Most of the berries of this variety are very regular, but the primary ones often broadened out into enormous berries two or three inches wide. When it comes to runners, they are much like their beach ancestry. This is the type of a berry I believe will thrive on some of our sandy soils along the coast where the regular beach berry makes its home.

Surprises in Breeding.—Two Alpine hybrids, or, rather second generation Alpine hybrids, are worth mentioning just to give side-lights on plant breeding, showing how we get unexpected results that no amount of reasoning could foretell. Both of these are very late to come in blossom. One so effectively conceals its blossom that even when in full bloom not a blossom is visible. The trusses all stand erect beneath the foliage. They bore nearly two quarts of berries to the plant, as irregular in form as they are sour, being almost as sour as a green gooseberry. Herein is one of the strange things not easily accounted for; the Alpine is not by any means an acid berry, but in its hybrids we get varieties of extreme acidity. Often too they are remarkable for productiveness. As a rule they are subject to leafspot fungus more than the ordinary varieties. These two Alpine hybrids are both good canners, one being the reddest I have yet produced, and both are very acid and should be great for preserves. The greatest drawback to their culture would likely be their susceptibility to leafspot.

The last I have to describe is Ettersburg No. 222. Herein we have a strawberry that fulfills my prophecy of 1906, when I said we should have a variety evergreen and everbearing and of wonderful productiveness. With us here this variety seems a perfect berry. The berries are of fine size and color, are held free of the ground until nearly ripe. They are almost entirely free of leafspot and a wonder of productiveness. Last season the only 15 plants of the variety in existence produced, each and every plant, three quarts of shelled berries to the plant in a picking season of five weeks. A quart of these berries weigh one pound, and as we have 8,000 plants per acre it is easy to figure they produce at the rate of 24,000 pounds or quarts of clean shelled berries per acre in the main crop in only five weeks.

These plants had good care, but not a fair chance to show what they were capable of in fruit production. Unlike the regular varieties, they nurse their sets on green runners until late in spring, whereas the regular varieties shut off the sap in November. As a matter of fact, each of those fifteen plants nursed thirty sets on green runners up to April 15, when they were coming in blossom, and this was beyond argument a big drain on the parent plants. The crop on the other variety in adjoining rows was cut down at least half by comparison with their previous performance in the seedling bed, where all runners were removed. So, if under a reasonably perfect test we do not get some yields that will make strawberry growers sit up and take notice, it is one on me.

The plants which went through this ordeal and yield did not die of exhaustion. Each plant sent out a few runners and now has some healthy sets, and the parent plants are about twice as large as they were last season and conspicuous by their health and vigor.

Concluding this article it would seem to me unnecessary to point out the remarkable creations we are capable of making out of unused species by proper combination. But it might be well enough to point to the fact that much of the ultimate success of horticulture in a region may depend on getting plants thoroughly in tune with Nature's offering in that region, and local plant breeding work may alone be able to do this for us. "By the sweat of your brow you shall earn your bread."

OUR SERVICES ARE FREE

We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.

We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.

OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.

Write for Booklet.

CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco

Martinez Nursery
Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

Quince Roots Resist Aphis.

To the Editor: I have been interested in the discussion in your columns of "Why is a Dwarf Pear?" and want to add something to the symposium.

I note that the statement is made that the Bartlett does not make a good union with quince root. That is true, but not a fatal objection. By working Beurre Hardy on the quince root, and Bartlett on the Hardy perfect unions are obtained.

In this country there is some planting of such double-worked stock, as on all rich, well-tilled valley land, of heavy loam type, dwarf pears have made good.

We plant them because the problem of woolly aphis on the roots of the standard pear (on French seedling) is a difficult one. All over California there has been a forgetfulness of this problem that is strange to understand. Young trees are planted, and in a few years part of them die or are badly stunted. The owner seldom digs down to see what the matter is, and the result in many cases is irregular, poor orchards, with some good trees and some very poor and very unprofitable trees.

The quince is practically free from the attacks of aphis, and a good dwarf pear orchard is a lot better than a poor standard orchard.

We have a four-acre dwarf orchard, now twelve years old, that is satisfactory in every way. The trees are planted 16 feet by 16 feet, and seem to be quite close enough. They began to bear at five years old and have borne profitable crops ever since. This last season they bore between 400 and 500 boxes to the acre. The pears were larger, smoother and finer than pears off standard trees 25 years old adjoining. Most of the fruit can be picked from the ground, or from a very short stepladder.

The orchard is uniform, while the standard orchard alongside is not uniform, some of the standard trees suffering far more from the attacks of aphis than others.

The French seedlings come from the pear cider mills of northern France, where perry is made from the wild type of pears (pyrus nivalis) growing there. All seedlings vary in many ways, and one way is in resistance to aphis attack. In a nursery row one will find perhaps one-third of the seedlings almost killed by aphis, one-third growing fairly well, and one-third with normal growth. It is likely that if cuttings of the resistant types could be propagated somewhat as the Northern Spy roots are grown, by using a nurse-root, that resistant Standard roots might be developed.

In the Pacific Northwest a good many pears are propagated on Japan pear root. I would be very glad to have some definite information as to how the resistance of this root to aphis compares with that of the French seedling. I have heard many accounts, but they seem to be more or less contradictory.

I hope someone who knows something about the Japan pear root, its advantages and its disadvantages, will write the Rural Press.

In the meantime, while we are hunting for our desideratum, an aphis-resistant standard pear root, many of us will plant double-worked dwarf pears, knowing that we can depend, on reasonably good soil, without irrigation, but with good pruning and careful cultivation, on regular and profitable crops of remarkably choice fruit. We have practically no trouble from suckers, or at least no more than from standards. We have no trees for sale.

FRANK T. SWETT,
Contra Costa County Horticultural Commissioner.

SOILS FOR ORCHARD FRUIT.

"Pears succeeed on soils heavier than that on which any other fruit grows with success," says Professor C. I. Lewis, horticulturist at O. A. C. "Apples do well on a wide range of soils, reaching from the clay loams on the one hand to silt loams and sandy soils on the other. Prunes seem to do well on any soil that is well drained, and red hill lands have in certain sections been well utilized in prune production. Peaches require either silt loam or very well drained clay loam, although they succeed well on watered sandy loams. Cherries flourish on the lighter clay loams. Nuts may be profitably grown on any soil that is deep and well drained."

PRUNE PLACES FOR LADDER.

[Written for PACIFIC RURAL PRESS.]

"In pruning a tree from which fruit must be hand-picked, always leave three or four places where a ladder can be set in far enough to reach from it and pick fruit at the center of the tree," says J. F. Sarmento of Alameda county. "You may think it's a waste of space, but it isn't, for the vigor of both tree and fruit are increased by the extra sunlight and air. Always when inside fruit buds, especially on cherries, are kept everlastingly in the shade, they turn yellow and die. That's why the fruit wood on so many trees is all on the ends of the limbs."

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

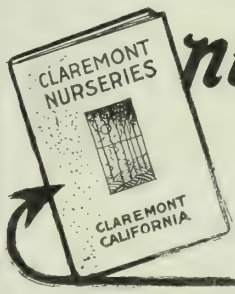
We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

Write for this Nursery Catalog



MISSION AND MANZANILLO OLIVES.

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

ETTERSBURG STRAWBERRIES

These are the varieties bred largely from our native species and other wild species. They are new and different from the regular varieties, exceeding them in vigor, productiveness and HIGH QUALITY. They are wonderful berries here, and they will be for you, too. Write to ALBERT F. ETTER, Briceland, Calif., for catalog and price list.

DO IT NOW

Armstrong Nurseries
ESTABLISHED 1889

OLIVES

Plant Olive Trees

Write for a free copy of my Booklet on the Olive and its culture.

It contains a summary of facts, on which all intending olive tree planters should be informed.

I can supply you with the finest two and three year old Mission and Manzanillo olive trees to be obtained in California

scientifically grown, clean, straight and vigorous, with magnificent fibrous root systems, and by my method of pruning and otherwise preparing the trees in advance of digging and shipping, you are practically assured that each tree, on being planted in your orchard, will start and grow and will prove highly satisfactory to you.

Write, or wire me, stating your requirements, and I will quote you prices.

Also, ask for a free copy of my 1915 General Catalog and Price List, covering the entire product of my 300 acre nurseries, which includes everything to plant and all of the highest quality.

OLIVES

John S. Armstrong, Prop.
406 Euclid Ave., Ontario, California.
37 miles east of Los Angeles on the S. P., Salt Lake and Santa Fe Railroads.

Unfermented Lemon Juice.

[Written for PACIFIC RURAL PRESS by W. V. Cruess, Assistant Professor of Zymology.]

The production of an attractive unfermented juice from lemons would appear to be a desirable method of utilizing part of the lemon culls. The qualities that a juice should have are: (1) characteristic and agreeable flavor; (2) clearness; and (3) keeping qualities. Laboratory tests have been made last and during the present season to throw light on methods of attaining these qualities in lemon juice.

Flavor seems best attained by slicing or crushing the whole fruit and pressing skins and pulp together. In this way the expressed juice takes up some of the lemon oil from the skins and acquires a strong lemon aroma and flavor. The fruit should not be crushed too finely or too much gummy material will be extracted from the skins; a machine that cuts rather than crushes would be best.

The juice may be pressed from the sliced or crushed fruit by pressure through heavy pressing cloths in an ordinary cider press.

Lemon juice shows a tendency to turn brown in the bottle. This may be avoided, as experiments show, by adding a very small amount of potassium metabisulfite to the fresh juice. This gives a small amount of sulfurous acid which checks the darkening of the juice. The amount to add is not more than 3 oz. metabisulfite per 100 gallons juice. It should first be dissolved in a small amount of water before being added to the juice.

After the addition of the metabisulfite the juice must be made clear so that it will be attractive in appearance. Methods that have proven satisfactory with grape juice have failed with lemon juice. The method given below has given excellent results on gallon lots of juice in the laboratory.

The method consists in adding about 12 lbs. Spanish Clay to each 100 gallons juice, or 6 lbs. to 50 gals. etc. The clay must first be made into a fine muddy suspension in water or juice before it can be used. One and one-fourth lbs. to the gallon of water or juice is allowed to stand several days; it is then ground and mixed with the water or juice to give the muddy suspension. Then each gallon of this contains 1¼ lbs. clay and 10 such gallons must be added to each 100 gallons juice.

After the addition of the 12 lbs. prepared clay per 100 gallons the juice must be heated to 65°C. or 150°F. This coagulates the clay and cloudy material of the juice and clears it. It is allowed to stand 24 hours.

The clear juice can then be syphoned or decanted off and the sediment filtered. Bag filters of the winery type would no doubt answer because a small one has been used successfully in the laboratory.

The clear juice is then bottled. The bottles may be capped with such caps as the Goldy Stopper, or the Crown Seal, or other reliable caps of similar nature, or the bottles may be corked. If corks are used they must first be sterilized in boiling water, and the corks tied down during sterilization.

The bottled juice is then placed with bottles horizontal and completely immersed in water. This makes it possible to heat the inside of corks or caps, making sterilization more certain. The water should be heated slowly until the temperature of the juice reaches 65° C. or 150°F. The bottles must then be removed. If corks have been used they must be paraffined or waxed while still hot to prevent entrance of air and mold spores.

Juice made in this way in the laboratory keeps its clearness perfectly and does not spoil. It does, however, lose some of the fresh lemon flavor on long standing.

The method in brief is:

1. Crush or slice.
2. Press.
3. Add not more than 3 oz. metabisulfite per 100 gallons or not more than .20 gms. per litre. This would be 2 c. c. of a 10 per cent. solution of potassium metabisulfite per litre. (Figures given for benefit of any one with facilities to make such measurements on laboratory scale.)
4. Add 12 lbs. prepared Spanish Clay per 100 gallons or 15 gms. per litre.
5. Heat slowly to 65° C. or 150°F.
6. Allow to settle 24 hours.
7. Rack off or decant clear juice. Filter sediment.
8. Bottle the clear juice and close bottles with caps or sterilized corks.
9. Place in water and heat slowly till juice registers 65 degrees C. or 150 degrees F.

The above method is based on laboratory tests and is given with the idea that others may test it out. The Enology laboratory will be glad to hear of results obtained by others and is always willing to give any aid it may.

University Experiment Station,
Berkeley.

BLAST BESIDE CITRUS TREES

To the Editor: I blasted holes for orange and lemon trees the fall before I set them out in July, 1913. I now find that the hardpan was not broken in some places and the trees set on top of it. Would they lose too much growth if I take them up and break up the hardpan?—H. N., Orosi.

[We would not move the trees, but blast beside them with 25 per cent dynamite placed a little below the center of the hardpan layer and tamped well on top. On the C. E. Wieckert orange orchard near Fair Oaks, the trees in 1913 were yellowed and full of dead wood. H. Hoover was working the place and that fall he used a 1½ inch auger to bore through the hardpan. He found it 18 inches thick under 3 to 7 feet of good dirt and lying on sand. Two holes were bored a short distance from each tree and a stick or two of dynamite used. On an orchard nearby, according to Mr. Hoover, four sticks per hole were used, but this seems unnecessary and dangerous to the trees. The loosened hardpan can stay in the hole, though it might be better removed. After the first shot or two it would be well to dig out the loose dirt with a shovel, and adjust later amounts and location of charges on what you find there. It would be well enough in your case to place the charge just under the hardpan if it breaks the layer thoroughly when so placed. The citrus trees in the Fair Oaks orchard responded right away and in the spring of 1914 were beautiful to look at.—Editors.]

There is a point in spraying at which an increase of pressure results in a decrease of force, according to Prof. C. W. Woodworth of Cal. Experiment Station. There is no danger of this with hand-worked spray pumps. But when a gas engine is used, it is well to find the pressure of maximum efficiency. This may be observed by one person while another is spraying directly against a light breeze. Increase and decrease the pressure until the proper point is determined.

Wilson Trees Recognized the Standard

IF YOU WANT RELIABLE NURSERY STOCK well grown and otherwise first class, write us.

Our New Catalog is the talk of the Pacific Coast. This Book gives description of all commercial varieties of Nursery-stock, and in addition it contains valuable Planting Methods and other expert advice. Send for it. IT'S FREE FOR THE ASKING. Submit a list of your wants for quotations. Special prices named on large orders.

SPECIAL OFFER
All orders placed with us before Jan. 1st, 1915, calling for 500 Trees we donate a Family Orchard of 20 Assorted Fruit Trees.

SPECIALTIES:
Deciduous Fruit Trees, Citrus Trees, Olive Trees, Fig Trees, Grape Vines, Hardy Ornamentals.

Address us Box 615 M, Fresno, Cal.

Farming as a Business.

The farmer is learning to get the results from scientific demonstration by experts. He is finding out that under certain conditions the soil will produce more than under different circumstances.

For instance, animal fertilizers put back into the soil those things taken from it—nature's way.

Animal fertilizer releases in the soil those life germs which are absolutely necessary to the growth of crops.

GOLD BEAR is the brand name for the animal fertilizer made in our government-inspected plant, under the most favorable conditions.

GOLD BEAR fertilizer has proved its worth in the fields of California in the growing of more and better crops to the acre—it has been tried and tested and found to be the one great help needed by the farmer who conducts his farm as a business.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

Send for the Gold Bear Booklet.

Western Meat Company
704 Townsend St., San Francisco

Figuring Prune Prices.

[Written for PACIFIC RURAL PRESS and Corrected By G. A. Bolster, Sales Manager California Cured Fruit Exchange.]

In selling to the trade, the commercial system of computing the prices of various size prunes in the various size packages is intricate, but very definite.

Prunes are sold by sizes, 20-30s, 30-40s, 40-50s, 50-60s, 60-70s, 70-80s, 80-90s, 90-100s and smaller, which means that the prunes of these different sizes count from the lower to the higher number per pound. They are usually quoted at so much "basis," and this basis price is based on the price of equal quantities of the four sizes 60-70s, 70-80s, 80-90s and 90-100s in bulk, and of course 80 flat is the middle size between 60s and 100s, so the price of 80s flat in bulk will always be the same as the basis price, which explains why buyers talk "basis 80s" to growers when buying from them, and in actual fact pay growers $1 per ton more per point for larger than 80s prunes or $1 per ton per point less for prunes smaller than 80s. Or when the average size is established, the price paid the grower will be $1 per ton up or down from the 5-point; for example, if the basis price is 5c this will figure 80s flat at 5c or $100 per ton, 85s 4¾c or $95 per ton, 83s $97 per ton, 87s $93 per ton, or 30-40s (counting 35 to the pound) $145 per ton, which you will find is $1 a ton per point above 80s, and which explains why the difference between sizes, like between 60-70s and 70-80s, is ½c per pound.

Now, in buying from growers on a bulk basis price, the average size of the prunes is usually determined by the buyer taking samples from the various parts of the bin or from a certain percentage of the bags as they are delivered; these samples are mixed, and perhaps 2 pounds from the mixture weighed and counted, 2 pounds more counted, and perhaps another 2 pounds, then the average number of prunes in the weighings is accepted for the average size to be paid for.

As most prunes are sold processed and packed in boxes at a regular established charge above the bulk basis price for the processing and boxing, the packer when he has bought the grower's prunes and delivered to his packing-house first grades them, usually grading the larger sizes to the O-point, with smaller sizes a little beyond, because he knows that in processing these prunes they will gain 4 to 6 per cent in weight and count, and also because he knows that the trade will take these processed prunes on the 8 or 9 point, and he thereby get a gain in weight and in count, which makes a liberal profit even if he should sell at the same basis price he paid; the European buyer will take processed prunes at average 9-point, or 89 for 80-90s. These same 80-90s which, when processed, count 89 and sell to the trade at the full basis price of 80-90s, may have been prunes which from the grower counted about 93, bought from him at $87 per ton. This increase in weight and size also varies partly according to proportion of sugar in the fruit and according to dryness of it when delivered to the packer.

With peaches, the gain in processing is 8 to 10 per cent, while with apricots it is 10 to 12½ per cent in general.

This gain in actual weight goes into the packers' pockets as extra money. The gain in weight and by getting smaller prunes into larger classifications and thus half a cent a pound better price, also goes into the packers' pockets. There is no dishonesty in this since there is no secrecy about it—it is simply a trade practice open to all.

But why should not the grower get these benefits as well as the profits now due to and earned by the packers. Without enmity to the packers, most of whom are earning their profits honestly, why shouldn't the grower of the fruit get those profits?

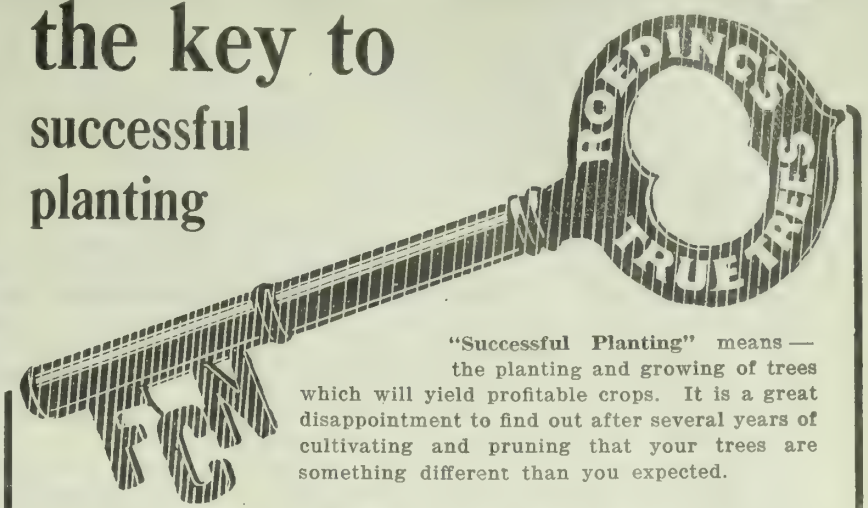
There is an organization of growers of dried fruit only, which, by cooperation of local associations, employs a set of marketing men in California and the East, to determine as nearly as possible the crop conditions and the market conditions; and to sell the growers' crops on the basis of such information. By this system, the growers, instead of the packers, get the benefit of the increased weight in processing, the increased price due to selling on the "8 or 9 point" basis instead of the "5 point" basis, and gives the growers the profits that would otherwise go to the private buyers.

The organization is called the California Cured Fruit Exchange and is state-wide in scope, having over a thousand members and handling all kinds of dried fruit. It is working somewhat along the same system as the Cal. Fruit Growers' Exchange, is young and is not yet doing business for a majority of the dried fruit growers, but last spring it contracted dried peaches at about 5 cents to the grower, and might have handled prices satisfactorily for the whole crop if most of the crop had been under its control. Gradually but surely, the marketing of California produce is working into the hands of producers' organizations. When these are built on the right lines and properly supported, they have shown themselves capable of handling the situation of profit instead of loss to the growers. The Pacific Rural Press is ever the friend of properly managed co-operative movements of the growers. We do not see enough community of interest between canned fruit growers, dried fruit growers, nut, or olive growers or fresh fruit growers, to combine them all into one organization at present for anything but the most general uplift of California agriculture. Yet from each line of agriculture which has established itself on a firm co operative basis, representation can form an effective union for general progress and that day will be welcome when such a unification of agricultural producers shall be effected.

Two families in Tehama county have little canning factories on their own farms, which are proving a source of considerable home profit.

Fresno county tree planting is pretty strongly of cling peaches.

the key to successful planting



"Successful Planting" means — the planting and growing of trees which will yield profitable crops. It is a great disappointment to find out after several years of cultivating and pruning that your trees are something different than you expected.

every tree guaranteed true to name

we grow everything that grows

NO MATTER what you may be figuring on planting this season you can be sure of securing absolutely first-class stock if you place your order with the Fancher Creek Nurseries. We have a splendid stock of all the best varieties of deciduous and citrus fruit and ornamental trees, vines, plants, etc. Every tree is of the same high quality that has made the name "Roeding" synonymous with quality and success.

GUARANTEE YOUR PLANTING

To plant "Roeding's True Trees" virtually amounts to guaranteeing your planting, for we take an interest in you and your orchard to help you to success. We offer you the benefit of our more than 30 years' experience in California horticulture, and are always glad to advise either in person or by letter with our customers, as to planting, pruning, irrigating, etc.

WRITE FOR CATALOG

Our 1915 illustrated price catalogue is now ready for distribution. If you haven't already received a copy, write for it today—free.

Fancher Creek Nurseries

Incorporated.

BOX 18 FRESNO, CAL.

Paid-up Capital, $200,000.00.

Geo. S. Roeding, Pres.& Manager.

Ground Phosphate Rock

The Natural Plant Food and Permanent Soil Builder.

1000 lbs. per acre once in each four years will cost about $1.00 per acre yer year. At Penn. State College $1.05 invested in Rock Phosphate gave increased yields of $5.85—over 500%. At Maryland Ex. Station $1.96½ gave $22.11—over 1000%. At Ohio Station each dollar paid for itself and gave $5.68 profit. At Illinois Station $2.50 gave the same return as $250 invested in land.

Each ton contains 280 lbs. of phosphorus, not rendered available artificially by high-priced destructive acids, but so finely ground as to become available in nature's own way.

UNITED STATES PHOSPHATE CO., Salt Lake City, Utah.

Write for literature.

"Perfection of fineness in grinding," our motto.

LIME FOR LAND

HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)

See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.

PACIFIC LIME AND PLASTER CO.,

807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

Deciduous and Citrus Co-operate.

[By J. L. Nagle, Manager California Fruit Exchange.]

The California Fruit Exchange, a deciduous fruit organization, operated and controlled by fruit growers of California, had its birth in Fresno in the winter of 1900. The necessity of forming an organization of this nature, which is purely co-operative, was apparent for some time, and definite action was taken at the State Fruit Growers' Convention, which resulted in the formation of the Exchange, organized for the sole purpose of correcting unsatisfactory conditions then existing, and with a view also of operating along the same lines as the California Fruit Growers' Exchange, then known as the Southern California Fruit Exchange of Los Angeles.

Incorporation.—On account of the Exchange having to borrow considerable money to loan to growers for the purpose of enabling them to harvest their crops, and for the purpose also of having sufficient funds with which to make favorable contracts for supplies, it was suggested by the banks with whom we were doing business that, in order to establish a more concrete basis of credit, we incorporate upon a stock basis. Pursuant to this suggestion, all of the fruit growers then doing business with the Exchange throughout the State, were called into conference, and in the year 1907 the California Fresh Fruit Exchange reincorporated under the name of California Fruit Exchange, with a capital stock of $100,000, composed of a thousand shares of $100 a share, with the understanding that no stock would be sold to any but fruit growers and that no person or persons, association or incorporated fruit company affiliated with the Exchange would be permitted to purchase or own in excess of ten shares. This was to eliminate the possibility of the control of this organization resting in the hands of a few, the aim being to spread the stock among reliable fruit growers in all of the districts throughout the State. Furthermore, it was agreed that this stock was to pay an interest of 10 per cent annually, which it has done since the reincorporation. This is the only benefit that a stockholder receives, besides his privilege to vote at the annual meeting.

Reserve Fund.—At present the California Fruit Exchange has a paid-up capital of $56,000 owned by 200 stockholders, a reserve fund of $31,716.82, which is built up each year under a provision whereby 15 per cent of the profits accruing from the handling of each season's business is set aside in a reserve fund. Over $4,000 of this was added the past season. For the season of 1913, the Exchange handled $2,210,670.00 worth of business, and, after paying an interest of 10 per cent to the stockholders and setting aside 15 per cent of the net earnings for a reserve fund and depreciating inventory and buildings in the regular course of business, declared a dividend of 1 1-4 per cent on the gross sales to its growers. The 1914 business totaled 2435 cars, grossing $2,379,988.89. Dividend to grower members this year was 1 1-2 per cent of their gross sales, totaling $35,699.85. Dividend to stockholders 10 per cent. The reserve fund is to be increased to an amount which, in the judgment of the directors will be sufficient to carry on the business from year to year, without the necessity of the organization having to borrow outside capital. In other words, it being purely a growers' organization, we believe it should operate on its own capital and be able to finance its affiliations and individual growers from its reserve. Our successful operation since reincorporation indicates that we will shortly reach that point.

Managed by Growers.—The Exchange has a Board of eleven directors, who are chosen from the stockholders to represent the various Associations throughout the State. As a rule, the president of an Association is a director on the Exchange Board, thereby assuring the Association that its interests are being safeguarded and that no district is able to dictate a policy that would conform to its local conditions to the disadvantage of any other district in the State, and in this manner the individual interests of the 1150 fruit growers, operating in the 1700 miles of territory covered by the Exchange, are carefully safeguarded.

Affiliated with Citrus Organization.—By the contract the Exchange has with the California Fruit Growers' Exchange, we enjoy the same privileges as the citrus organization. Its entire selling system, the most complete in existence today in the United States, is at our disposal and subject to the control of the Sacramento office during our marketing season. This immense force of salaried agents whose duty it is to represent our account exclusively is continually advising our central office of marketing and crop conditions throughout the country that enable us to give our shipments preferred service. We are in daily touch with conditions throughout the country by telegraph, and, on account of our having exclusive representatives, we have built up an enormous private sale business. This system of marketing has been so satisfactory to the deciduous growers of this State that it has greatly added to our membership within the last three years.

Prices Based on Latest Auction.—Two years ago we abolished the obsolete idea of placing a price upon a car at the shipping point and put into effect the selling of cars in private sale markets on a delivered basis; in other words, reserving the privilege of naming the price at which the car could be sold upon its arrival at its destination, basing this price upon the average of the nearest auction market to the point where the car was to be sold; but appreciating always that if fancy packs, which always realize high prices in the auction, were in the car in question, we would not sell these packs at the average of the auction but would place a reasonable differential over the average price, which plan has worked out to the perfect satisfaction of both shipper and buyer.

In our entire system, we employ only five brokers. These brokers are operating in small markets where

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS

REMEMBER
When you purchase
Silva-Bergtholdt Trees
you buy from a firm who are fruit growers and shippers as well as nurserymen.
Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree.
Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue
giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

The best varieties are selling rapidly. Don't wait too long.

ALMONDS
Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS
Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.
Franquette — The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES
California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.
Tuscan — Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.
Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.
Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE CAL. TRADE MARK REGISTERED

OLIVES
Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES
Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS
The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES
The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS
Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, **South Pasadena, Cal.**

the size and quantity of business is not sufficient to justify the maintenance of a salaried office. We are reducing our force of brokers, however, each succeeding year, from the fact that the markets are becoming larger and the people are using more California fruit than they use to.

As the deciduous season is not of sufficient length to justify a broker in a small market operating a deciduous account exclusively, he necessarily affiliates himself with other interests, such as dried fruit, canned goods and cereals, and, in this respect, as he represents varied interests and his selling field is small, he must necessarily give more attention to the buyer than to the seller. Furthermore, as a broker's living depends upon the brokerage he receives from the sale of a car, an amount that is fixed regardless of the price of the car, naturally, in conserving his own interests, he will make every effort to have the car unloaded, even at a reduced price under that originally quoted, and will not allow the car to be diverted out of his market if he can avoid it.

On the other hand, the position of the salaried representative, whose direct interest lies always with his employer, depends upon the efficiency of the service he renders the account he represents, and, as the central office knows at all times the conditions beyond the market at which the car arrived for sale, we are in a position to determine whether it will be to our advantage to reduce the original price asked, or to divert the car to another market where conditions are better. The salaried agent advises this office of the situation in his market when the car arrives and the condition of the fruit in the car. Under these conditions, the Sacramento office is always reliably informed as to the best handling of the car and seldom, if ever, is a mistake made in this respect.

Furthermore, of the 400 agents and sub-agents representing the account of the California Fruit Exchange throughout the United States and Canada, the Sacramento office contributes to the support of none, only when it has occasion to use a particular office, but the expense of maintaining this system is prorated on a basis of $20 for every car shipped, which amount it pays to the California Fruit Growers' Exchange of Los Angeles. All matters pertaining to the handling of deciduous accounts pass directly between the Sacramento office and the point at which the car is sold, and so complete and efficient is the service that the average time consumed in returning the net proceeds of the sale of the car to the shipper from the time the car has been shipped is twenty-one days.

The Exchange maintains a complete inspection force at every icing station throughout the country and receives a daily report from each of these icing stations as to the temperature of the car on its arrival and departure, the amount of ice that is placed in the car and the condition of the load in general. This information enables us to ascertain if cars are being properly handled in transit; and is used as evidence in filing claims account insufficient icing, delay in transit, failure of diversion, or other reasons which cause deterioration in fruit. The California Fruit Exchange collected from the railroads last year and distributed to its growers over $42,000 in claims.

Furthermore, the Exchange employs two competent field managers, whose duty it is to visit every Association regularly and assist in securing new members and also to keep growers fully advised of general conditions throughout the country.

A supply department is maintained, whose duty it is to purchase supplies and materials of all kinds and upon the most favorable terms. Through the management, contracts with lumber and paper mills are made, which enable us to supply all of our people with their regular requirements and at a profit to the Associations. These supplies are sold to the growers through their Associations at a nominal profit over the purchase price, and the invoice is deducted from the sales of their fruit during the season. This arrangement has proved very satisfactory to the growers affiliated with this Exchange and in no instance works a hardship upon its revenue.

Each member pays his local Association 2c. a box as a loading charge; or, in cases where the fruit is packed by the Association, a fixed price for packing, which price is generally agreed upon by the Association directors, with sufficient margin to allow for its running expenses; and the California Fruit Exchange charges a 7 per cent commission for the handling of the shipments east, which charge incorporates the cost of telegraphing, the maintenance of the main organization and the furnishing of market and crop information during the season. If, at the end of the season, the cost of maintaining the organization and the handling of the entire business has not equalled 7 per cent, the difference is returned to the grower in accordance with article 9 of the by-laws of the Exchange, which provides that an earning of 10 per cent be paid upon the stock and 15 per cent of the balance of the profit be retained as a reserve fund, and the balance be prorated in accordance with the amount of business done by each grower. Last season this dividend amounted to $53,000, and in no year since we have been operating has it cost us 7 per cent to do business. For the year 1913, the Exchange handled its business for 4 1-4 per cent, the lowest cost for handling such an enormous business on record today, when taking into consideration the efficiency of the service.

The books of the organization are open at all times to any of its members; a balance sheet and a statement showing the comparative expenditures and income are gotten out every month, so that at all times the members of the Exchange are conversant with the workings of the company. The growers are invited to the directors' meetings, which are held on the third Tuesday of each month, and though not allowed to vote, are permitted to participate in any of the discussions that might come up, and at no time are any secret meetings held by any of the directors or members in general, which would affect the policy of the organization.

Each Association in the State is operated by fruit growers and through it the main Exchange is under their control. The organization throughout is purely co-operative in every department and it is operated exclusively by the growers and for their benefit. It is non-partisan in every respect, and its principles and policies, dictated by the producing interests, were inaugurated for the sole purpose of benefiting the industry, and, judging from the increase in the membership of the Exchange within the past ten years, it is an evident fact that this original purpose has been accomplished.

ESTABLISHED REX 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS Have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.

WRITE FOR BULLETINS.

California Rex Spray Co.

BENICIA, CALIFORNIA

One-Man Power Sprayer

A Complete High-grade Outfit for the Small Grower

Supplies one line of hose. One man does all the spraying. One horse can haul it anywhere. Will spray from 2 to 3 acres a day at small cost. Light—strong—durable. This is the

BEAN EUREKA

Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.

BEAN SPRAY PUMP COMPANY
211 W. Julian St., San Jose, Cal.
Also Lansing, Mich.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN CALIFORNIA

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

Earliest Grapes on Dredger Waste.

[Written for PACIFIC RURAL PRESS.]

No drearier waste land could be imagined than the serrated miles of small boulders washed innocent of soil in the gold dredgers of the lowlands in Butte county. In places, the water used by the dredgers is left in a small volcano-like crater, oft-times with the ruins of the dredger half submerged. If, after scrambling over those ridges of loose rock half an hour, one has not broken some bones, he sits down on a convenient boulder exhausted. In all his scrambling, he has seen less of soil than would support a hill of corn. But if it were near evening, he would discover that the rock on which he is sitting is considerably warmer than the surrounding air; were those hollows not so hard, they would make capital camping places for California itinerants.

The warmth of the rocks which capture the sun heat during the day and give it off slowly at night is what enables J. H. Leggett to transform that waste into vineyards and orchards which yield ripe fruit 10 days before Vacaville, the earliest in the State. The absence of soil is only apparent; there is more or less of it distributed among the lower rocks and it is only 10 or 15 feet to the water table.

Twelve years ago this aggregation of rock piles was a profitable orchard. But the gold fever took possession and because the dredgers promised to restore the land to its original productive power, Mr. Leggett allowed it to be turned upside down. Since it was found impossible to restore the soil, most of the ranch has laid waste till now. An article in the Pacific Rural Press in 1912 mentions Mr. Leggett's hope of planting a greatly increased acreage. This has not been feasible for lack of capital.

But six years ago he leveled off a few acres with horse scrapers at a cost of $300 per acre and planted Muscat, Tokay, and Black Prince table grapes in 10-foot squares using crowbars to make the holes. True, when the vines had been set you could see only small signs of soil, for the small amount placed with the vines and trees was all covered with rocks. But the vines grew, being watered by pipes from the house for a season or two. Of course cultivation didn't worry anybody for it couldn't be done and only a few wild oats and poppies grow there.

In every fifth hill in one row a peach tree was set at a later date. In the next row and opposite the middle vine between the peach trees, a fig tree was set. Near one end of the first plot of about 4 acres, apricots were set instead of the other fruit trees. A few chestnuts, walnuts, almonds, and pecans are also doing well.

On a visit to the place late in April, all of these trees were about 8 feet tall and well branched.

The fig crop was light, but apricots and peaches were fairly well loaded, the peaches then being as much as 1 1-2 inches in diameter and more heavily loaded, the apricots a little smaller and the trees putting forth good new growth. Some of the grape shoots had already grown 3 feet and the vines were heavily loaded with bunches of buds. There were 3 or 4 stalks in every hill, which had about 3 feet of old growth each and were tied to stakes with heavy cord. They had been topped and pruned in winter. In a very few places empty hills had been replanted in the winter with cuttings rooted in Mr. Leggett's nursery; looking lost amid the rocks.

There are 7 acres in grapes now, two of which were planted last fall on spaces leveled with a steam shovel. The rock crushing company will crush the boulders for use on the State highways.

The first crop of grapes are all off by August 1, the Tokays being specially well colored and all are of fine size, color, and sweetness as well as being three weeks earlier than those on undredged land nearby. Most of them are shipped to Sterling, where the earliest boxes sell at $5 each, dropping later to $3. A few small shipments have been made for the East and a few have been sent to San Francisco; but express rates make Sterling the major market. A few Isabella vines bearing their first crop are heavily loaded. These are likely to be in demand by newcomers from the East, but experience has shown that the amount usually required is small. A small cherry orchard was planted last winter, these extensions showing that an undertaking so seemingly hopeless, has possibilities of beating more favored locations in profits.

ORANGE WILD WOOD.

To the Editor: I have read and reread your article in issue of Jan. 17, 1914, regarding "Wild Wood and Orange Pruning." I want some more information regarding this subject, especially on the point of just how far to go in cutting out sucker wood, both wild and of navel aspect. My navel trees are coming six years old and are of good size, etc. In 1913 I got 500 field boxes from ten acres, and this year (1914) I got 1350 field boxes. But I find that in many of the trees the "upper stories" are composed largely of branches which come from straight shoots starting at the base, or near the base of the main horizontal branches. These shoots rise straight up through the lower branches and branch out above, making the top of the tree in many instances. Sometimes they dont branch very much, but stand up straight out of the tree, with only a few branches. These shoots are round, seldom have thorns, and often have fruit. I started to cut them out, but usually when I get through on a tree it is only about half as big as it was, and has a broad rounded or flat appearance.—J. G. J., Lindsay.

[You will be pretty safe if you extirpate every strong growing upright shoot over a foot long that starts from the main trunk and large branches. The foot length is mentioned because fruit growth might extend vertically about that much. It is hard to tell the succulent twigs at the ends of hardened wildwood from good fruit twigs except by tracing them to their source. If the "upper stories" are composed of such vertical shoots we would leave only the lower stories. They wouldn't look homelike for a while but would soon fill up the space if all vertical rapid-growing suckers are kept out. Don't take out fruit wood from the interior, however. The shock won't hurt the tree, though some extra deep plowing in spring to give the roots a little pruning to correspond, would help keep the balance. The sooner you get the vertical wood out the sooner you will increase the proportion and amount of first grade oranges.—Editors.]

KILMOL SQUIRLGOPHENE

DEAD
Squirrels-Gophers
ARE GOOD
Squirrels-Gophers

KILMOL
SQUIRLGOPHENE

WILL KILL 'EM ALL
With U. S. Destructor
or by Waste Ball Method
Your Money Back
If Not Satisfactory

New information, the result of Uncle Sam's experiments, *Free* to you. A postal card today may save you hundreds of dollars this year

WRITE NOW—RIGHT NOW

HERBERT F. DUGAN
Dept.C
1170 Sutter Street San Francisco, Cal.

Absolute Protection Against
FROST
DAMAGE
BOLTON
ORCHARD HEATERS
One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.
Write for our new booklet R. P.
The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

Irrigation Machinery
Pumps-- Motors--Engines
Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION."
Expert Engineers.
Three Stores to Serve You.
California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco.
31 S. Briar St., Lindsay.
AMERICAN PUMP CO.,
129 No. Los Angeles St.,
Los Angeles.

PLANT BERRIES
Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.
ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

PROFESSIONAL DIRECTORY

SYMMES, MEANS AND CHANDLER
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 Sutter St., San Francisco, Cal.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examinations, Agricultural Development, Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS
Soil analyses for fertilizer requirements. Water analyses. Alkali determinations and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO.

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

DO YOUR OWN GRAFTING.

(Continued from page 97)

grow. Having placed the knife as directed above, put on enough pressure as you swing the handle in a quarter circle toward you, to cut a thin shaving from the bark and from the inner surface of the notch. This should be in a perfectly straight line. All the roughness of the sawed surface is thus cut off ready for a most intimate connection with the whittled surface of the scion. Both sides of the notch should be thus trimmed and the scion inserted before they have a chance to dry. The opening should not be over 3 -16 inch wide and the same width from front to back.

Trimming the Scion.—The scion is then cut to fit. It ought to have three or four well matured healthy looking buds. When cut ready for insertion, its bark edges on both cut surfaces should be straight lines as looked at from the bark side. The cuts are made with the broad bladed jackknife, beginning half way up the scion and with one quick stroke cutting a slice from its side thick enough at the lower end so that when another similar slice is cut from the other side, the lower half of the scion will be slightly wedge-shaped with a blunt end somewhat narrower than the notch. If it is made too short and sloping a wedge, it will heave out of the notch. The width of the side of the scion intended for union with the stub may be exactly the same as the other side, or wider, but never narrower, as that would prevent the tight fitting of cambium layers. It is well to leave a bud on the outside of the wedge part of the scion even though its sides must be sliced off, as this increases the chance of crossing the cambium layers of scion and stub in intimate contact, which is essential to the union and growth of the graft.

Setting Scion in Notch.—Having trimmed the scion at once after trimming the notch, set it into the notch so that the outside edge of the wood of the scion is as near even as possible with the outside edge of the wood of the stub. This would insure the union of both at the cambium layer if it were possible to do it exactly in practice. The cambium layer is simply that layer of actively growing and multiplying cells between the wood and the bark. It is no use to look for it in grafting; the outer edges of the wood are easier to distinguish. Don't try to get the outer surfaces of bark together because the bark is of different thicknesses on the scion and stub.

Having placed the scion as near right as possible, drive it down hard and tight with the wooden mallet. It won't always drive straight down, and there is more assurance of getting at least one point of contact between cambium layers of stub and scion if you drive the scion slightly cross grained, so its lower end may come out almost even with the outside of the bark. This tips the projecting half of the scion toward the center of the stub where it won't be in so much danger of being hit during cultivation. Usually, if the scion has been wedged right, only a half inch of the cut surface will project above the notch. Three or four scions should be inserted on a stub three inches in diameter—only one on a one-inch stub. If all of them grow, you can clip out all but the strongest in the winter following, leaving those which are best fitted to balance the tree and fill up gaps. If some of them fail, you still have a chance to get a good one on that stub. If none of them grow the stub will die next summer and your tree will be out of balance.

Waxing.—If the stub is bleeding, delay the waxing if possible until it is dry, for the moisture will prevent the wax sticking permanently and will make bubbles which will break bye and bye and expose the surface to drying which the wax should prevent.

The hot wax will run thin. Take the wax pot from the fire and hold it under the stub to catch the drippings. The brush should have warmed up a few minutes in the wax to make it limber. Wipe the brush full of hot wax over each side of the projecting cut surface of the scion so that the drippings will run into the notch behind the scion. Be sure this notch is completely filled without bubbles. It will often run through, coming out below the scion if the notch is too large. Then let it cool half a minute while you wax the next scion. Then you can fill the first notch. Be sure that the cut surfaces of the scions are thoroughly waxed. Lamplack has been added to the wax to make it easier to detect non-covered spots. When all the scions and notches have been filled, cover the cut surface of the stub thoroughly. Then wax the outside lower half of the scions and notches with an up and down notion of the brush to drive out all the air so as not to leave any bubbles. It is important to wax every spot of cut surface, because sap would evaporate from it and so weaken the scion that it would likely die. Next wax the top ends of the scions, and that stub is done. A regular system such as described should be made a matter of habit. Otherwise one or more of the surfaces will be left unwaxed too often for economy. When all the stubs have been waxed, take time to walk around the tree for the sole purpose of looking at every surface for the tell-tale white spots overlooked. This is absolutely necessary, for you will usually find some spots that need retouching. If the wax gets too cool to run freely into the notches, it may be necessary to put it back on the heater and hold heater and all up under the stub.

Grafting should not be done on rainy days because the wax won't stick right, and when a little water gets mixed with it in the heating pot it boils up in a froth that is absolutely useless for grafting because it is full of bubbles that will harden, and burst after you leave. Only those limbs should be sawed off, that are to be grafted the same day, for long exposure dries out that bark which should be most vigorous to make a union.

White-washing the Trunks.—As soon as possible the trunks and stubs should be whitewashed to prevent sunburn due to absence of accustomed foliage. This sun injury to the bark often takes place in winter. If the first application is washed off by rains before summer, an extra coat is cheaper than sun injured trunks. Application with a brush is cheaper than with a spray pump. When the grafts have grown two or three feet, it is well to cut them back a few inches to prevent too great leverage of the wind on their still weak unions and to make them grow stocky, and send out laterals which may be needed to fill vacant spaces in the tree.

Ed Ames of Placer county never prunes European varieties of plums after they are three or four years old. They bear on wood two years or more old.

Broadcast 200 pounds nitrate of soda per acre on orchards that are making weak growth. Do it before you plow, so it won't "evaporate."

Contra Costa county tree planting is going pretty strongly to almonds.

SEED POTATOES

If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.

WRITE FOR PRICES.
Our 1915 Catalog telling how and when to plant is now ready. Mailed free upon request.

Alfalfa Seed a Specialty

VALLEY SEED CO.

510-512 Jay Street, Sacramento, Cal.

KIRKMAN'S RELIABLE

TREES

Make Horticulture Profitable

Our stock of fruit trees in several of the leading varieties will be entirely exhausted before February 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once, please, letting us know what varieties you expect to plant. We want to supply you if we can.

KIRKMAN NURSERIES

2523 Tulare St., Fresno, Cal.

Olives Olives Olives

Strong, Vigorous Trees for Spring Planting at reasonable prices. All well rooted cuttings from selected trees. For information write

TETLEY, MERRIMAN & GERNER, Riverside, Cal.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

Avocado Value and Propagation

[By F. O. and F. W. Popenoe, West India Gardens, Altadena.]

In the beginning I shall assume that the avocado has come to stay. It is not supposable that a delicious fruit of the highest food value, which is found to flourish over a wide range of territory in this state, will be other than increasingly and extensively planted.

Some people, it is true, confess to but a slight appreciation of the avocado upon first tasting it. This is due in many cases to the fact that the specimen sampled has not been in a proper state of maturity or properly served. But even in the case of indifference at the first trial, the liking grows with further acquaintance so that it is a fair assertion, I believe, to say that practically everyone who has had an opportunity to do so, acquires a liking which would enable him to eat avocados with keen enjoyment the year round.

In southern California, from Santa Barbara southward, fruiting avocado trees ranging in age from three to thirty years are to be found in quite large numbers. These afford a practical and acceptable demonstration of the adaptability of the tree to this climate and soil, and of its fruitful character. It is not now a question as to whether we shall plant the avocado; it is only a question as to how rapidly the planting of good varieties may be proceeded with. This fact alone will determine the future development of the industry.

Food Value.—As to food value, the avocado asks no quarter, nor will it give any. As a boon to vegetarians it will assume a position of great importance. As a nourishing and sympathetic food for the invalid stomach it will always be in demand. As a substantial part of the morning, noon, or evening meal of the working man, it needs only to be placed within his reach as to price. Given for breakfast two good slices of bread and an avocado of pound weight, he can split rails, dig holes, or mix concrete for as many hours per day as the law allows. Government analyses show that the avocado contains 10 to 17 per cent of vegetable oil.

While it is technically a fruit, it is not strictly so in the common acceptance of this term. The oily character of the flesh prohibits its use in cooked form. It is most commonly used as a salad, but there are numerous ways in which it can be prepared, and it is extremely palatable in any of them. In the American tropics, where the fruit is native and where it is a staple food product, it is one of the most highly esteemed of all vegetable products.

But the great handicap under which the avocado has labored, has been the fact that all the trees grown in California are seedlings. By this method the avocado has been propagated for centuries in Mexico and other tropical countries, and it was not until ten years ago that it was discovered that it could be successfully budded. Like all other tree fruits, this one does not come true from seed. This results in a large proportion of seedlings turning out to be of little value, or at best inferior to the finest types. This has been the case in all countries where this fruit has been grown, and particularly so in California, where so many of the seedlings sold and planted have been grown from inferior fruit, thus greatly lessening their chances of proving desirable. Occasionally a superior fruit is produced by a seedling, but such instances have been few in California up to this time, and nothing has yet developed that is equal to the finest of the seedlings growing in Mexico. This is easily accounted for by the fact that in Mexico almost innumerable seedlings have been grown, while in California there have been comparatively few, so that, other things being equal, the chances of obtaining choice varieties have been much greater in Mexico than here.

Shipping and Home Varieties.—The varieties may be sharply divided into two classes—the thin skinned and the thick skinned fruits. Of the former it may be said that they, as a class, are the most prolific and best flavored. A tree owned by John Ott of Azusa produced five thousand such fruits last year. These fruits weighed perhaps four ounces each, and were good eating. Here we have twelve hundred pounds of food containing a high percentage of oil. This would give one person a pound for every meal during the year if the fruit would keep so long—which it will not of course, but the statement illustrates the point.

An analysis made by the University of California of the Chappelow variety, another of the thin skinned type, furnishes the astounding fact that the total edible portion (that is, the entire fruit exclusive of the skin and seed) contains twenty-nine per cent fat. Here is a subject for the consideration of food specialists. The Chappelow this season is bearing a crop of two or three thousand such fruits, each one weighing five to seven ounces.

Thus the thin skinned varieties may be said to be ideal for home use and fortunate indeed is he who may have one or more of them growing in his yard.

But it is to the larger fruiting and thick skinned varieties that we must look for our commercial avocados. Giving all due credit to the thin skinned varieties, I believe it is reasonable to say that as compared with the larger, thick skinned fruits, they are not to be considered from the standpoint of the commercial grower. While these latter fruits fall a few points short in oil content, their other qualities more than overbalance this, for the grower who is going to sell his product. While there is no valid reason for it, nevertheless it is a well understood fact that it is a characteristic of human nature to select the larger of any two things. This may be because we are all selfish. The higher price will always go to the large fruits and it will not only be a higher price, but it will be a price higher in proportion to weight—one large fruit perhaps selling for the price of four small ones, even though the four small ones may weigh twice as much as the large one. The thick, hard skin of the Guatemalan types permit successful transportation to any distance, so far as our own country is concerned. Besides this, the larger fruits peel, slice and serve more attractively.

Propagation.—By a ruling of the Federal Horticultural Board, it is now impossible to import seeds from Mexico, where they have heretofore been obtained in large numbers. Neither can they be brought from the Hawaiian Islands. Importations may be made, I believe, from Florida or Cuba. Young trees grown from these seeds are too tender to work satisfactorily in this climate. Therefore, the future development of the industry will be dependent upon the seeds grown at home. Fortunately, a fairly large number of Mexican seedling trees are coming into bearing in southern California. These seedlings are sometimes wonderfully prolific. An eight-year tree at Azusa last year produced five thousand fruits, so I am informed by its owner, John Ott. This, I believe, breaks the record. But many such seedling trees are known to have grown two thousand or more fruits yearly. Thus, by another year or two, when a still greater number of such seedling trees are in bearing, the seed supply will be provided.

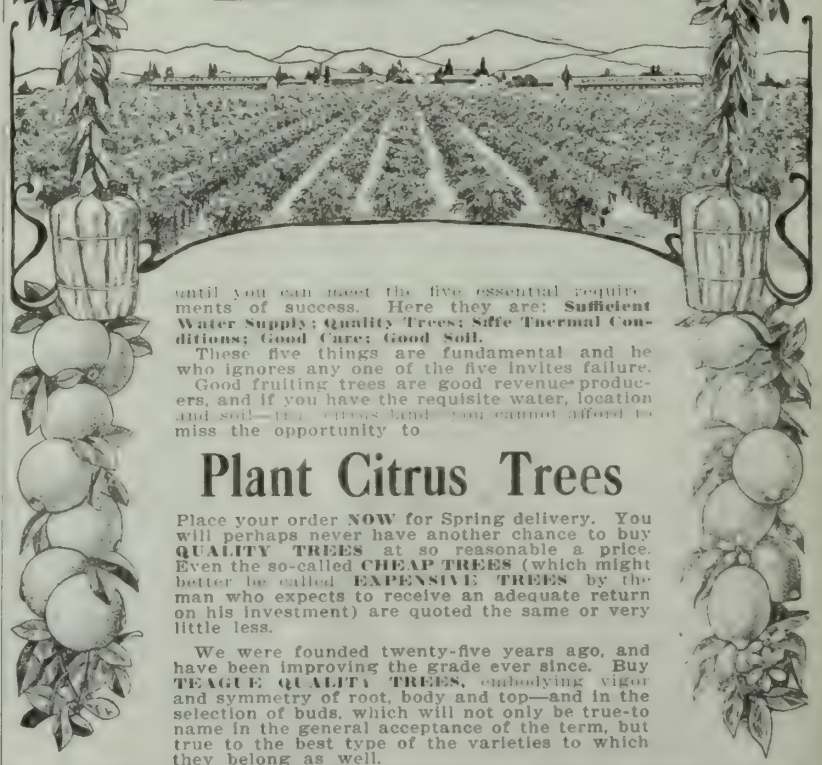
Through budding onto seedlings, Californians are now able to plant trees whose quality and desirability can be depended upon, and it is only through the production of budded or grafted trees that large commercial development is possible. Through the standardizing of a few superior varieties, covering different periods of the year in bearing, the avocado industry will be set on a substantial basis.

Attracted by the apparently high price at which budded avocado trees are selling, many people have been drawn into the attempt to propagate them. Not only have the nurserymen undertaken this, but as in years past when seedling orange trees were planted in hundreds of back yards and budding undertaken, so also in the case of the avocado, many a man or woman with a taste for growing things and a desire to increase the yearly income, has attempted the budding process. Almost without exception these undertakings have ended disastrously. Not only amateur, but experienced nurserymen, have all found the budding of this tree difficult, and the number of failures may be compared to the number of failures in gold mining. In our own work at the West India Gardens, where we have budded thousands, we feel that while we have learned some things we are yet on the threshold and have still a larger number of things to learn.

In budding these varieties, the two vital points are the condition of the seedling stock and the suitability of the bud. The time of the year matters little and is provided for in the statement "condition of the seedling stock." The sap must be flowing freely. The bud varies greatly with the different varieties, so that it is impossible to lay down a rule. The right bud to use can be learned only from experience. In some varieties it may even be said that the buds are never first-class. In such cases failures are always numerous. Unfortunately this applies to some of the varieties most worthy of propagation.

Planting.—After the bud forms a union with the stock, the treatment is a simple one—merely keeping it in vigorous growth by topping back and suckering the seedling stock. Cutting off the old stub at the wrong season of the year is the cause of some loss. This should be done preferably in winter when but little sap is flowing, otherwise one is likely to induce a "dieback" which is not

Don't Plant CITRUS TREES



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Siffe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—the citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

easily checked, and often goes below the bud.

Field-grown trees are by far the most desirable. Budding into pots, boxes and cans can be done and is the method largely followed in Florida, but is only partly successful in California, — perhaps on account of our drier climate.

Loss has been sustained in the past by planting young and tender trees in midsummer. The ideal planting season, I believe, is the month of March. The avocado likes cool weather and its root growth begins early. Thus by early planting a tree will become established and have an opportunity to harden its wood before the heat of the summer.

Young trees planted in orchard form should be preferably thirty by thirty feet, fifty to the acre. They grow considerably larger than budded orange trees. For the first year or two double the number of irrigations given an orange or lemon orchard will be well repaid by the vigorous growth of the trees. Needless to say, thorough cultivation must be maintained.

Dynamite Good on Most Soils.

To the Editor: An article on "Subsoiling with Dynamite" in Pacific Rural Press for Dec. 19, interests me very much. I have some land, yet undeveloped, the top soil of which is 40 feet thick. It is a heavy clay, very rich as is evidenced by the rank native growth where conditions are favorable. The rainfall is very light, and irrigation would be absolutely necessary to raise profitable crops of any kind. But the soil is so impervious to water that irrigation would be impracticable without subsoiling or breaking up the clay by some means. An implement for pulverizing to a depth of 18 to 24 inches would solve the problem, I believe, but it would require a lot of horse power to run such a machine, which means that it would be an expensive undertaking. Now, under California conditions of soil making each foot for many feet down is equal or nearly equal in fertility to the surface foot, and if we could lower our subsoiling down to a depth of say six feet we could thereby proportionately increase the productive power of each acre. Dynamite seems to be the power required to do such work as that. I would like to ask how far apart and how deep dynamite charges should be placed to accomplish such a result and, a vital question, the cost per acre?—H. P., Fowler.

[Written for PACIFIC RURAL PRESS.]

Possibly your clay is too wet by the time this will appear. H. D. Gaskill of the Hercules Powder Co. advises folks not to use dynamite if the soil is likely to run back into a sticky mess when wetted after shooting. This can be determined only by trial. If your soil is of such nature, application of lime or gypsum and other methods of loosening it will be the best. If it is crumbly enough to shoot well, the way to subsoil with dynamite would depend on what is to be planted. If orchard trees, stake out the land when it is fit to blast and shoot a hole at every stake. Bore 2 or 2½ feet deep and tamp thoroughly ½ stick of 25 per cent dynamite. Then put three or four sticks six feet deep between the trees. If you use electric caps there may be some advantage in shooting several holes at once because the vibrations of each would help the other and time would be saved waiting for charges to explode. The danger in blasting for orchard trees on impervious subsoils lies in the possibility of creating a pot hole or pocket where the tree is to stand, providing no drainage. The soil in these holes fills with water, excludes air, drowns the trees and gets sour or stale. If you can shoot down to a drainable subsoil, and your surface soil doesn't run together again, there is no doubt about the benefits. But we fear that the use of dynamite will in a few years receive a black eye because it is thus misused.

Blasting a small hole where the tree is to be set, and a much deeper one between it and the next one, is likely to drain such surplus water far enough to avoid most of the injury.

If alfalfa or other broad cast crops are to be grown a shot of ½ stick two or three feet deep every six feet each way will provide a much deeper loose bed for the roots. Alfalfa would be good if the land is drained well enough to allow it to grow, for its roots penetrate deeply and by their substance greatly help in loosening the soil.

The cost of 25 per cent dynamite in less than ton lots is $11.50 per cwt. f. o. b. at the works on San Francisco Bay. No. 6 fuse caps are recommended. They cost $9.35 per thousand at the works. Electric caps require a battery and are connected with the battery wire by fine soft copper wires long enough to reach to the surface. The prices are subject to 10 per cent discount for cash.

W. B. Depew of Sonoma county used 40 per cent dynamite in shooting heavy black soil for 45 acres of prunes. We feel that he is losing now by having used the higher explosive but we give his costs for comparison. The 40 per cent dynamite costs $13 per cwt. f.o.b. the works. He says, "Blasting for trees should be done before the winter rain. This will insure thorough, soaking and settlement of the ground before planting. My soil is heavy sediment on top with heavier soil below. I used a whole stick of 40 per cent Red Cross dynamite to each tree, placing it 3½ deep. I used a 1½ in. auger with its lips taken off. The total cost for dynamite, fuse, and caps per tree was 16 cents—making cartridges, boring and shooting holes was 4 cents, making a total cost per tree for dynamiting of 20 cents." There is a considerable transportation charge on dynamite and still greater on the caps. This accounts for the high price delivered at the ranch.

MUSCATS ON ZINFANDEL.

[Written for PACIFIC RURAL PRESS.]

Five acres of Zinfandels worked over to Muscats some years ago are the best vines A. Thiele of Fresno county has and he is working more of them into Muscats. Two tons per acre is the yield he gives. His whole vineyard includes 10 acres of old Muscats and several acres of Malagas and Thompsons, mostly old vines, "as fine as any in the county."

Never leave bunches of fruit wood at the end of a limb.

Garden Encyclopedia--Free

Your Copy is now Ready

Prof. E. J. Wickson of the Agricultural Department of the University of California writes us as follows:
"I could not run my advisory and educational business without your catalogue at my elbow".

CITRUS, DECIDUOUS, ORNAMENTAL TREES
FLOWER, VEGETABLE, FIELD SEEDS
FERTILIZERS, INSECTICIDES, FUNGICIDES

For Prompt Service Address Dept. R

Germain SEED & PLANT CO.
Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

RELIABLE TREES

Get them from the most complete nursery in the world.

SEND FOR CATALOG A.

CALIFORNIA NURSERY CO., INC.
NILES, CALIFORNIA

Fruit Trees
ELMER BROS. NURSERY
AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

FREE Book on RHUBARB Culture
WRITE FOR IT TODAY

Now is the Best Time to Plant
RHUBARB
BERRIES AND SMALL FRUIT.
If planted now, you should derive good results
J. B. WAGNER-Pasadena, Cal.
The Rhubarb-Berry & Cactus Specialist.

Citrus Trees With Pedigrees
Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
Balled and on the cars, 40c.
Write for special prices on quantities.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 78D.

California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

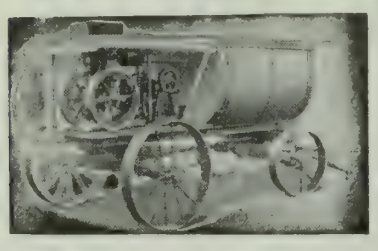
Price $2.00 Postpaid Anywhere.

Pacific Rural Press

Publishers.

525 Market St., San Francisco

Hardie Sprayers



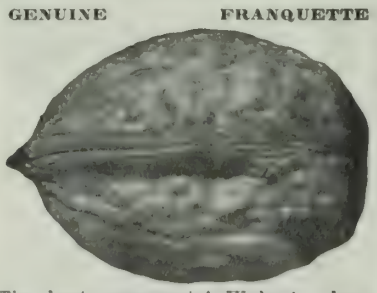
The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Write for Catalog.

THEO. POINDEXTER, State Agent,

320 Market St., San Francisco

GENUINE FRANQUETTE



The best commercial Walnut; also San Jose Mayette All trees grafted on California Black Walnut root. 6 to 10 inches above ground. Sizes from 3 to 10 feet. Prices reasonable.

SUNSET NURSERY, 525 San Carlos St., San Jose, Calif.

STUMP PULLERS

CALIFORNIA STUMP PULLER COMPANY

704 Bryant St., San Francisco

Est. 1880

STRAWBERRY PLANTS

true and tried variety only--large, juicy fruit, good sellers, demand always great--35 years of reliability

New Catalogue Free

J. A. BAUER, 7 Judsonia, Ark.

Strawberry Specialist

State Agricultural Organization.

A meeting of representatives of every organization interested in the producing end of California agriculture is called by the committee appointed at the recent Fruit Growers' Convention, to be held Feb. 22, on the Exposition grounds at San Francisco.

The need for such an organization is illustrated by the recent fight on the eight-hour proposal. Other questions, such as quarantine measures, etc, of concern to every branch of agriculture are likely to arise. With such an organization already in existence when such questions arise, machinery could be quickly set in motion to investigate and solve the problems.

Such an association could have only the most general jurisdiction and should be composed of other state-wide organizations already in existence, who would still retain all control of affairs pertaining only to themselves. It might even be a source of help to those lines of agricultural production not already organized

The present plan is the outgrowth of recommendations made to the Fruit Growers' Convention at Los Angeles by a committee appointed for the purpose. Two plans of state-wide organization were submitted to the convention and referred back to committee One contemplated including only the horticultural interests, the other includes all organized agricultural interests.

Such a general California agricultural society would have its corps of officers for the general association. It would be composed of various sections representing the different horticultural and agricultural interests of the State, as for instance, Citrus, Deciduous, Tropical, Viticultural, Small, and Bush Fruits, Nursery, Dairy, Beef, Horse, Swine, Sheep, Other Livestock, Poultry, Vegetable, Grains, and such other sections as might be demanded by any special agricultural interests. The general association would probably hold a meeting biennially at which business matters of general interest could be taken up; and the business in the interim be directed by its executive committee consisting of the officers of the various sections

The different sectional conventions could be held as often as the various sections desire, and in places most convenient for the members of such sections.

The Committee sees difficulties in the organization of such a general society, but believes that such can be overcome, and that a broad general agricultural organization of this sort would strengthen and cement the various agricultural interests of the State.

The political or legislative part or the proposed organization is provided in a bill introduced into the legislature since the above was written. The bill provides for the abolishment of all the independent State government divisions interested in agriculture, and the organization in their place of a State Department of Agriculture under a secretary who would co-ordinate them all. Bureaus of horticulture, animal industry, and economics would include all the divisions now existing. Economy of expense due to co-ordination of work are the advantages claimed. The bill will be discussed at the convention of growers mentioned above.

This law seems to us fraught with such possibilities and such promise for California agriculture that we expect to print it in full next week. This will give every reader of Pacific Rural Press a chance to discuss it intelligently with his neighbors and in his clubs and to ask intelligent questions about it.—Editors.

SORGHUM GRAIN MARKET.

To the Editor: Is there much demand for threshed sorghum grains, such as Egyptian corn and feterita, on our California markets for feeding? What is the average weight of a sack of Egyptian corn?—C. L. M., Oakland.

[Answered by S. H. Gray of our marketing staff.]

[The average weight of a sack of Egyptian corn is about 125 to 130 pounds.

There certainly is a demand for Egyptian corn in California, especially at the present time. As for the sorghum grains in general, the market is not as well standardized, as to recognized varieties, grades, and comparative values, as in the better known grains which have a world market. There is no export trade in these grains, and the movement has generally been of a small jobbing nature. This year's conditions, however, are making them better known and establishing a more definite position for them in the market. The handling of these grains has formerly been to a large extent a local proposition; much of the crop being fed by the grower or sold to neighbors; but it is now being handled in larger amounts in city markets. A good deal of the crop, moreover, has not been of first-class quality, and would not sell at a standard price.

Egyptian corn is said to be a better feed than barley, and commonly sells at a price between barley and wheat. The demand is especially strong for chicken feed, for which it is admirably adapted, and in view of the extreme price of wheat, the market is now in an excited condition. At harvest time Egyptian corn was valued here at about $1.40 per ctl.; it is now in good demand at $1.70, in carload lots.]

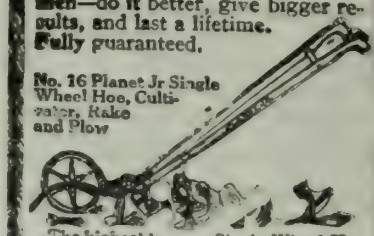
HARD TO FIGHT SQUASH BUGS.

To the Editor: I cannot raise Hubbard squash or pumpkins successfully on account of pumpkin bugs. Have tried lime and ashes but they seem to thrive and multiply. —A. J. F., Patterson.

[The adult bugs hibernate among dry weeds, rubbish, boards, etc., and many may be killed by plowing early in the spring or during winter. They lay bunches of dark brown three sided eggs in spring and early summer. Trap them before egg laying or trap the young bugs after hatching by laying boards around through the patch and picking up the bugs early in the morning. Thorough fertilization and planting of many seeds per hill so that some of the young plants will pass the stage at which they would be attacked before

Planet Jr. Wheel Hoe Cultivators

do the work of three to six men—do it better, give bigger results, and last a lifetime. Fully guaranteed.

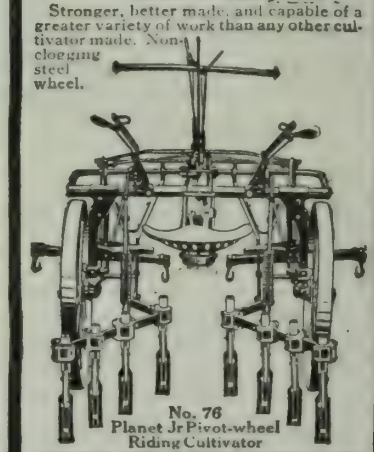


No. 16 Planet Jr Single Wheel Hoe, Cultivator, Rake and Plow

The highest type of Single Wheel Hoe made. Light, but strong, and can be used by man, woman or boy. Indestructible steel frame.

No. 9 Planet Jr Horse Hoe and Cultivator

Stronger, better made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel.



No. 76 Planet Jr Pivot-wheel Riding Cultivator

Gives bigger better results than any other one-row cultivator ever invented. Strongly constructed, easily handled. No wheel used except for break pins.

72-page Catalog (168 illustrations) free

Describes in detail over 55 tools, including Seeders Wheel Hoes, Horse Hoes, Harrows, Orchard and Beet Cultivators. Send postal for it now.

S L ALLEN & CO

Box 1203F Philadelphia Pa

We carry stock in San Francisco and Los Angeles.

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds are too large. They will tell you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

WEST COAST

The Cut Rate

Seed House

116-18 East 7th St.

LOS ANGELES, CAL.

Avocado Trees

Nursery stock grown under the most favorable conditions possible. Not the ordinary alligator pear trees raised under lath or in pots, but—

Every One Guaranteed To Be Vigorous Field Grown

I have made a special study of this new and promising fruit industry. Let me acquaint you with the wonderful possibilities.

Trees from 4 ft. to 7 ft. high, $2—$3. Budwood—all standard varieties at reasonable prices.

W. A. SPINKS,

DUARTE, CAL.

they are killed are helpful measures. Spraying with bug killers destroys the vines too. We give below the experience of a squash grower with moth balls, which is at least suggestive:

"For several years I had waged a losing fight with the long black squash beetle, and the slender striped harlequin bug and had lost all my pumpkin and squash vines. When I crumpled a dry leaf, myriad little demons would scatter in all directions.

"Last year I had a good stand of squash vines planted in fertilized soil among the potatoes. One day a visitor and myself went over all the vines turning up every leaf and destroying both bugs and eggs. Dropping off to play "possum" on the ground did not help them. We made a clean sweep of the bugs, and I forget how many hundreds were killed that day. They I got a bag of moth balls and laid them at close intervals along each vine under the thickest leaves and beside each young squash. A heavy rain washed some away, but they were replaced. After a few days I saw and killed a few stray beetles, but those squash and pumpkins grew very large, and I saw no more beetles. Last fall I hauled home all one horse could pull on a sled, from a comparatively few vines, and I believe it was the moth balls that saved them. I shall try the same again."

Experiences of readers who have found effective methods will be welcomed.—Editors.]

Good Soil Bacteria Need Air.

[By C. B. Lipman, of the University of California.]

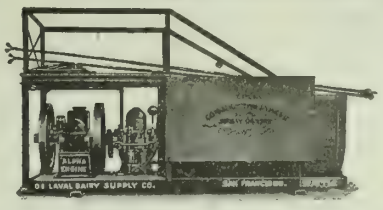
While it is true that some forms of soil bacteria, among which may be those of economic importance to practical agriculture, prefer to live in the absence of free oxygen, the large mass of soil organisms, which are of particular importance to us, can only live and carry out their life processes and produce the necessary changes in soil, in the presence of a plentiful supply of oxygen. Every phase of soil management therefore, which affects in any degree the amount of air supplied to the soil is, to the extent to which it does so, a regulator of the bacterial activities in the soil, and hence of the changes which bacteria may be instrumental in achieving there. Among these important phases of soil management, with which we are concerned, are tillage. It is obvious that plowing to a depth of four inches will not supply the soil with the amount of air which plowing to twice the depth will accomplish. It is likewise clear that when a soil is water-logged, or partially so, or in other words, when its pores are filled wholly or partly by water instead of air, we cannot expect that a sufficient supply of oxygen will be maintained there for crop production, but these clearly evident facts hold just as truly for bacterial development in soils as they do for the root development in soils. Our study, therefore, of the oxygen needs of soil bacteria serve to emphasize more clearly the necessity for rational methods of tillage and drainage, and for helping the cause of the plant in adding another reason for the adoption of such rational methods.

Cal. Soils Deeply Aired.—These remarks are peculiarly pertinent as applied to soils in California, for, owing to the very slow formation of clay substances due to a minimum of leaching in this climate, our soils, taken by and large, have always been well aerated. This favorable aeration at the surface has meant a more congenial medium for the development of soil bacteria and the roots of plants, both of which, owing to the plentiful supply of air, have penetrated to greater and greater depths and made possible the deeper and deeper development of root systems in our deep soils. How profoundly these congenial air conditions have influenced the development of bacteria in our soils is evidenced by some of our investigations on the soil columns of California in which in most soils examined, with the exception of our abnormal desert and hardpan lands, nitrification was found to take place in soils to a depth of six feet and more. The bacteria which produce ammonia from organic nitrogen have been found as deep as 15 feet, not merely alive, but in vigorous physiological condition. In the poorly aerated soils of the humid region where a great rainfall, distributed throughout the season, makes possible a more rapid formation of clay substances, and therefore, a poor aeration in the lower layer of the soil, we seldom find bacteria penetrating to depths greater than 3 feet and very frequently nitrification ceases in soils below the first foot.

Deep Cultivation for Dry Farming.—Where fruit and other crops are raised in this State without irrigation, the root systems must go down for their water supply. Under such circumstances, particularly, we must use such methods of tillage and In this way the expressed juice takes drainage as will make possible such deep penetration of root systems, and make congenial the conditions for the development of bacteria at greater depths. A penetration of roots to greater depth means, if it is going to be valuable to the tree or other plant, that there must be a supply of food, as well as air, at those depths; and soluble food must be supplied by the soil bacteria there, which will not develop without a good supply of oxygen. The practical lesson, therefore, taught by a study of the relation of air to the development of soil bacteria in soils, is that we must adopt deep tillage and frequent summer cultivation if we would best serve the interests of the plants under our control. Especially is this true under California conditions. Shallow tillage, with a gradual formation of a plowsole, are bound to be inimical to the development of plants, not only because the air supply is thus practically shut off and the water conditions are made bad, but also because the soil bacteria are robbed of their oxygen supply and therefore will not produce soluble nitrates from the organic nitrogen and will not add nitrogen from the atmosphere, or "fix it," as we say technically. This means, sooner or later, nitrogen starvation.

A few orchard trees are reported to be in blossom near Sanger.

The Alpha Combination Power Spray Outfit



IS capable of a continuous high pressure maintenance.

Completely equipped, ready for use, with 100, 150, 200-gal. tank, on an all-steel frame and platform, ready to be mounted on Farm Trucks.

A Thoroughly Dependable Outfit.

Send for Circular 3B.

DE LAVAL DAIRY SUPPLY CO.

SAN FRANCISCO, SEATTLE.

Everything for the Dairy.

THE BIGGEST WALNUTS.

[Written for PACIFIC RURAL PRESS.]

The trouble with planting a specially fine fruit or nut tree along the road is that you don't enjoy the crop. This has been the case with F. C. Willson of Sunnyvale. He didn't know when he set that seedling fourteen years ago at the side of the main San Francisco road passing Sunnyvale that it was going to develop into such an attractive nut that he would never get a mature crop to weigh.

The tree had a peculiar notion. Mr. Willson says it began bearing the second year after transplanting and has borne a dozen heavy crops since. That isn't all; the nuts were so big that he has laid some of their descendants side by side on a three-foot rule. Fourteen of them covered it. The criticism of some growers that the nut does not fill well, does not seem to be borne out on Mr. Willson's place.

The promise of this seedling was so alluring that all the scion wood he could reasonably take from it was grafted to Cal. black seedlings. Some of the grafts bore at least one nut in the season following, and have borne every year since. Trees of this variety have been unscathed by the blight which took other varieties on both sides. Leaves and blossoms come midway between the Santa Barbara soft shell and the Franquette, usually late in April. They are heavily leaved and supplied with male bloom.

WANTS TO PLOW DEEP.

To the Editor: My forty acres of heavy sandy loam near Turlock has never been plowed over four or five inches deep and has formed a hard plow pan. I wish to plow it nine or ten inches deep but have been told it would not give a good crop if plowed that deep. I wish to put in Egyptian corn. Twenty were in corn last year and 20 in oats, but did not give a good crop of either, though the land is good. A piece adjoining it gave 25 sacks of corn to the acre last year.—M. D. V., Turlock.

[Get under the plow pan, your Eastern friend to the contrary notwithstanding. Plow as deeply as you can without turning up a distinctly different sort of dirt. Egyptian corn requires less water than Indian corn.

50¢ POSTPAID!!

To introduce our guaranteed trees and plants we offer you any or all of the following at 50 cents delivered to you. 12 apple, 12 peach trees, 12 rhubarb, 100 strawberry, 6 gooseberry, 12 raspberry, 12 blackberry plants. Write for price list. Offer good only 30 days. Dept. No. 10.

ARKANSAS NURSERY Co GREENLAND, ARK

BUY IT NOW

Get what you will need in the Spring, now, and help pass prosperity along.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product.. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St., San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco.
CALIFORNIA SEED CO., 151 Market St., San Francisco.
SUNSET NURSERY CO., 92 41st St., Oakland.
VALLANCE BROS., 31 Glen Ave., Oakland.

TREES
Grown on Sandy Loam Soil

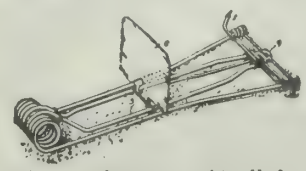
No Spike Roots.
Almonds on Almond & Peach Root.
All Varieties of Fruit Trees for sale.
Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of water.

RIPON NURSERY and IMPROVEMENT CO.
J. F. STUART, MGR.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENT AGENCY PATENTS

Circulars containing 100 mechanical movements mailed free.

Mechanical Power on the Farm.

POWER PUNCH FOR SOIL BLASTING.

[Written for PACIFIC RURAL PRESS.]

For fast work blasting holes where it is not necessary to get a hole an exact depth to break up a layer of hardpan, the gas-engine driven "punch" used by a Sacramento county farmer has the lead.

The outfit looks like a little pile-driver mounted on a one-horse wagon. In fact it is a pile driver, having an iron "hammer" that slides up and down between vertical "leads" or 4x4's. A rope runs from the hammer over a pulley at the top of the frame, then down through a "snatch block" or pulley with the side openable so the rope can be put in and out without running the end through, and thence to a "nigger-head" or horizontal spool which slopes in a curve from both ends toward its center so the rope always works down in that direction. The niggerhead is on the axis of a small gas engine.

A pointed iron rod larger than a dynamite cartridge and with a square shank, is set under the hammer and driven down to the desired depth. The man at the niggerhead regulates the throttle on the engine so its speed does not get excessive when it isn't working. When the time comes to drive the rod, a little more gas mixture is turned on, the rope is thrown three times around the niggerhead and tautened. That raises the hammer. At the proper height, which is only a foot or two, the rope is loosened so the hammer can drop. Practice enables the operator to raise and drop the hammer rapidly.

When the rod is driven deep enough, a man places a long handled wrench on the square shank and works the rod as much as possible around and back while another pulls it out by means of a chain on the end of a 10-foot pry pivoted handily on the frame and always in place. They then move to the next hole and repeat the process, going back at leisure to place the cartridges and shoot them.

PUMP STARTS AND STOPS ITSELF.

[Written for PACIFIC RURAL PRESS.]

Some time ago we didn't find our farmer friend at home, but his tank was running over and making a mess near the house. H. T. Harrold, of Glenn county, has done away with this waste and nuisance and at the same time solved a large part of his labor problem.

His pumping is done by a 1½ h. p. motor, which keeps a 5,000 gallon tank supplied for use about the place at a cost of $2 per month. The tank house is a two-story building, well boarded up and lighted by windows. In the second story the hired men sleep—Swiss and Portuguese. In the lower story is a shower bath rigged up for the men, and gratefully used by them. With good accommodations, good men can be kept on the ranch. Danger of overflowing their quarters is eliminated by the automatic shut-off made possible by use of the motor. When the water gets up to a certain depth, the electricity is shut off, when it has been withdrawn to a certain depth, the juice is automatically switched on again and the tank filled to the shut-off point.

TYPE OF IRRIGATION PUMP.

Your correspondent is situated in a district where he can obtain some water for irrigation from a creek wash in the winter season, and some years he is able to get a crop of grain from that source alone. He can obtain an abundance of ground water at a depth of 85 to 100 feet, and wishes to install a pump and engine that uses cheap fuel oil. Lastly, he imposes the requirement that the pump shall be one that does not require constant or frequent repairs.

It will be wise to consider the proposition piecemeal. First, the ground water supply. The lift is more than pump irrigators like to negotiate, but under the conditions assumed, it is not prohibitive. [It is quite common in California.—Editors.]

But how does your correspondent know that there is "an abundance of ground water"? Over-confidence has brought many a rancher to grief. I have seen scores of sore disappointments in well-drilling operations. It is better to assume an uncertainty about the yield of the well until the well has been completed and tested. This attitude will restrain the rancher from investing in a pump and engine until he ascertains the size of the pump required and the consequent power needed for the engine.

It is presumable that a well will be drilled from 200 to 800 feet deep, depending on the depth to good water-bearing strata. Then, before the driller moves away from the well, a pump, second-hand, rented or borrowed, should be installed and connected up to the engine of the drilling rig. While a pumping test is being made, the draw-down of the water level in the well should be noted, as the yield is approximately proportional to the draw-down. If the well yields 300 gallons a minute with 8 feet draw-down, it will yield about 600 gallons with 16 feet draw-down.

Mr. Subscriber shows excellent judgment in emphasizing the importance of repairs. Repairs are costly and frequently a break-down results in the loss or partial loss of a crop. As a class, centrifugal pumps are much freer from troubles than are plunger pumps, and in my opinion the centrifugals having water balance are far preferable to those with ball or roller or other mechanical balance against downward thrust. For so great a lift as 100 feet, the pump should have two stages. Single-stage pumps that are especially well built can be operated on 100 foot lift, but the high speed makes lubrication difficult and is undesirable. Pumps with big bowl or casing are preferable to those with small bowl. They should be installed by a competent mechanic furnished by the factory. Pumps of the bucket or elevator type are not to be recommended.

Many scores of internal combustion engines are operating successfully on cheap fuel oils, that is, the low grade, unrefined distillates costing about 6 cents a gallon. My own experience and observation lead me to recommend oil engines of the 4-cycle electric ignition type. The combustion of the fuel oil is more perfect in the 4-cycle engines and there is much less carbon soot and deposits. The electric ignition is less costly to operate and less troublesome than the hot-ball type of ignition.

PROF. G. E. P. SMITH.

Ariz. Expt. Sta.

COMPUTING AUTO HORSE-POWER.

To the Editor: We recently saw in the newspaper that the way of figuring automobile horsepower had been changed. What is the proper way?—Subscriber.

[Answered by Osen-McFarland Auto Co., San Francisco.]

[Add the bore of the cylinder to the stroke of the piston (both in inches), multiply by the bore, then by the number of cylinders, then by the decimal .224. For example, our 1915 Mitchell car is 4x5½. The horse power is: 4x5½=9½x4=38x4 (cylinders) =152x.224=34.048= the horse power. The six cylinder car is 51 h. p.]

TRACTOR FOR IRRIGATION.

[Written for PACIFIC RURAL PRESS.]

A tractor is to be used to pump water and to make it more available to crops on the place of J. H. Ramm near Dinuba. He has a triplex pump in a 12-inch well 180 feet deep at the foot of his hillside farm. The tractor is to be hitched to it and furnish 1000 gallons per minute to the highest point on the place. Use of the tractor in plowing will lead to deeper better turning of the soil and finer pulverizing of the clods so that the water pumped at some expense, will be conserved in the soil till used by the crops.

FARM POWER BULLETIN.

To supply practical suggestions for teaching boys who are to be farmers the best and most economical methods for doing some of the more common mechanical work of the farm, the U. S. Dept. Agr. will shortly issue Farmers' Bulletin No. 638, elaborately illustrated. The first five exercises in the bulletin have to do with the use of rope on the farm and show the best way of tying knots and making hitches and splices used in hitching animals and in tying up farm produce. The next four exercises deal with hitching up horses, fitting collars and repairing harness. Four exercises on the handling of gas engines and repair of belting, deal effectively with the use of power. Later exercises have to do with

200,000 FEET CHEAP WATER PIPE

Just received several car loads of new and 2nd hand Water Pipe, Oil Well and Water Casing. In ½, ¾, 1, 1¼, 1½, 2, 3 inch and many other sizes. O. D. Casing 2, 3, 3½, 4 in. Riveted and surface irrigation pipe. Big Stock. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS.
2030 Bay Street,
Los Angeles, Cal.
Phones Brdy. 1264—F1917
(Under entirely new mngmt.)

Pull Out Stumps With the Famous Hercules!
Triple-Power

Pull an acre or more of stumps a day. Pull any stump in 5 minutes or less. Don't have loafer land when it's so easy and cheap to *pull the stumps out!* Make 100% profit by using the Hercules. $1281.00 the *first year* on 40 acres! $750.00 every year after. Let us *prove* it.

Low Price and Book Free!

Get the facts. Read our book. Tells what all steel, triple power means. Shows many features of the Hercules. Shows many photos and letters from owners. Postal will do.

HERCULES MFG. COMPANY
112 -23rd St. Centerville, Iowa

Now! These New Engine Prices

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Portable Engines Proportionately Low.

WITTE Engines
Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Standard the world over for 27 years. Better today than ever. Why pay double price for a good engine, or take a poor or doubtful one for any price, when the WITTE costs so little and saves all risk?

5-Year Guaranty
On Efficiency and Durability.

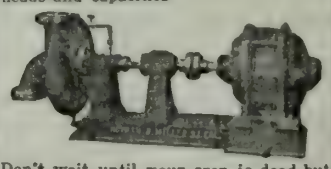
Direct from Factory to Users, for cash or on easy terms, at prices hitherto unheard of, for engines of these merits: Long-wearing, semi-steel, separable cylinders, and four-ring pistons; all vertical valves; automobile ignition; spark shift for easy starting; variable speed; and others, without which no engine can now be high-grade. I am simply sharing my manufacturing advantages with engine buyer-users—asking only one small factory profit.

New Book Free The most easy-to-understand engine book in the business. Gives the "inside" of engine *selling* as well as *manufacturing*. Shows my liberal selling plans with complete price list. Write me your full address for my prompt reply.

Ed. H. Witte, Witte Iron Wks. Co.
Oakland Ave., Kansas City, Mo.

CROP INSURANCE
PUMPS
MOTORS

Miller Horizontal Automatically Water Balanced Enclosed Runner Ring Oiling Direct Connected Pumps make ideal pumping units. Built and guaranteed for all heads and capacities



Don't wait until your crop is dead but write us NOW and ask for catalog and information blank. We are experts and our experience is at your command.

NORMAN B. MILLER CO.
SAN FRANCISCO, CAL.
503 MARKET STREET

Redwood Tanks

I sell to the consumer. Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Moulding, Wagon, Tanks, Spraying Tanks. Independent.

F. Wilson, Stockton, Calif.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO.
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

the practical study and repair of different kinds of field and farm machinery run by engine or horsepower.

There is also a series of exercises having to do with farm buildings, dealing with such things as concrete posts, feeding floors, hog houses, drop nests, gates, fencing, painting and whitewashing.

The bulletin closes with a series on farm surveying, terracing, irrigation, and drainage, and road dragging. The materials used is such as may be found on farms near the school houses, or such as can be readily constructed, from the working drawings and diagrams, by the teacher and pupils. It may be had free on application to the Division of Publications, Department of Agriculture, Washington, D. C.

BABY AUTOMOBILE.

A new small car, has been introduced to the motor-buying public, which is to sell at $340 in Los Angeles.

The fact that the car is powered by a four-cylinder, water-cooled motor of eight to twelve horsepower, and that the transmission is by sliding gear and shaft to a differential on the rear axle, has made it popular. The little car is not a cyclecar, but a small automobile. It weighs only 750 pounds, will run 40 miles on a gallon of gasoline, and will make from 10,000 to 12,000 miles on a set of tires.

TRACTOR SUBSOILER.

A San Jose firm has recently perfected a new and improved implement in the nature of a combined subsoiler and ditcher which is to be used in connection with traction engines. This firm has been experimenting with a subsoiler for some months and have tried out a number of tools until the implement they are now manufacturing is meeting with the greatest success.

The subsoilers are built exceptionally strong to stand the heaviest strain of a tractor, and will plow 24 inches deep and break up the ground two feet wide.

It is found valuable for putting new land in shape for the planting of trees and may also be used in preparing land for planting alfalfa. Much greater crops are produced on land that has been subsoiled.

A very important attachment to the subsoiler is a ditcher which may be attached to the subsoiler at will. By this means the farmer can irrigate in ditches and get the moisture down deep where it is needed, as the bottom of the ditch is subsoiled at the same time the ditch is being made.

AUTO ENGINE TOO FAST FOR PUMP.

To the Editor: Is it advisable to use an automobile engine for pumping purposes? If an automobile engine is removed from a discarded machine and is in good condition has it the same power as any other engine? Would a twelve horse-power automobile engine attached to a five inch pump do as good work as a regular engine of the same horsepower?—J. B. T., Ceres.

[Answered by C. McFarland of Osen-McFarland Co., San Francisco.]

[An automobile engine was not constructed for such work as running a pump, and it is not advisable to use it for that purpose; as automobile engines are the high speed type.

The pump and regular engine manufactured especially for pumping is made very slow speed, and a 12 h. p. engine of that type develops about as much power as a 40 h. p. automobile engine. The most practical engine for pumping is a Diesel, which burns distillate and requires practically no attention except to see that there is plenty of oil.]

GET OUT OF THE CITY.

To the Editor: We would like to touch on a subject that is dear to our heart and one that should appeal to every home-seeker in the United States. We feel that the thousands of people that are flocking to the large cities and wasting their lives living in tumble-down tenement houses, depending on a pitiable daily wage and the bread line, should be made to feel that there are thousands of acres of vacant tillable soil where they could go and make comfortable homes for themselves and families. We wish to be very careful as to the absolute reliability of every statement we make and our only endeavor in saying these few words is to call the attention of any honest homeseeker to the fact that better things await them if they will save up some money and get out of that old life of dirt, noise, poverty, and always a dread of the rent collector and the loss of a job. We feel that this project offers homes to hundreds of people with small means and those who will work, save, and are not quitters. Personally, we have no land to sell, but there is land to take up and buy all round us, and even though the buyer did not move on to it for a few years, it would be wise to buy while it is cheap, or take up a homestead. In connection with our merchandise business, I have been bringing new land under subjugation and have gone through all of the trying experiences of what all settlers go through in a new country. I can say that I am well pleased with the results. I say what I have said not with the expectation of making a cent, except inasmuch as it will bring in some good honest reliable homeseekers to settle up those thousands of idle acres and get people out of the slough of filth and hopelessness of sin-sick overcrowded cities.

F. A. BECKSTEAD.

Fallon, Nev.

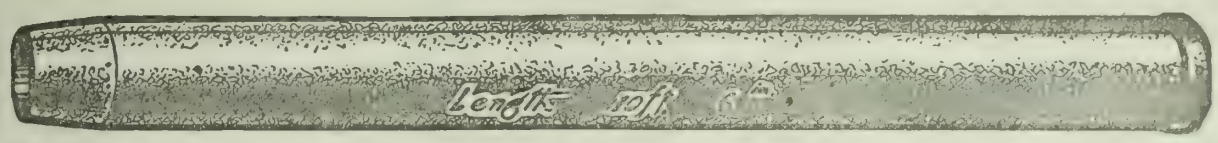
FRUIT GROWERS' SUPPLY COMPANY.

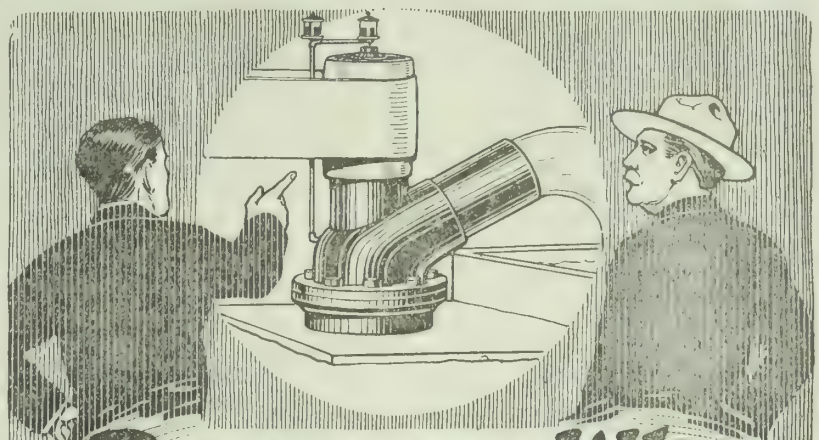
The members of the California Fruit Growers' Exchange have purchased $3,319,062.04 of supplies through the Fruit Growers' Supply Company including $2,022,482.64 of packing house supplies, including shook, paper, labels, wraps and sundry supplies; and $1,296,579.40 of orchard supplies, including fertilizers, insecticides and fungicides, heaters, oil and other sundry orchard supplies. The Supply Company operates at cost at an operating expense of 3-4 of 1 cent on each dollar of business transacted. The business of the Supply Company increased 51.7 per cent over the largest previous year.

The business of the Exchange has been conducted for the shipper with an estimated loss of $355, from all causes, or 1/542 of 1 per cent of the $19,246,757, returned to California during the year.

In young trees, prune for wood; when they have become standard size, renew only enough wood to keep up a supply of fruit buds as the older ones get feeble.

"BEST ON THE SURFACE OF THE EARTH"
"AMERICAN" SURFACE IRRIGATION PIPE
The pipe with the original double-locked turned seam — stronger — more durable — more convenient— more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character. In lengths 10 feet 6 inches.
Let our irrigation engineers solve your problems—FREE.
Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.
AMERICAN STEEL PIPE & TANK CO., 354-56 Pacific Electric Building LOS ANGELES
Branch: 1228 "H" St., Fresno.





Reasons Why-
You Should Install the
LAYNE & BOWLER PUMP
THE ideal pump you want must meet the conditions of your well perfectly. It must develop water at the very lowest cost and with the absence of pump troubles. Furthermore, it must continue giving this high standard of service year in and year out. You cannot go amiss by installing the Layne & Bowler Pump. It has more than demonstrated its efficiency, durability and economy.
Prepare now for the irrigation season. Write for our Free Catalog No. 25 It gives full details.
Layne & Bowler Corporation
909-910 Santa Fe Ave. LOS ANGELES

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the west.
WEISSBAUM PIPE WORKS,
160 Eleventh St., San Francisco

Agricultural Review

CITRUS FRUITS.

Sixteen dozen seedless limes from Colusa county will be exhibited at San Francisco.

The well known Overholser orange grove of Thermalito has been sold to a San Francisco man, who will shortly move there to live.

A parcels post shipment of navel oranges was sent recently from Placer county to India at the rate of 12½c per pound. It will be about two months on the way.

The National Orange Show to be held at San Bernardino is to include a packing plant and a demonstration of the icing and precooling of fruit for the eastern markets.

Navel orange picking is well under way in Orange county. The fruit has been tested by the Government men and shows up first class and with good sugar content.

The total of about 5000 cars of oranges shipped from the San Joaquin valley this season is about 800 more than the number shipped last year, and the prices have been higher.

The office of the government men who have been further investigating details of the maturity test for oranges, at Porterville, is to be removed to Los Angeles. Fruit from all over the State will be received there for test.

The Stewart Fruit Co. has obtained the concession to sell all citrus fruits used on the Panama-Pacific Fair grounds. They will have a packing house on the grounds and ship the fruit in bulk to it. Souvenir packages will be put up and shipped by express to all parts of the United States for Fair visitors.

OLIVES AND NUTS.

A 50-acre olive orchard is to be planted near Pentz in Butte county by one grower this spring.

Two thousand acres of olives are to be planted by the American Investment Co. in Glenn county on their tract of 6000 acres.

An olive grower of the Corning section, having 80 trees, is said to have sold the crop for over $761. He never saw an olive tree until last July.

A 100-acre orchard of walnuts is being prepared for planting in Sutter county. This follows the success of a number of small plantings in that section.

A. E. Davis of Sutter county believes that olives need only one irrigation just before the fruit ripens, in order to give the olives size, plumpness, and color.

The Selma plant of Libby, McNeill, & Libby has been putting up local olive pickles, and is this winter putting in the addition to the equipment for this purpose and also a crushing plant for olive oil.

The Anaheim Walnut Growers' Association has put in over $6000 worth of new equipment during the past season. A peculiar situation has developed in that the annual meetings are fixed for January, which is before the returns are in for the crop, and a quorum can never be obtained to do legal business. They want to change the by-laws to have the meetings in April, and the only way they can do it is to circulate a petition instead of trying to hold a meeting.

H. Zander of the California Walnut Growers' Association reports that only one-sixth of the California crop remains yet to be disposed of. He estimates that the total sales will amount to one million and a half dollars. The nuts this year have been extremely high in quality and the market has responded well. The demand has also been helped by the advertising of this association and by their packing two-pound sacks to be sent direct to the consumers, especially for the holidays.

DECIDUOUS FRUITS.

Over 50,000 fruit trees were sold in one week by one firm in Hanford. This includes mostly French prunes and cling peaches.

Several fruit growers of Sutter county are planning to use Chinese seedling peach roots secured from the Experiment Station as stock for peach orchards on their alkali lands.

A co-operative cannery near Kingsburg is planned if capital can be raised. Sufficient acreage of peaches seems assured if the money can be raised.

The California Fruit Distributors recently met and elected directors and officers. F. B. McKevitt was re-elected President and C. E. Virden, General Manager.

A nursery company of Colusa county is shipping an order of 60,000 Bartlett pears. About this much of deciduous trees and one-half this much of citrus trees will be planted on its own lands in that county.

The Manteca Canning Co. has recently incorporated, with 50 shares at a par value of $100. They expect to begin the season in May with peas and beans, to continue through the fruit season, and end with tomatoes.

The bill for standardizing apple packs was recently discussed in the State Horticultural Commissioner's office; but was not definitely recommended owing to the decision to await further word from the Sonoma county growers.

The Tulare Co-operative Creamery and Co-operative Poultry Associations have worked so well that there is now on foot a movement in the same section to organize a co-operative canning company to buy out the present owners of the local cannery, who offer to sell their stock at 50 per cent of the par value. This cannery spent over $18,000 in wages during the last two seasons, beside the money paid for fruit.

Last spring the Rural Press devoted a front page to the Placer Fruit Growers' Co-operative Cannery, which began operations with the last crop. At a meeting of their stockholders recently, the financial statement showed 41 per cent profits on all the money invested. They ran forty days last season, packing 800,000 cans, most of which is all sold. They claim that not a can of their fruit has spoiled.

GRAPES.

The Sutter county raisin growers, who recently met and signed contracts with the Associated Raisin Company of Fresno, took a long step in advance toward putting the growers of the State into full control of raisin marketing.

Almeria grapes from Spain have heretofore been seriously hurting sales of the California fruit; but it seems now that the tables have been turned, for the California grapes packed in sawdust have shown up far superior to the foreign grapes and are taking the markets.

At a recent meeting of the Green Fruit Association of Fresno it was decided that the past season's voluntary standardizing rule was very profitable and that it should be made into a law for the whole state. A meeting of growers was held two days later in the State Horticultural Commissioner's office, where it was agreed that a bill should be drawn requiring 17 per cent sugar for all shipping grapes, except Emperors, which seem sweet enough at 16 per cent.

GRAIN AND FIELD CROPS.

The wheat acreage in Stanislaus county is estimated to be treble this year and the acreage throughout the whole San Joaquin valley is probably increased by 15 per cent.

Out of 300,000 sacks of barley held in the Colusa warehouses after the harvest last season all but 35,000 have been shiped out to the seaports, and it is expected that the rest will go before harvest this year.

Colusa county recently shipped 7500 sacks of rice in one shipment to Sacramento by rail and 4500 by steamer. Moving pictures were taken of the loading process to be shown at the World's Fair.

A Chico grain firm, which has been out buying large quantities of barley in the Sacramento valley, recently bought 16,000 sacks from one grower in Tehama county. This company has purchased over $100,000 worth in the past month.

The rhubarb growers of Alameda county have been increasing their acreage and will market their product as usual through the Rhubarb

Maxwell's Nurseries, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

Landscape Gardening a Specialty
Immense stock of
ORNAMENTAL SHRUBS, TREES AND PLANTS,
including
75 Native Californian Species.
also
FRUIT, NUT TREES, ETC.
Pedigreed French Prunes.

LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

7% FARM MORTGAGES
"Safety First"

$1000 Wanted for 3 years—7% semi-annually—20 acres in alfalfa, pumping plant and buildings alone worth over $1500—Conservative valuation $4000.

$2300 Wanted for 3 years at 7% semi-annually. 25 acres in alfalfa and 5 acres in orchard; pumping plant and good buildings, owned by German farmer; conservative valuation, $6250

$3200 Wanted for 3 years at 7% semi-annually on 40 acres alfalfa; pumping plant; good improvements, conservative valuation, $7500.

Other gilt-edged loans in larger and smaller amounts—Send for list.

On request, will furnish bank appraisement of any of our loans

CALIFORNIA BOND AND MORTGAGE COMPANY.
595 Market Street,
San Francisco, Cal.

California Native Plants
Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.
THEODORE PAYNE,
345 Main St., Los Angeles, Cal.

AGRICULTURAL LIME
HIGH GRADE MANURE
H. B. Matthews, 1623 La Loma Ave., Bkly, Cal.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

Morse's
Garden Guide for 1915 is just off the press. It's a book every one should have.
Mailed Free

C.C. MORSE & CO.
GARDEN-FIELD AND FARM **SEEDS**
749 FRONT ST. SAN FRANCISCO

Morse's Seeds
both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

Growers' Association, which controls about 90 per cent of the acreage.

The drainage of the rice lands in Butte county, which was pointed out in the Pacific Rural Press as being absolutely necessary for the continuation of the industry, is being pushed quietly there and will probably show up soon in the organization of a drainage district for the whole section.

Congressman Hayes from Santa Clara county has written the San Jose Chamber of Commerce saying that he has a large number of packages of Sudan grass seed, Milo seed and some Peruvian alfalfa for free distribution to those of his constituents who will drop a card asking it.

MISCELLANEOUS NOTES.

A mountain road, which cost $150,000, has been recently presented to Tulare county by the San Joaquin Light and Power Co.

The naming of country roads is being pushed by the rural residents of Stanislaus, and the County Board of Trade is working out plans for it.

The Tulare County Good Roads Association recently recommended that the County Supervisors appropriate $150,000 annually for the construction of permanent roads.

A 15-acre farm in Sonoma county has been sold to a local man for $11,500. The land itself brought $9,000, since the improvements are worth the difference.

A bill authorizing farmers to form themselves into rural credit unions, which can issue bonds upon the collective value of their lands, has been introduced in the Legislature.

A commission to issue public bulletins on market conditions and to bring buyers and purchasers together is provided for in a bill introduced into the Legislature.

The conversion of farm mortgages into bonds made payable to the State at 7 per cent interest, with sufficient payments of the principal to clear the debt in thirty years, is involved in a bill before the Legislature.

Licorice has been growing on a few ranches in Sutter county during the past year and seems to be yielding good profits, especially since importations have been cut off by the war.

While the output and profits for the fruit industry of California in 1914 showed an increase of about 21 per cent over 1913, the increase of the California Fruit Exchange is reported about 40 per cent.

Two new local associations were recently added to the California Fruit Exchange; one the Placer County Mountain Fruit Company and the other the recently organized Placerville Fruit Growers' Association of Eldorado county.

Stanislaus county has signed up 12 branches of a County Farm Bureau with a membership of 565, so that they are now assured a Farm Adviser as soon as they get 135 more members. They expect to organize four more units.

The next Fruit Growers' Convention of California will be held the last week of July in Stanford University. The proximity of the Fair, the attractions of the University and the nearness of the Santa Clara valley orchards are likely to make this the most largely attended convention recently held. An especially strong program is being arranged.

That cornstalks are an excellent substitute for wood pulp in the making of paper has been shown by recent experiments of the U. S. Department of Agriculture, so that now a number of paper mills are considering its use. They will cost much less and will provide a neat income from what is usually more or less wasted on the farm.

Distribution of California state lands to settlers on twenty-year payments is being endorsed by certain people in the southern part of the State. Such a plan would seem very desirable, especially in a time of unemployment such as the present, for now it is that people are thinking about the steady job that the farmer has.

The Farmers' Protective League, which was organized last summer to fight the 8-hour proposition, is extending itself in order to take care of the initiative and referendum propositions which are likely to arise at the end of the present session of the Legislature. They are making an active canvass for members and hope to be able to put up a strong combination in the farmers' interests, in favor of whatever laws seem desirable and against the others.

The farmers in the vicinity of Chico have been consulting with the merchants of that city for some months in an effort to get local markets for their products and also to save the freight which merchants have been paying by buying their supplies in San Francisco. An agent recently sent to investigate co-operative marketing has come back recommending that the farmers should organize an association to sell their products on the wholesale commission basis, thus giving the merchants assurance of a dependable supply.

RABBIT BREEDS AND FEEDS.

To the Editor: How many Belgian hare bucks are required for 25 does. What will cure slobbers. Are Flemish Giants better than Belgians?—John.

[Answered by Mrs. B. H. Gilkey, Santa Rosa.]

[The number of bucks required for twenty-five does depends upon the judgment of the owner, and the age before breeding.

A buck properly handled should not serve more than one doe a day and then be allowed complete rest for a week or so after breeding about a dozen. One should use discretion in breeding so as to not waste the energy of the male. I should think two good strong males would be sufficient provided an accurate record be kept and given plenty of grain. Remember the buck is half of your flock.

Slobbers in rabbits is acute indigestion and will prove fatal if prompt measures are not taken to relieve the condition, cabbage or decayed vegetables being nearly always the cause. Give one teaspoonful of muriatic acid to the gallon of water in granite or crockery drinking vessel. Caution must be used in giving the acid. Always use a glass measure for the acid and if not possessing one, a teaspoonful of water to a common tumbler will serve as guide, for the approximate quantity of muriatic acid. It is well to give all the flock a drink of this sort once in a while as a preventive measure.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

LUITWIELER DEEP WELL PUMPS

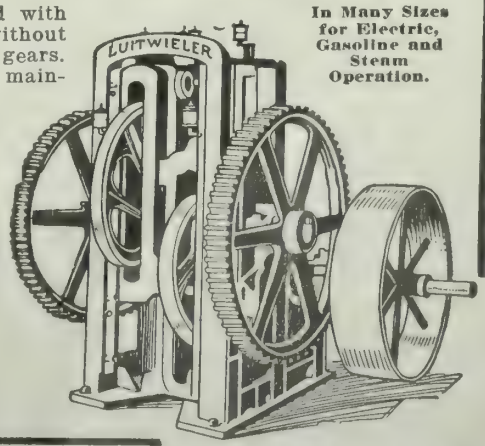
WITH MECHANICAL FORCE FEED LUBRICATING SYSTEM.
Meet Every Condition Perfectly—Show Greatest Efficiency.

The water is discharged with perfect uniform flow, without vibration or back lash on gears. A perfect balance is maintained, eliminating pump troubles and lowering the cost of producing water to the minimum. **Luitwieler Pumps** will lift 1000 gallons of water 100 feet high for ½ cent.

Write for our New Catalog No 12.

LUITWIELER PUMPING ENG. CO.
713 N. Main St., Los Angeles,

San Francisco Agents:
SIMONDS MACHINERY CO.
117 New Montgomery St.



In Many Sizes for Electric, Gasoline and Steam Operation.

FREE 1915 SEED CATALOG

OF INTEREST TO EVERY RANCHER
1,000 QUESTIONS ANSWERED
200-page, handsome illustrated seed catalog. Surpasses all previous editions. Complete listing of seeds. Poultry Hints. Valuable to ranchers. Write for it.

AGGELER & MUSSER SEED COMPANY
6th AND ALAMEDA STS. LOS ANGELES, CAL.

Purebred Sheep on Fifty Acres.

[Written for PACIFIC RURAL PRESS.]

With 50 acres of land, part of which is suitable for alfalfa, and 150 purebred Shopshire ewes a man can be assured of a good income according to P. A. Harrigan of Sutter county, and at the start, it should be said that this isn't mere theory, for he has made $2,000 a year, regularly for the past five years in that way.

Before establishing his present flock, Mr. Harrigan ran a moderate sized one on the ranges; but the ever decreasing supply of range land finally forced him onto the smaller ranch, with a correspondingly smaller flock, but the results have been so satisfactory that he told the writter "no more of the range game for mine."

Without the years of experience on the ranges, however, the ultimate results might have been different, for he had the advantage over an ordinary California farmer of knowing a good sheep when he saw it, and further, he knew how to breed them and care for them afterwards.

With that knowledge he laid his foundation by securing 76 head of purebred Shropshire ewes, which number has gradually been increased by careful selection of lambs to 150 ewes. Although there have been as many as 200 ewes in the flock at times, Mr. Harrigan says that 150 are sufficient for his 50 acre ranch, and the amount which he will figure on in future years.

The land in his ranch is sub-irrigated, 5 acres being seeded to alfalfa, and the balance affording wild grass pasture. The fields were made moderately small by cross fencing, the largest one being 20 acres and the others 10 acres each.

Perpetual Pasture.—This system allows a continual supply of green pasture in both winter and summer and also provides ample facilities for dividing the flock into small bands during breeding and lambing seasons.

Naturally the alfalfa furnishes the major portion of the feed, the practice being to cut about 60 tons of hay each year which is stored in the barn for use in the winter when the weather is bad, and the balance as well as the wild grass pasture is pastured off.

The chief difficulty experienced so far with this system of feeding is the loss through bloat, when the sheep are pastured extensively on the alfalfa, and while Mr. Harrigan has tried various ways of overcoming this obstacle he has so far been unsuccessful in his attempts. Either soiling or siloing would prevent this bloat with sheep as with cattle, but that, he believes, would be more expensive than the results would warrant.

Due to the fact that it has been hard to get the bucks to breed, early, lambing does not start until about the first of January, at which time the ewes are put into separate bands, the drop bands, or those who are expected to lamb in a short time being in one pasture, those that have lambed in another and those who are not expected to lamb for some time in another.

The barn, which is of the gable type, with hay loft in the center and ample space on either side for wagon shed and horse stable, has been converted into a lambing barn, or at least that part of it which would ordinarily be used for the wagon shed. This has been made possible by building a low manger 12 inches high along the outside wall and making stalls with panels four feet high and six feet long, out of one-by-three lumber. These stalls are five feet wide and when in use are enclosed at the rear with a panel four feet high and five feet long.

Each night during lambing season those ewes which appear to be near parturition are taken from the drop bands and put inside of the barn in the pens. By carefully watching the flock for those ewes having large bags and whose general appearance indicates an early birth very few ewes drop their lambs in pasture and in this way the percentage of lambs raised is considerably higher than it would otherwise be, one year Mr. Harrigan having raised 135 per cent of his lambs.

For the first four or five days after lambing the ewes and their young are kept in the barn and in cases of extremely bad weather this time is lengthened, but in the main it is possible to put them into the lamb field after that time, where they are kept until the lambs are able to care for themselves with the older flocks. Before turning out however, they are marked for future identification. In some instances the ewes are unable to care for their young due to the fact that they have poor bags, and unless these lambs can be put with another ewe who has lambed at about the same time and who did not have twins they usually die and it should be said that with the exception of such lambs and those dropped by young ewes who often have difficulty in parturition the loss of lambs is exceptionally small.

During the winter and spring months the ewes as well as the lambs are fed alfalfa hay in racks, which are placed near the barn in nice weather and inside during rains. These racks are made about 30 inches high, with straight sides made of 1x12 boards, which run along the bottom and a 1x6, which runs along the top. This allows of a space nine inches high running from end to end through which the sheep are able to eat of the hay at their will. Mr. Harrigan has found that there is very little waste in such a feeding rack and with the ground as a floor their cost is of minor importance.

In selecting his breeding ewes much care is exercised for not all ewe lambs are good enough for breeding, although they are all purebreds, and even when a ewe comes up to the requirements in individual conformation it sometimes happens that they are not good breeders or good mothers, in which case they are sold to the butcher. It is therefore impossible to decide upon a ewe till after her first lambing season, but when a ewe proves herself a good breeder and mother as well as a good individual she is kept in the band till her bag becomes bad or she fails to breed. An advantage of the small farm for sheep is demonstrated in regard to the length of time a ewe may be bred however, as it is possible to keep ewes long after they have lost their teeth, due to the green succulent feed which is at all times available. Mr. Harrigan, for instance, has one ewe which had just dropped a nice lamb at the time of our visit that was 12 years old and which would have undoubtedly died if she had been dependent on the dry ranges the past season.

After selection has been made for ewe lambs, those for the breeding flock are bred to lamb at a year old. This is considered young by most and Mr. Harrigan believes that it would be better to have them drop their young at an older age, but in view of the fact that he has been called upon each year to supply more bucks than he could raise he has been forced to practice early breeding.

All of the early winter and spring bucks are sold in August to be used in the fall on the range, and while many consider that an early age for bucks also, Parker Whitney of Placer county, who has annually made heavy purchases of the bucks from this flock states that he has had as large a percentage of lambs from these young bucks as he ever secured from older ones.

To aid in building up the quality of the flock as well as to guard against inbreeding, new bucks are purchased each year, three being used on the 150 ewes. In purchasing these bucks purebreds have been considered, both the T. S. Glide and Bishop brothers flocks having been patronized in the past. While these bucks as well as all of the ewes are entitled to registration, and do in fact carry registration papers in most instances, the young lambs are not registered as the range trade does not demand it.

Besides the pleasure he gets from raising the better bred sheep Mr. Harrigan realizes additional financial returns, his buck lambs selling for about twice the market price for breeding purposes; and the fact that the demand has been far in excess of his supply each year since his flock was established is proof of his future success and for that matter the future success of any breeder of purebred sheep on the small alfalfa ranch, who already has or can secure by experience a knowledge of sheep breeding, feeding and care.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

GRANDSONS OF TILLY ALCARTRA
At Prices Within Reach of Every Breeder and Dairyman.

A GRANDSON OF TILLY ALCARTRA.
We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year.. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write
J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

2-YR. OLD SHIRE STALLION
FOR SALE
SEVERN DONALD 13957 by Severn Pilot 11587
DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399
This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1900. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.
For further particulars write
J. McCORMACK, Rio Vista, California

Ask Your Dealer For
EL DORADO COCOANUT OIL CAKE
for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address
EL DORADO OIL WORKS,
149 California Street, San Francisco

60 HEAD— POLAND CHINA PIGS FOR SALE —60 HEAD
Both Large and Medium Type
Ready for Delivery January 15. Ten weeks to three months old. Prices reasonable and will guarantee to please or refund your money.
W. A. YOUNG, LODI, CALIF.

Farrowing Pens and Feed.

To the Editor: I have about 150 sows and about 320 acres of alfalfa for them to run on. I would like to get the address of some one who has a model hog ranch who would be willing to give me the best method of arranging pens, etc.

At present I have an arrangement of panel pens with shelter roof of straw. I find that this is not sufficient; that the pens soon become saturated with water and it is impossible to take care of them properly. If I should make pens of hog wire about 100 feet square with a little house for each sow, it would cost a small fortune.

Therefore, I should think a house about 20x72 feet with good floors and roof divided into pens about 6x8 with a 4 foot aisle down the middle would be a good arrangement. This would accommodate 24 sows. Even this for 150 sows would be expensive, but as they would not all farrow at the same time it probably would not be necessary to have more than four houses. The sows would not have to be shut up like this for more than 6 to 8 weeks, when they could be turned out on the alfalfa. Will you kindly tell me what you think of this arrangement or put me in touch with some one who has had the necessary experience.

Also kindly tell me what amount of barley should be fed little pigs while sucking and also after weaning. I have read all I can find, but each table seems to give the relative proportions as regards the whole ration, but does not state in pounds or quarts each particular item. At present I have plenty of alfalfa, and alfalfa hay and expect soon to have some cows, so as to have skim milk. Will pigs do fairly well on rolled barley and alfalfa and alfalfa hay.—C. D. B., Lemoore.

[Answered by Prof. J. I. Thompson, University Farm, Davis.]

[It is rather hard to find hog ranches with modern, model equipment. One of the newer ones that might help you some is that of Mr. Frederick T. Knewing, whose address is Mills Building, San Francisco, and whose ranch is located four miles north of Napa. Perhaps you might get some ideas that might help you if you paid a visit to the University Farm here at Davis. You might also write to the U. S. Department of Agriculture, Washington, D. C., asking them for Bulletin No. 438 on hog houses. Some of the models described in this bulletin would be quite suitable for California, except that they would not need to be built so warm. Any hog house, however, should be entirely free from drafts, for many pigs are liable to be lost from pneumonia.

The plan that you suggest is quite a common one, though I think your pens should be 7x8, and for large sows 8x10, rather than 6x8.

The sows would not necessarily be kept in these pens except until the pigs are at least two weeks old. After that they could be allowed to run in pasture together, provided not too many are put together.

It is almost impossible to give you the amount of barley to be fed to little pigs while suckling and immediately after weaning. They will eat approximately 6 per cent of their live weight, but probably a better plan is to feed them what they will clean up readily in fifteen or twenty minutes of feeding three times a day until they weigh 75 pounds, after which feeding twice per day will be satisfactory. As they get older, the percentage of their live weight that they can consume will decrease until at 300 pounds, a hog will ordinarily not eat over 2½ per cent of its live weight.

Pigs will do fairly well on rolled barley soaked for 12 hours, and alfalfa pasture, but you will probably not get very desirable results in feeding alfalfa hay to growing pigs. They can eat a small amount, but it is too bulky for them. Brood sows can often consume 1 pound of alfalfa hay for each 3 pounds of grain, but this ration would be too bulky for growing pigs.]

HOME DEMAND FOR HORSES.

To the Editor: The war in Europe has already had a profound influence upon American breeding conditions. The first and most noticeable effect has been to divert the purchases formerly made in Europe into the breeding districts in this country. Importers and dealers who have formerly made extensive purchases abroad are now familiarizing themselves with the location and character of the breeding districts in the United States.

The immediate result of this has been a widespread and urgent demand for a list of our members arranged by states and counties, which will enable intending purchasers to locate readily the Percheron breeders in sections where it is desired to make purchasers. Such a list of members has been prepared, mailed to all members of the Percheron Society of America, and will be mailed on request to all prospective purchasers.

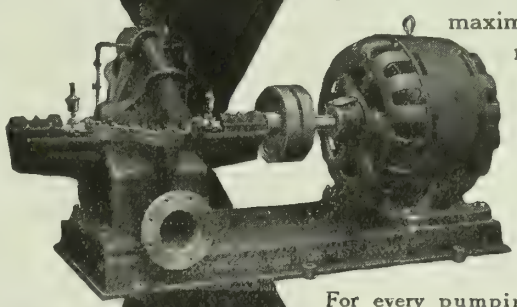
WAYNE DINSMORE, Sec'y,
Percheron Society of America.

A DAIRY TENANT PROBLEM.

To the Editor: I am arranging to lease an alfalfa ranch on shares and am furnishing my tenant with dairy stock, buildings, and the necessary equipment such as cans, seperators, etc. Tenant is to do all work on the place, furnishing his own wagons, horses and agricultural implements. We wish to draw up a lease on the customary basis of California. We expect to divide the cream check half and half, but are uncertain as to the customary division of the increase. Can you advise me regarding this point?—G. F. M., Merced.

[So far as we know there are no hard and fast rules in such such cases, it being a matter which varies under different conditions and with different individuals. In a general way we should say that if you stock the ranch to its capacity, the tenant should raise to weaning age 10 per cent of the calves, which would keep up the stock in future years. These we believe should be taken care of after weaning by yourself, as it is to your interest that the producing powers of the herd be kept up. All other calves would go to the tenant with the understanding that they were not to be kept on the ranch after weaning, as that would lower the cream checks through a smaller amount of feed for the milk cows. The same provision should be made with the hogs, if any are raised by the tenant; that is, he should not be allowed to run them on pasture or feed from feed grown on the ranch which could otherwise be turned into butterfat through the cows. We would also suggest that a provision be made in the contract which would specify the number of horses which are to be kept by the tenant for the same reasons as above given. You will understand that these are only suggestions and may not apply to your requirements.—Editors.]

"Jackson MADE"



The fidelity and regularity with which a "Jackson Made" pump does its work is almost human—no attention is needed—it simply goes on pump, pump, pumping—hour after hour delivering the maximum amount at the minimum expense.

Tell us your pumping problems and our expert engineers will gladly help you free of cost.

For every pumping condition there is a "Jackson Made," which, in satisfactory results, absence of repairs and costly upkeep, excels every other make.

Write for Catalog No. 47G

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED FARMS

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

With the Live Stock Men

DAIRYING.

Tulare creameries increased their total payment for cream in spite of the lowering in price.

Fresno county creamery checks amounted to about $80,000 for December.

A. L. Barlow of the Los Angeles Health Department has recently undertaken dairy inspection for Orange county.

J. Jacobs of Atwater claims to have a grade Jersey-Holstein cow whose milk tested 9.75 per cent at the local creamery and practically the same at the State University.

Colusa dairymen are figuring on the organization of a cow testing association. It will be a means of producing better products and more of them per cow kept.

The Kings county creamery checks were reduced somewhat by the lowering in price, due to the early starting of feed. The monthly checks totaled $135,000.

Woodland dairymen recently met with the Farm Adviser to formulate a plan to market their products in a better manner. An adjourned meeting was called for the evening of January 23 for further discussion.

A. W. Morris has gone East for a six weeks' trip. He will inspect several Iowa dairy farms, inclu 'ing the one of McKay Bros. at Waterloo, where he purchased Tilly Alcartra five years ago.

Alfalfa is a large factor in the proposed organization of a farmers' creamery near Ripon. The stock is to be held by the owners of the farm, however many times the ownership may change.

A bill has been presented to the Legislature giving dairy inspectors much more power to enforce sanitary conditions where milk is produced. It provides for additional restrictions and the means of prosecuting delinquents.

W. H. Smith of Hanford purchased at the consignment sale there last October, a half sister to the cow which is said to have won grand championships at the Illinois and Wisconsin State Fairs and the National Dairy Show.

An interesting case of cream grading is noted at the Central Creamery of Lemoore and Riverdale, where 31¼c has been paid for butter fat in sour cream and 38¼c in sweet cream. At the same time a Los Angeles creamery was paying 34c without grading.

The Gridley Cow Testing Association has been running some time and has proved so desirable in getting rid of poor producers that the Chico dairymen are waxing enthusiastic over the organization of a similar association to include all dairymen from Durham north to the county line. This will take in over 1000 cows now.

N. H. Locke of Lockeford reports the sale to W. H. McKittrick of Bakersfield of Golden Adelaide's Fox of L. No. 124,954, carrying the blood of Champion Flying Fox. Also Leda's Golden Laddie of L. No. 107,-505 carrying the blood of Boullo's Golden Laddie which won first prize in California and Nevada and grand championship in Arizona. Mr. Locke started 15 test cows in October.

The Churchill, Nevada, Creamery handled over 15,000 pounds of butter fat during December, paying an average of 30c per pound. About 300 farmers of the Truckee-Carson Project were recently put on the subscription list of a dairy paper by the Churchill County Creamery in order to improve the quality and the amount of their products. This would be a commendable idea for anyone interested in improving California conditions.

BEEF CATTLE.

The Whitehall Estate has a purebred Angus bull coming from Iowa.

Landis Bros. of Folsom recently received a shipment of Shorthorn bulls from the East. They were taken to the State Fair grounds.

Wackman Bros. of Elk Grove recently went out of the dairy business to undertake beef feeding, due to the international shortage of meat.

Joe Tognoni of Elko, Nevada, recently bought five purebred Short-Horn bulls coming two years old from W. C. Short of Reno at $200 per head.

Frank Crane of Merced recently bought 500 Arizona cattle to feed on his 10,000 acre range. He and his brother returned to Arizona to buy two more trainloads.

Wackman Bros. of Elk Grove recently bought 263 Arizona cattle, to be fed and fattened on their range in addition to over 300 tons of hay, which they have held on account of low prices.

Three times Grand Champion Steer at the State Fair, "Thickset Lad," of the University Farm has been beefed. He weighed 1760 pounds and sold for 15c per pound. He had been fed on alfalfa and grain.

D. O. Lively of the Livestock Department of the Panama Pacific International Exposition recently announced that beef cattle also would be held at Petaluma preceding their exhibit at the Fair if there proves to be enough room. We noted last week that the dairy cows for the Exposition would be conditioned at Petaluma.

SHEEP.

Andrew McInnes of Redding recently bought 2200 young ewes from Antone Avilla of Red Bluff at $7 per head. He also bought some from Frank Hendriques at $6.25 and is out to buy 2000 more. These have been bred for early spring lambing.

The entrances to Stockton, by which sheep may have been previously driven to the water front, are now within the city limits and residents along these streets are complaining of the dust which is raised by the continual passing of sheep. How to get these live animals to the Stockton landings is somewhat of a problem.

SWINE.

Joe Tognoni of Elko, Nevada, recently bought a purebred Berkshire boar from the Nevada University.

State control of all hog cholera serum laboratories, to prevent all shipments of insanitary serum is provided in a bill to be presented to the Legislature. Interstate shipments are regulated by the government.

J. M. Bomberger of Salida has been feeding skimmed milk to hogs. We quote some of his deductions as published in the Manteca paper:

"1. Fed alone to stunted pigs skim milk will pay even less than 5c per hundred.

"2. Fed alone to pigs or hogs in muddy pens without shelter it is often a practical waste of the skim milk.

"3. When fed alone to hogs otherwise well cared for it will pay 25c per hundred.

"4. When fed in combination with barley or other grain, skim milk may return 30c to 35c per hundred.

"5. When fed in combination with molasses will return 40c to 50c per hundred.

"6. When fed in combination with pumpkins, watermelons, or waste fruit may return 20c to 40c per hundred.

"7. When fed in combination with other suitable foods to registered hogs well cared for may return 50c to 75c per hundred.

"This data is valuable to the dairyman who has hogs as a by-product and can be relied upon, all conditions being proper."

HORSES.

A New York company has contracted to furnish the French government with 75,000 horses at the rate of 500 per week. These will be purchased in the various states as best they can; California being allotted about 2000 for a starter. This company recently purchased 104 animals at Los Banos; about $3000 worth at Woodland; a large number in Lassen county and Klamath Falls. They examine the horses very carefully and reject most of those brought in.

The purchase of horses for the European war is the biggest thing in the big valley horse market at present. Jas. T. Ragsdale of Merced has been in Madera, Hanford, and Merced, as well as other points in the San Joaquin valley, looking for several thousand horses for cavalry, pack animals, wagon trains and artillery. They should not be less than 1100 or more than 1500 pounds; not over ten years or under five and should be of some of the dark colors. It is said that the average life of the horses in the European war is only three weeks.

MISCELLANEOUS.

At the Chicago Stock Yards during the past year over 16,000,000 animals are reported to have been sold for over $400,000,000.

The Sequoia National Forest is to be opened for the grazing of 30,-000 cattle; 3,000 swine; 11,000 sheep and goats through 1915. For the full year's grazing, the charge will be 72c for cattle; 90c for horses; 43c for hogs; 18c for sheep and goats. Applicants must have their applications of file with A. B. Patterson of Hot Springs by Feb. 10, after which date the grazing privileges will be allotted.

IMPACTION IN HORSES.

This is the time of the year when impaction of the bowels is most common. The horses having little to do are turned out to an old straw stack or coarse alfalfa and allowed to shift for themselves. Owing to the cold weather, they drink little water and the coarse food not being properly moistened clogs the intestines. This is more liable to be the case if the teeth are not in first-class condition, for then the food is not finely ground in the mouth. Looking after the teeth and giving an occasional bran mash will materially reduce impactions.

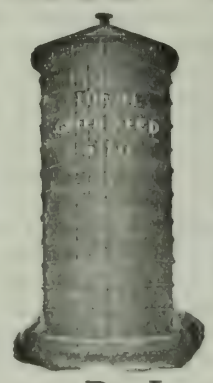
Col. Agr. Col. DR. I. E. NEWSOM.

BLOATED RABBITS.

To the Editor: Some of my 6-weeks Flemish Giant rabbits are bloating. Have been feeding alfalfa and rolled barley with plenty of fresh drinking water. Have also been feeding a little green barley. Do you think the disease is catching?—L. O. R., San Dimas.

[It is catching if you don't reduce the alfalfa and either substitute other greens or dry feed. The bunnies are probably dead now, on account of the alfalfa and water.—Editors.]

Ideal Green Feed Silo



Orders for **IDEAL GREEN FEED SILOS** for spring delivery have come in so fast the past few weeks that it looks as if those who get their orders in late were going to have to wait.

Don't delay too long in sending in **YOUR ORDER.**

You should have your **IDEAL GREEN FEED SILO** completed at least two weeks before that first cutting of alfalfa is ready to put into it

Write for Special Silo Circular B.

De Laval Dairy Supply Company

SAN FRANCISCO, SEATTLE.

Everything for the Dairy.

---delighted!

You will be delighted with

The Commercial Engine

Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.

2416 PORTER ST., Los Angeles

Branch, 1228 "H" St., Fresno.

Veterinary Queries and Replies

[Answered by Dr. H. B. Wintringham, Petaluma, Graduate of San Francisco Veterinary College.]

SHEEP DIE—NASAL DISCHARGE.

To the Editor: We have a few sheep which have been running in a small pasture all summer and fall. We kept water for them in a trough, but they seemed to prefer to drink from the canal or low place in lot. Two have died and one is sick; each seems to take its turn, a week or two intervening between. When we found the first one it was lying as though dead and had no strength or power to lift its head, though it could move its legs freely. As they are exposed to the rain and cold with but slight protection, we moved it to the barn, where it slowly died. It ate some but had no desire to drink. There seemed to be a sort of moving inside, which is hard to explain, a sort of rumble of gas, or something. By the way, the grass in lot is a sort of mixed growth, but no alfalfa. The second one was beyond recall. It was running at the nostrils badly and finally began to bleed at nostrils. It also had the rumble, or groaning, or passing of gas, etc., like the former. We killed it, and now comes this one with the same, or about the same symptoms, and all we can do seems to avail nothing.—W. H. B. C., Atwater.

[From the symptoms given, your sheep probably have verminous bronchitis. However, the diagnosis had better be backed up by a graduate veterinarian. If worms or ova are found in the nasal discharge the diagnosis will be positive. Remove all sheep to fresh pasture and allow them water from a clean trough only. The trough should be emptied and disinfected daily with a 5 per cent creolin solution. All animals should receive an injection with a hypodermic syringe in the trachea, with the following: Oil of turpentine and olive oil each 100 parts, Pearson's creolin 10 parts. Inject one drachm into the trachea of each animal and repeat in three days.]

LAME PIGS.

To the Editor: I have 16 pigs 7 weeks old, all seem in good health, get all the skim milk and middlings they can eat, have dry houses to sleep in and floored outside runs to keep them out of the mud. But one of the pigs is lame in the left front and hind feet, and the others are beginning to be so. The bedding was planing mill shavings and neighbors tell me they contain too much turpentine, but I have just exchanged that for straw.—H. B., Stockton.

[Your pigs have rheumatism, to which swine are very liable. Be sure to see there are no cracks in the floor or house through which drafts may enter. The shavings were probably one of the causes of the trouble as they are almost always more or less damp. Good dry straw is to be preferred for bedding. Give each pig a teaspoonful of epsom salts daily for three days, then 5 grains sodium salicylate twice daily until lameness disappears. If pigs go off their feed, discontinue treatment for a few days and then resume.]

MATTER AFTER DEHORNING.

To the Editor: I have dehorned some of my cows. One is quite sick with foamy and bloody matter running from the holes of the horns. I would like to know what is best to do for her. I also have some more cows to dehorn and would like to know what to put on right after dehorning them.—F. R. P., Stevinson.

[Your cow's stubs have become infected. Thoroughly syringe out the holes twice a day with the following: Liquor Cresolis Compositus 2½ drachms, water 1 pint. Cover all stubs after dehorning with Stockholm tar, which is protective and antiseptic.]

SOW PARTLY PARALYZED.

To the Editor: We have a sow that we expect to farrow in a week or two. She has been shut up in a new pen, concrete floor with boards, bed with plenty of straw to lie on; has been up about two weeks, feed on alfalfa meal and rolled barley wet: has had the same care as the rest of the sows, about 60 in all. She has lost the power of her hind legs. Have given her a good rubbing over the kidneys and legs with liniment; does not seem to do her any good.—J. H. G., Centerville.

[You sow's paralysis is due to her condition. She will probably recover after farrowing. The condition is ascribed to pressure on the nerves and blood-vessels of the pelvis. This pressure is removed after parturition. Give her plenty of clean, dry bedding and keep her comfortable. It is a good treatment to give her 2 oz. Epsom salts every 2 to 4 days as long as the paralysis continues.]

HARD TO BREED.

To the Editor: I have an 8-year cow that has failed to get with calf after being three times with a bull when she came in heat since having her calf. The bull has bred three others successfully. The cow seems in good health.—I. R. H., Bakersfield.

[Cystic ovaries are the most general cause of non-breeding in cows. Have your cow examined by a graduate veterinarian and if this is the trouble it is possible he may be able to break down the cysts by manual palpitation. Then your cow will breed regularly.]

WANTS TO LEARN SOILS.

To the Editor: Where can I get the latest and best information on southern California soils; how to tell what defects exist and how to remedy them?—E. W. P., San Diego.

[Answered by Prof. C. B. Lipman, University of California.]

[There is but little concise published information on these points, though much of it is to be obtained in Hilgard's "Soils," and in other publications of the University of California Agriculture Experiment Station, which you can find in any of the larger town libraries.

I may add, however, that the great deficiency of southern California is the deficiency in organic matter. That can only be remedied by the use of large quanties of barnyard manure where available, the continual use of green manure crops, and in addition to that, the rather limited use of tillage during the hot summer months, replacing tillage with surface straw or manure mulch in order to prevent oxidation of the organic matter introduced in the form of the first two classes of materials named above.

By the addition of this organic matter, and also of the nitrogen, which in part is added by means of the organic matter, but also may be added in the form of fertilizer, the greatest defects of the soils in question can be readily remedied within a period of three to five years. [Soil survey maps are available for small charge, from the Division of Soils. U. S. Dept. Agr., Washington, D. C. We do not know whether any have been made of your section.—Editor.]

AVOCADOES TWICE A YEAR.

[Written for PACIFIC RURAL PRESS.]

Of the many varieties of avocadoes clamoring for priority, the Northrup is claimed to be one of the best, by W. R. Bartley, the owner of the original tree which is located in Orange county. It is twelve years old and has been bearing several years. He also has several budded trees just coming to bearing at 4 years old. Mr. Bartley is now having more seedlings budded from this tree, since seedlings require some years longer. A peculiarity of this variety, which is of the thin skinned class, is that it ripens two crops per year. Mr. Bartley has been eating avocadoes from September until middle January. At this time the trees are in bloom and some small fruits have set. These will ripen in May or June.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

FOR SALE—Imported Percheron Stallion Sansonnet. He is a sure foal-getter and has one of the best families of colts in the State. Weight, 2200 lbs. Price, $500. Terms, if desired. D. B. Thompson, Chowchilla, Madera Co., Cal.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. K. W. Abbott, Milpitas, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, write E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland, Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J. Mills, Sacramento county, California.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Call Building, San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

PURE-BRED Duroc-Jersey Swine. Prize winners. Limited number only. $10 each F. O. B. Western Hog and Land Syndicate, 919 Hearst Bldg., San Francisco.

REGISTERED POLAND-CHINA HOGS.—Limited number young stock from prize winners. Golden Gate Stock & Dairy Farm, R 1, Box 34, Galt, Cal.

FOR SALE—Registered Jersey Boar, 22 months old. Cholera immune. Cheap. Pehrson Bros., R 3, Box 149a, Turlock, Cal.

REGISTERED BERKSHIRES—Weanling boar pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in state. $30 up. M. Bassett, Hanford.

28 HEAD registered O. I. C. boars and sows, 8 weeks old, $10 up. Enterprise Farms, Newark, Cal.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

DUROCS from first prize winners State Fair. $15.00 up. Ed. E. Johnson, Turlock, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. E. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP

FRANK MEACHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

Nevada Cows on Alfalfa.

In our issue of January 9, there appeared a communication from one of our Nevada subscribers in which he pointed out the need for more dairy cows and sheep in the alfalfa sections of that State.

Since then we have received a letter from V. Fulkerson of Hazen, Nevada in which he encloses the results of an experiment carried on in the Fallon district by the government dairying expert, C. E. Cline, as reported in the Churchill County Standard at that place and the figures are so staggering to even the most ardent admirer of the dairy cow that we give it in part at this time, as an illustration of what is possible in securing financial return through the milk bucket.

The experiment was carried on with two herds of dairy cattle, one a registered Jersey herd belonging to F. E. Mobley, and the other a very high grade Jersey herd belonging to C. H. Hancock, both herds being in excellent working condition. The data here reported is for the registered Jersey herd belonging to F. E. Mobley, Fallon, Nevada. This work was conducted for the purpose of determining the advisability of feeding grain with hay. The results show how very efficient the animals were in converting the alfalfa hay into a marketable product. They also show that wherever hay was fed with grain as a supplement, the efficiency of the hay was increased—that is, the cows paid for the extra grain and in addition paid a higher price for the hay.

The plan of the experiment is as follows: Four cows were included in the experiment. Two cows were allowed all the hay they would consume—careful account being kept of the hay each one ate. The other two cows were each allowed four pounds of grain per day in addition to all the hay they would eat. At the end of two weeks this method was reversed with a preliminary period intervening. The cows receiving the hay alone, were given the same ration as those receiving both hay and grain and vice versa. Careful records were made of all hay and grain consumed and all milk was weighed each day and tested. From the data collected in this manner, it was possible to work out the following data for each cow for a period of one month when on a straight hay ration and when fed grain in addition to hay.

In the accompanying table the skim milk was valued at 25 cents per hundred pounds. The grain was valued at $30.00 per ton. The alfalfa hay was valued at $5.00 per ton. No account was kept of the labor cost in caring for the cows.

The prevailing price for alfalfa hay this fall when fed out by the rancher to beef cattle or sheep has been about $4.50 per ton, while in the accompanying table the lowest price received for the hay when fed to these dairy cattle was $25.60 per ton and the highest was $41.60. It will be noted from the table that when hay alone was fed to the four cows, the average consumption of hay was 24 pounds for every pound of butterfat produced, when they had grain in addition to hay they consumed only 18 pounds of hay for each pound of butterfat produced. To further show the advantage of

Feeds and cost of production:

Cow No.	Method of Feeding	Lbs. hay	Cost hay	Lbs. grain	Cost grain	Lbs. butter fat	Value butter fat	Lbs. skim milk	Value skim milk	Monthly receipts	Gross cost lb. fat	Cost less skim milk	Gross returns per ton hay	Lbs. hay per lb. butter fat
1-b	Hay	788	$1.95			33.	10.56	569.3	1.42	11.98	.059	.015	36.20	23.6
1-a	Hay and Grain	794	$1.98	112	$1.68	41.9	13.42	762.0	1.90	15.32	.081	.014	31.20	18.9
8-b	Hay	934	$2.33			45.4	14.52	1057.0	2.64	17.16	.051	.000	26.60	20.6
8-a	Hay and Grain	952	$2.38	112	$1.68	46.7	14.95	1088.8	2.72	17.68	.086	.015	27.60	20.4
6-a	Hay and Grain	636	$1.59			27.8	8.89	472.0	1.18	10.06	.057	.014	31.60	22.9
6-b	Hay	398	.995	112	$1.68	27.6	8.83	460.0	1.15	9.98	.056	.053		14.4
7-a	Hay and Grain	1155	$2.90			40.	12.80	836.0	2.08	14.88	.072	.02	15.60	28.9
7-b	Hay and Grain	720	$1.80	112	$1.68	40.	12.80	754.0	1.88	14.68	.087	.01	36.00	18.00

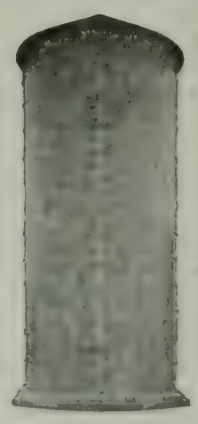
At the beginning of the experiment, cow No. 1 had been fresh about ten weeks, cow No. 8 had been fresh 30 days, cow No. 6 had been fresh 6½ months, and cow No. 7 had been fresh 30 days.

feeding grain with the hay, the data shows that the cows as a herd when receiving only hay, produced butterfat and skim milk to the value of $31, for each ton of hay consumed, while the same cows when fed four pounds each of equal parts of rolled barley and bran per day, paid in butterfat and skim milk $37.20 for every ton of hay consumed in addition to paying for the grain that was given them. The grain mixture that was fed in this connection was not taken as a most satisfactory ration in connection with the hay, but was used as a matter of convenience for the proprietor and was being fed by him to a few of the best producers.

[The above returns are perhaps a good deal in excess of those secured by the average dairyman, but they are interesting inasmuch as they show how little value the alfalfa grower of the past has placed upon alfalfa hay, barley and dairy cows. Mr. Fulkerson himself writes that he has had many acres of alfalfa which produced six tons to the acre last year and which he was unable to get more than $4.50 a ton for. He also asks why Nevada should not be as good a dairy State as California. Except for the comparative limited alfalfa development in that State as compared to California, we know of no reason why dairying in that State should not be as profitable as in this State.—Editors.]

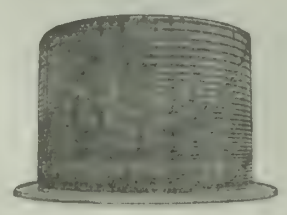
SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

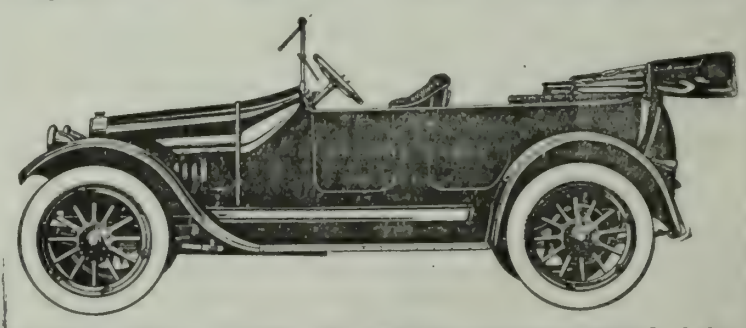
All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

Second Hand PIPE Screw Casing

ALEXANDER PIPE COMPANY
— 254 No. Point Street, San Francisco, Cal. —
501 Clarence St. Los Angeles, Cal.

During the past two years, forest officers have killed nearly 9,000 predatory animals, more than three-fourth of which were coyotes.

TAMWORTHS
The Big Red Bacon and Block Hog
Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

Dairying in Napa County.

In Napa County high-class dairies are rapidly superseding the taggy old wooden buildings with dirt floors and wooden stands of earlier days.

Dairymen here are very much alive to the fact that it pays to build and equip for certified milk nowadays, and that the substantial sums necessary to carry on their business on modern lines will, in time, return an equally substantial interest to compensate them for their enterprise.

The writer, together with the Napa County Farm Adviser, was recently invited to inspect the handsome new buildings recently erected by Mr. J. R. Imrie on his ranch 3 miles north of Napa on the Big Ranch Road.

Mr. Imrie's herd of improved Holsteins, the result of careful selection and breeding, was inspected this week by the Board of Health and each animal tested. Every animal was certified as being perfectly healthy—the 100 per cent record. The herd is headed by Creamcup Sir Burke Pontiac, No. 113982, from M. M. Holdridge's herd of Modesto and there is not a scrubby cow on the place. All the milk will be sold in Napa. It is cooled and bottled by the most up-to-date methods, the cooler being capable of pastuerizing. Each bucketful is strained and cooled as fast as it comes from the cow and, after being bottled, is sealed at once. The milkers wear white linen suits while handling the milk and the floors are spotlessly clean. After bottling, the milk is placed in a cold storage room and the wash room is an up-to-date, screened-in apartment quite away from all danger of contamination by flies or smells. The buckets are the regulation certified milk pails and the light in all buildings is in accordance with the requirements of certified dairies.

The cow barn is 37x80 and accommodates forty cows. This means over 1200 cubic feet of air space per cow. The floors, drains, and feeding troughs are all of cement which is washed down daily. The cows face each other in the barn with the new patent stanchions to secure them and their food is carried to them through a 10-ft. alley way. No feed is kept in the cow barn.

Mr. Imrie's father was one of the pioneers of this county and Mr. Imrie himself seems quite determined to keep in the lead in his own business.

Mr. Dabner, one mile south of Napa, is building a 32-cow modern dairy and Mr. H. V. DuBois on the Sonoma Road is remodeling his buildings throughout. The State Hospital's new 200 cow dairy is also nearing completion and Napa County feels that she may now be classed A. 1. in the milk business as every dairy in the County of any importance has brought its methods up-to-date.

JOHN J. FOX,
Horticultural Commissioner.

COST OF MILK PRODUCTION.

At a meeting called by the Boston Chamber of Commerce and the Vermont Commissioner of Agriculture at Rutland, Vermont, to see if something could be done to bring the price of milk paid the producer and that paid the consumer nearer each other, the cost of production was presented by a number of farmers, among which was a report of 20 cows and heifers selected at random from the official lists of Ayrshires by Secretary C. M. Winslow of Brandon, Vt., as being just an average run of Ayrshire herds. He figured the cost by the data recommended by the Commissioner, being a full and complete list of all expenses connected with the keeping of the herd.

The result showed that the 20 Ayrshire cows averaged 4,725 quarts of 3.98 per cent milk at an average cost, for food consumed, of $80.15 with additional cost of other expenses amounting to $133.65, making the average cost of production amount to 2.83 cents per quart or about $1.42 per 100 pounds of milk.

FARM HORSES FROM RACING STOCK.

[Written for PACIFIC RURAL PRESS

Raising the right type of horse for the farmer with from 25 to 50 acres of land is becoming more and more of a business as the development of the State advances and while there is a variance of opinion as to which animal is best suited to the various conditions, it is generally conceded that an animal weighing between 1100 and 1500 pounds is the best suited for all round work, although there are naturally exceptions to this rule.

Weight alone however is not the only requirement for horses, either for medium or large sized, for while that is a necessary factor, disposition and action are also requirements which must be included. While of great importance in the draft horse weighing 1700 pounds and over, the need of these characteristics is even greater on the smaller farm where the hauls are usually short and require a fast walking team and one having a disposition to stand up in the collar when the need arises.

In the main farmers have depended upon the Percheron cross to produce this type horse, but on the J. S. Gibson ranch in Colusa county, the requirements for this type horse have been secured by breeding to a stallion that was sired by a registered Belgian and out of registered shire mare, he being more of a Belgian type than a Shire. This horse weighs about 2,000 pounds being sound in every way and extremely low built.

The reason for using this type of horse for breeding purposes was brought about through remnants of the former day popularity of the thoroughbred horse in this State, of which this company were successful and extensive breeders. When interest in that branch subsided there were left on the ranch a large number of mares weighing between 900 and 1100 pounds, for which there was no market, although they were good individuals, having lots of life, action and good sound bones.

In late years these mares have been bred to the draft stallion and the colts at three to four years of age have weighed between 1,100 and 1500 pounds, having taken after the sire in blockiness and after the dams in strength of bone, action and disposition, thus making an ideal horse for general utility work around the smaller farm.

Mr. Gibson states that while he is an ardent admirer of mechanically driven power in plowing, seeding and harvesting his grain crops, which it should be said are grown in a large way, he considers the sized horse he has secured in the above way preferable for work around his dairy and in cutting and hauling his alfalfa, a side of the ranch which is gradually gaining in size as fast as water can be developed. His experience in breeding horses should be of value to many farmers over the State who still have one or more mares with thoroughbred blood in their veins, the markets for which have been badly injured with the advent of the light automobile.

GESTATION OF SHEEP AND SWINE.

To the Editor: How many days do sheep and hogs carry their young and how often do they come in heat?—W. W. M., Dixon.

[Usually when not with pig or suckling, a sow will be in heat about three days out of 21, or once in three weeks. Whether or not a sow is safely in pig will be known about 20 or 21 days after breeding. The period of gestation is about 112 days from date of service, although young sows are apt to carry their pigs for a slightly shorter period, sometimes 106 to 108 days, and old sows may be taken a longer time, extending to possibly 115 days. Ewes when not bred or suckling come in heat from 2 to 4 days out of 7 months and if they do not become impregnated after service heat will recur after about 17 to 28 days. The average gestation period of ewes is 150 days, with extremes varying between 146 and 157 days.—Editors.]

WATER HORSES AFTER SUPPER.

While the fact that the horse has a small stomach which soon empties, shows the necessity of watering him often, I think the humane societies could well take for their slogan: "Water your horse often," and if they succeed only in remedying the great evil of insufficient watering, they would have accomplished a great good.

Anyone who doubts the correctness of these statements needs only to offer his horse water after feeding at night to see him drink and relish it. I will guarantee that any horse owner who will try the plan I have outlined for one month will see a marked improvement in the condition of his horses.

"When a goose lays an egg," said Andrew Lang, "she just waddles off as if she was ashamed of it—because she is a goose. When a hen lays an egg—ah, she calls heaven and earth to witness it! The hen is a natural-born advertiser. Hence the demand for hen's eggs exceeds the demand for goose eggs, and the hen has all the business she can attend to."

Spring is a good time to prune peaches, because then it is easy to tell which buds are strongest. Weakened twigs should be cut out.

NOTICE!

To Horse Breeders

The future of the horse-breeding business is very bright, but this is no reason for throwing prudence to the winds and paying prices for stallions, which are not only much higher than necessary, but in many cases so high that it is practically impossible for the investment to prove profitable, unless he is to be used on high-class purebred mares, and the horse is an extra good one.

It is the stallion buyers who are responsible for the high prices, for I venture to say that there are very few company horses sold in this State which could not be bought for half the money and often less, if the buyers went to the barn with the cash, and if your note is good to the salesman it is certainly good in your own bank.

It has always been my endeavor to import high-class stallions, and that I have succeeded is proved not only by my winnings in the show ring, but by the general satisfaction to purchasers.

I have never sold an unsound one or had one returned as a non-breeder. I have an assortment of high-class Shire Stallions on hand, including champions and first-prize winners.

They are for sale for cash at prices which are less than half of what others ask for horses of equal quality. My guarantee is absolutely good and I shall be here next year to stand behind it. I have also a few good young mares for sale at reasonable prices.

For further particulars address

HENRY WHEATLEY
Salvador Stock Farm
Napa

BERKSHIRES
Oak Grove
Cholera Immune

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

For Sale or Exchange,
One Black Percheron Stallion
"GANTRAN"
8 years old—weight 1940.
Sound and sure.
LINDEN HORSE CO.
Linden, Calif.

RHOADES & RHOADES
EXPERT LIVE
STOCK AUCTIONEERS
Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS
OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

BLACK LEG
LOSSES SURELY PREVENTED
by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only.
Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.

Stopping the $7,000,000 Loss.

FEEDING FOR PERFECT EGGS

[Written for PACIFIC RURAL PRESS
By Edwin T. Lindley.]

Here are the two illustrations promised in my article in the issue of January 16, which will help to describe the two grades of eggs we will discuss in this issue.

Figure 1 represents the view before the candle of a fresh egg twenty-four hours old that is perfect in every way. Notice the small air cell and imagine seeing a firm, smooth, uniform look to the shell. In color it appears a pink-yellow throughout both the white or albumen and yolk, with the center a little deeper tinge of color and usually the exact outline of the yolk is scarcely perceptible. Such an egg as this if properly handled before and after placing in cold storage, will at the end of six months be better for nearly every purpose except poaching than many of the perfectly fresh eggs that are sent into market.

The poultryman who produces this grade is master of the market and can command any reasonable premium above quotations. This is no idle remark; I see proof of it every day.

Fresh eggs laid by hens that are supplied with poor feed, also lacking in variety, will have more air cell and a watery condition of the white; are more readily affected by exposure to the sun or heat than a full egg, and evaporation and general deterioration more readily take place.

This number one egg is produced by a vigorous, healthy hen that is supplied with fresh, clean water and an abundance of proper feed and in great variety. Do we feed pigs on dishwater and expect profitable results?

It is generally considered that the hen that lays many eggs must naturally produce a larger percentage of weak or inferior eggs than the hen that lays only a few. This is not

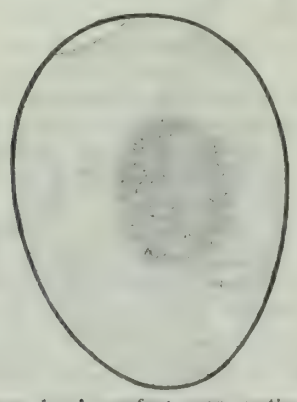


Figure 1.—A perfect egg—notice the small air cell and well-shaped yolk.

true when the heavy layer is given proper and abundant food and perfect care; on the contrary it is quite possible for the heavy layer to produce nearly all perfect eggs and the poor layer not one egg that could be rated above second quality.

To form perfect eggs the hen must have variety not only in grain and mill feeds but in meat products, green stuff and grit as well. I think I hear some exclamations regarding the requirement of variety in the two last-mentioned items, but it is necessary just the same.

In meat products we seek a substitute for insects, and these creatures are not exactly ordinary meat such as beef and mutton, but carry a large proportion of bone, sinew, shell and similar substances and for this reason fully half of this animal food for fowls should be bone; even though you may be feeding it in the mash, bone in some form should be constantly kept where the hens can help themselves—some hens require more than others, and with an opportunity to do so they will eat only what they require.

When the meat and bone are dried or in the form of scrap these should together amount to about one-tenth of the combined total of grain and the meals used for mash. When boiled meat is fed it is more difficult

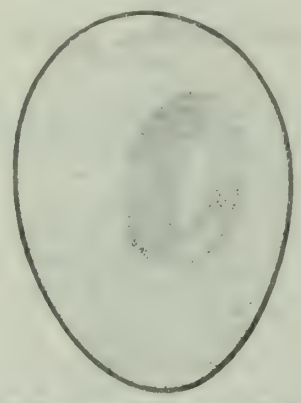


Figure 2.—An alfalfa egg—the most dangerous egg for cold storage.

to gauge the proper amount. Meat should never be fed to fowls in a raw state.

Grit, Shells, and Charcoal.—Grit that is composed of practically one substance, such as only silica or flint, is not perfect even though it may be clean and sharp. Grit not only grinds the food in the gizzard but the minute particles that are worn from the sharp edges are assimilated and go toward building up the egg as well as the egg shell and body and plumage of the fowl. The best commercial grit sold by dealers is composed chiefly of calcium, with lesser amounts of magnesium, aluminum and silica and this grit can be improved by adding one or several sorts of any other available small pieces of rock that are free from poisonous substances even though the added portions are not as sharp and rough as the commercial grit; the sharp particles with the aid of the digestive juices will more or less cut the smooth pieces.

Ground or broken shells do not act as grit, but as they are often classed as such we will consider them here. Shell is food for hens in as full a degree as is bone and a good portion of the meat scrap. When of proper fineness it is completely dissolved in the crop and fully amalgamated with the other food before passing into the gizzard. Most poultrymen make the mistake of feeding too large pieces of shell; particles that are about like broken rice are plenty large for use in the grit box because they are more readily digested and distributed in the mass in the crop than large pieces and also more readily become a preventive of sourness, thus increasing the digestibility of the food which means more and better eggs. I know many readers will say, "Well, my hens like the big pieces best," which may be true, but that is because they were educated to like big pieces. Fowls are creatures of habits and respond to early influences more readily than almost any other domesticated animal, but if left to their own inclinations from the start they will prefer and select the small particles as long as they are to be had and eat the larger ones when forced to do so. Furthermore, for heavy laying fowls, no dry or wet mash feed is perfect unless it has thoroughly mixed in it at least five per cent of finely pulverized calcium carbonate in some form. Recently this matter was thoroughly discussed by the bureau in Washington that formulated the rulings intended for use in the enforcement of the new Federal law governing the adulteration of feed stuffs and its investigations resulted in a ruling in substance as follows:

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue, or if carried weekly for one year, 2½c per word.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336 C. Phone S. J. 1889.

BLACK MINORCAS!—The hen that lays the big white eggs and lots of them. Baby chicks, January prices, 14c, from heavy-laying vigorous stock—the kind you want to keep. Write for circular and delivered prices on any quantity. Hatching Eggs, $6 per hundred. Roofden Poultry Ranch, Campbell, Calif.

PEERLESS POULTRY YARDS, Orland, Cal.—Buff Orpingtons, Silver Wyandottes, Partridge Plymouth Rocks. "Quality, not quantity," my motto. Hatching eggs, $3.00 per 15. Fertility—eight chicks or a setting free. Buff cockerels for sale at from $3 to $10.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

ORDER NOW—Thoroughbred Bronze Turkeys from largest Turkey Ranch in Stanislaus county. Large Spring gobblers and hens for breeding stock. Address, Crow's Landing Turkey Ranch, Crow's Landing, Cal. Box 227.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 279 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Boquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns Wyckoff strain. Also S. C. Brown Leghorns. Route 2 Box 1416, Sacramento, Cal.

THOROUGHBRED Single-comb White Leghorn Eggs for hatching that will improve your flock, descendants of D. W. Young's strain. Hens 220 egg type. Jay Maxwell, Madera, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

WHITE ROCK BABY CHICKS.—Winnings at Modesto White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper, Ceres, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 8, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BARRED ROCK COCKERELS—Stock from Holterman's Roosts, Fort Wayne, Ind. These birds are well barred and good individuals. $5 each. Allen Thompson, Tulare, Cal.

SILVER SPANGLED HAMBURGS, Silver Laced Wyandotte, White Wyandotte and Light Brahma cockerels. Beautiful individuals. Tribble Nurseries, Elk Grove, Cal.

RHODE ISLAND REDS—Winners at leading California shows. Hatching eggs. Fine cockerels and pullets for sale. Wm. Larm, 746 Lincoln Ave., Alameda, Cal.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS—Breeding and foundation stock eggs for hatching. Rancho Del Martino, Mrs. E. B. Martin, Downey, Cal.

HOGAN SYSTEM USED THREE YEARS.—Foundation stock from Hogan's own White Leghorns. Eggs, $6 per 100; chicks, $12. Verde Farm, Livermore, Cal.

BUTTERCUPS—the new farmer's fowl; lay many large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

ORPINGTONS—Black, Buff, White; Rhode Island Reds, White Leghorns; Anconas, Prize winners. Hatching eggs and stock. Chas. Holman, Stockton, Cal.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale Fleming, San Jose, Cal.

BLUE RIBBON White Wyandottes. First prize winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

INCUBATOR CHICKS—White Rocks and White Leghorns. High-class stock. Send for booklet of prices. Mahajo Farm, Box 597, Sacramento, Calif.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W., Stawetski, San Jose, Cal., R. 2.

NO S. C. WHITE LEGHORN day-old Chicks or Hatching Eggs are too good for you. That is why you want them from J. H. Swann, R 3, Chico, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

TOULOUSE AND EMDEN GEESE.—Direct imported strains. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enock Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

DAY-OLD CHICKS—Hoganizing Egg Machines. We are booking orders for spring delivery. H. & F., Mortensen, Suisun, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View, Cal.

WANTED two White Holland 2-year-old turkey hens; also Cypress or Jubilee incubator. E. L. Terry, Clayton, C. C. Co., Cal.

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

GIANT BRONZE TURKEY Toms from prize-winning stock. Mrs. Nellie Hart, Holtville, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

BARRED ROCKS—Prize winners stock and eggs. W. L. Kennedy, Fowler, Cal.

"that calcium carbonate in poultry food and grit in infant chick feed were foods, and unless used in excess or with the intent to defraud the statement of the percentage on the container was not required and they were to be considered as legitimate and not classed as an adulterant." Personally I have sorted enough eggs into inferior grades, that otherwise would have rated high, to make a difference of many hundreds of thousands of dollars to the producer for no other reason than the fowls were not sufficiently supplied with this necessary mineral.

Charcoal is also necessary, although it is not in any sense a food but purely and simply a corrector. It passes through the fowl without any chemical change whatever. It simply absorbs the gases and acids that may be formed in the process of digestion and thus guards against disturbance and disease.

It should require no further argument to decide that it is very important to have a supply constantly accessible to the fowls of bone, shell, grit and charcoal—also fresh, clean water and plenty of it.

Grain and Mash.—We will consider green feed in discussing figure two. The grain and mash feed for laying hens may be properly supplied in so many ways and proportions it is impossible to mention any one best method or formula; a large book would be necessary to cover that portion of the subject, but if in doubt regarding your own method of mixing or feeding try some of the commercial mixed mashes and grain foods that are now for sale almost everywhere. By feeding part of your fowls with your own mixture and others with the ready mixed feeds for a year you will, if careful and observing, learn many lessons in feeding fowls. In a general way, however, the following rule fits any condition, viz.: Feed all the variety you can of grains and seed in litter, to induce exercise and prevent gorging, and as many sorts of meals in the mash that it is possible to obtain at a reasonable price. No one grain or meal, no matter how good it may be, is as valuable as two sorts and the increased ratio of value advances with each added variety.

In feeding Mediterranean and most small breeds more starchy or heating foods are required than when providing for the larger breeds. Also in climates, both in winter and summer, where the change of temperature between the warmest part of the day and coolest part of night is great, much more heating food is required than in localities in which the change is not so marked, even though the mean temperature of the latter may be much lower. It is the rapid change in temperature that affects the fowls and absorbs the heat that is obtained from the carbo-hydrates or starches.

Alfalfa Eggs Should Not be Stored.—Figure 2 represents the view before the candle of a twenty-four-hour-old alfalfa egg, sometimes called a grass egg and known to bakers as a hay egg. This class causes more damage to the reputation of cold storage eggs than any other imperfect sort of egg; it is the greatest drawback to the storage game. They are not a decidedly bad egg when fresh, if kept clean and dry, but when once allowed to become damp—and storage eggs are almost certain to be exposed—they go to destruction quickly. Usually the alfalfa egg is not as full as the egg we class as number one. The white has a greenish cast increasing in depth of color near the yolk and the yolk shows up distinctly and is unnaturally dark. When hard boiled a dark green coating or layer forms about the yolk. They do not possess a desirable flavor or an inviting look and unless perfectly fresh and dry should be avoided particularly for baking, for the reason that they impart a disagreeable taste to the cakes and pastry that reminds one of musty straw. This undesirable flavor increases with the age of the egg, although it may not have become really bad otherwise. This defect is caused by feeding excess quantities of alfalfa in a green state and in rare cases other grasses or greens.

Dry alfalfa, in the shape of hay or meal, does not so readily cause the trouble and the bad effect is much more noticeable in any case when the grain and mash given the hens are lacking in variety and nourishing qualities.

Now, I want to state right here that I do not condemn alfalfa, for I consider it one of the best poultry foods when it is of good quality and fed in proper quantity. The trouble is caused in nearly every case by forcing the fowls to eat excess amounts by mixing too much in the feed or failure to supply the fowls with sufficient good grain and mash, turning them out into green alfalfa to pick the balance of their living. Variety is necessary in green feed and poultrymen should take pains to supply in addition to alfalfa a constant supply of such things as lettuce, kale, rape, grasses, sprouted oats or barley; there are many other desirable plants too numerous to mention. It is also well to supply "near greens" such as carrots, turnips, pumpkins, squashes, etc.; these vegetables with abundant and proper greens will, by reducing the necessity for grain and mash, cut the cost of the feed from thirty to forty per cent and increase the quality of the eggs and health of the hens without reducing the number of eggs.

In the commission district the sale of alfalfa eggs provides the source of many situations that can be classed more or less as jokes, according to who is affected by results. I recently heard a wag describing a near riot in a cheap bakery where the customers were represented as returning en masse with partially eaten cakes which they were throwing at the baker. The next chapter of his story described the same baker holding a barrel stave and laying in wait for the salesman who has sold him the alfalfa eggs that caused the trouble.

In our next installment we will describe some other defective eggs that assist in causing the seven million dollar loss to the poultrymen of California.

HOPLAND STOCK FARM, Hopland
Sanitary Conditions perfect. Largest Poultry Farm in California.
Hatching Eggs—S. C W Leghorns.....$ 5.00 per 100
Hatching Eggs—White Plymouth Rocks .....$15.00 per 100
Baby Chicks—S. C. W. Leghorns.....$10.50 per 100
Baby Chicks—White Plymouth Rocks.....$20.00 per 100
Incubator Capacity increased this year to 50,000.

BABY CHICKS
Standard Bred.
The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

Poultry for Profit

ORPINGTONS FOR FARMERS.

[Written for PACIFIC RURAL PRESS
By Mrs. Susan Swaysgood, Pomona.]

Old readers of the Press will know that I have never tried to boost the breeds I raise at the expense of others. So that what is here said must not be taken in that light, but from an impartial desire to give the small rancher and farmer the truth of what we consider the best farm poultry in existence today.

There may be better dual purpose fowls than Orpington, but if there are any such I have not seen them, and hearsay cuts no figure with me. I am often asked what is the difference between the Buff and the White variety. So far as laying goes the difference is only found in the strain. Some strains of Buffs do not come up to the others, either in size of egg or in numbers, but in good strains where care has been used in the selection of breeders, they equal the best strains of the Whites.

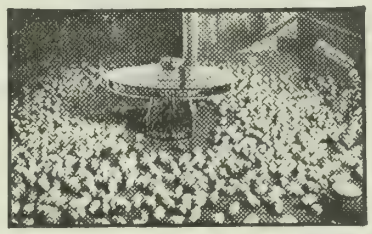
But there is a difference in the early growth of the chicks. It is generally noticed up to the time the chicks are about three or four months old; after that time there is very little difference in growth and when mature none at all in the size of well developed specimens. A White Orpington chick usually weighs 2 ounces to 2 1-4 ounces in selected chicks; in four weeks they should weigh one pound with average care and feed, at eight or nine weeks at most, they will be two pound broilers. If intended for broilers they should not be kept past ten weeks, for after that they will commence to run to leg and require much more feed to keep them up.

At three months old they will weigh, under good feed and care, 3¼ to 3½ pounds, but the difference in cost of producing the last pound will more than offset the gains.

For Soft Roasters.—So much for the broiler. Now, for the soft roaster, we much prefer the Buff, and remember we have both. As a roaster the Buff comes to the table with a rather smaller bone, a plumper breast and a little finer grade of juicy meat. Not much difference in quality of meat but just a little, both varieties excel in the quality of meat at all ages and sizes. Even old cock birds, when fattened up, make a roast to be envied, being as large as a turkey, with lots of breast meat and always good and tender if well cooked.

The points in all Orpington meats are juiciness and whiteness combined with a fine grain. Even if a chicken is killed for the table in poor condition, without any fat, the meat is juicy and white. This cannot be said of any other breed, except perhaps, the Wyandotte. As a rule a chicken that is killed when in poor condition is dry and rather tough, no matter what the age, and separ-

(Continued on page 127.)



The Fresh Air Brooder Stove
Our 1915 model is now out with splendid improvements, and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it,. It's free to you.
J. E. KRESKY
PETALUMA, CAL.

GET THE BEST
For Your Baby Chicks.
Coulson's POULTRY FOODS
SPECIAL CHICK FOOD
Write for Particulars to
COULSON CO., Petaluma, Cal.

Leghorn Chick
White, Brown and Buff selected, thoroughbred stock. Book your order now. Scored stock for sale, $2 up. Write today.
JAMES D. YATES
Poultry Judge.
Modesto, Cal.

VERMIN PROOF POULTRY HOUSES
All Kinds and Sizes.
Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house. Write for descriptive catalog.
ROGERS MFG. CO.
Williams, Calif.

FREE BOOK
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
F. F. SMITH & CO.,
1006 J St., Sacramento.

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

THE HOME CIRCLE

THE BIRTHDAY GIFT.

By Louise Taylor Davis.

Last week I had a birthday, and my father said to me,
"I'll give you anything you want. Now, son, what shall it be?
How would you like a phonograph?" But I just answered "No.
I'd rather have a puppy, 'cause a puppy loves you so!"

So then he laughed and said he would try and get a pup,
And on my birthday morning, the minute I woke up,
The fattest little furry dog was sitting on my bed!
There's nothing in the world that I'd 'a rather had instead.

He follows me around all day and sleeps with me at night;
He loves to bark at me and growl, and then pertend to bite.
His little legs are wobbly, and he can't run fast, but oh!
I'm glad I've got the puppy, 'cause a puppy loves you so!

FOUND—A DACHSHUND DOGGIE.

By Kate Hudson.

Alfred was hurrying home with mother's two-cent stamp when, just at Mrs. Holden's area-gate, in a deep crack in the sidewalk, he saw a little doggie, a dear little black-and-brown doggie of the dachshund variety. Alfred picked it up, glancing up and down the street for the owner, and, when he found no one in sight, he examined the little animal more closely. It was not a really truly doggie, but one made of metal, the kind of doggie that you can buy in all the big department stores and which grown folks use for paper-weights. And it was as good as new, only a bit rubbed near the off-hand shoulder and with the tip end of its tail worn shiny.

Alfred looked through the iron area railings at Mrs. Holden sewing at her basement window, and called to her, "Mrs. Holden, do you know who lost this dear little doggie?" But Mrs. Holden kept on sewing fast and furiously, and shook her head without looking up, as she answered, "No, dear, I do not." So Alfred, holding the wee doggie tight in the one hand and the stamp tight in the other, ran home to tell mother all about it.

Mother looked at Alfred's treasure-trove and listened to his story. When Alfred ended with an anxious "I may keep it, mother, mayn't I?" she laughed a little at her six-year-old's eagerness; indeed, Alfred's fondness for animals, both in effigy and in true flesh, was almost pathetic, and, laying down the stocking she was mending, she took the little boy on her lap and carefully explained to him the ethics of finding and keeping, and that he must set away the little bronze dog for at least three days on the chance of its being reclaimed. Alfred listened with rapt attention which almost turned to tears when mother drew a graphic picture of a possible baby loser who had probably dropped the doggie out of her go-cart, and who was presumably even now in tears and tribulation at the loss of her plaything, and he unhesitatingly agreed with mother that that poor, dear baby must have her doggie back just as soon as possible. But how?

Mother proposed that Alfred should go round the block, making a house-to-house inquiry as to any baby inmates having lost a dog; but Alfred's bashful soul revolted at the thought of addressing so many strangers, and he "never, never could do that!" Then mother suggested that he should, after school was out and all the boys and girls playing on the sidewalk, take the doggie and ask Clyde and Howard and Margaret and May whether they had heard of any one's—any go-cart baby's—having lost a doggie. But Alfred remembered how often these same much bigger boys and girls had teased and tormented and mauled him about, and he felt he never could, no never, never could do that.

Just then the door-bell rang and mother had to go and talk to Mrs. Smythe, who had come to call. "Never mind now, Alfy, dear," she said as she left the room. "When I come back, we'll see about the dachshund doggie." So Alfred laid the little dog into mother's stocking-basket and built block forts for his tin soldiers, and all at once there came to him such a happy thought that he rushed to meet mother, who just then came back from seeing Mrs. Smythe off, crying: "O mother, mayn't I make a picture and some reading, you know, an ablatisement, and nail it up on our front door? And then that dear go-cart baby can come here and call for her doggie? Say, mother, mayn't I?"

Mother laughed and said, "Yes"; he might put up an advertisement, not just on their own front door, but somewhere where passers-by might see it. And on a big sheet of paper she wrote in large, very plain letters, and at Alfred's own dictation:—

FOUND

A dear little dachshund doggie, near the corner; if you have lost him, you can call for it at Alfred's

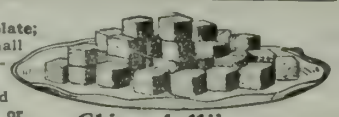
317 Blank Street.

Then mother gave Alfred four large tacks and her own particular tack-hammer to take down to the corner,—three doors from where he had found the doggie—and there to nail the "ablatisement" to Mr. Deterling's grocery awning-post. When he began to hammer, Mr. Deterling came out of his store and looked on; and he read the ablatisement and laughed a little and held the paper for Alfred while he wielded the tack-hammer; and Mrs. Holden, who had finished her sewing and was standing at her area-gate waiting for Mr. Holden, came walking to the corner and looked on, and she read the ablatisement and laughed a little, and patted Alfred on the head and said, "You queer little soul." And, when the ablatisement was on good and tight, Alfred stood back a few steps to admire the notice, which looked very business-like indeed, and went home to his tea.

Early next morning the bell rang, and, when mother went to the door, she found there three little boys who had read the notice. They said no, they had not lost a dog; but that last week "Jimmy Salter, this here way," had lost a big jack-knife with one blade and part of another one in it; and they thought that Alfred, having so fortunately found a doggie, might have found their knife also; and, when they heard that Alfred had not, they went away much disappointed.

And before ten o'clock the bell rang again, and there was a lady who had "lost a very precious dog— he slipped by the maid when she opened the door for the postman and ran down the street—not a dachshund, but a white poodle," etc. And, when mother told her the found doggie was a bronze doggie, the lady went

Four rounded tablespoonfuls Ghirardelli's Ground Chocolate; two cupfuls sugar; one cupful milk; butter the size of a small hen's egg; one teaspoonful vanilla; two drops lemon extract. Boil sugar, butter and milk until thick and add chocolate; cook until thread spins when tried; then add extract and take from fire, stirring until nearly cold or becomes sugary. Turn on a well buttered dish and cut in squares.

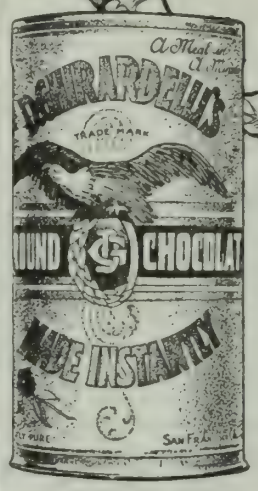


Ghirardelli's Chocolate Fudge

This recipe makes the best fudge you ever ate—This is but one of the dainty goodies that can be made with

Ghirardelli's Ground Chocolate

Ghirardelli's Ground Chocolate is as old as the West. Its purity, strength and healthfulness is retained in hermetically sealed tins.



Ghirardelli's Ground Chocolate makes a beverage that is beyond compare. There is nothing so good—nothing so economical.

Order from your grocer to-day.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

THE ELECTRIC WAY

From San Francisco and Oakland to and through the Sacramento Valley.

Look Up the Rate On All Your Freight.

Train Schedules Designed For Busy Travelers.

Oakland, Antioch and Eastern Railway

Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.

TICKET OFFICES:

Key Route Ferry, In S. F., Sutter 2339

Fortieth and Shafter Ave., In Oakland Piedmont 870

Third and I Streets, In Sacramento Main 261

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

BURN OIL

SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO., Pasadena, Cal.

REDWOOD TANKS—SILOS.

Water troughs, tank Windmills. Prices the lowest. frames, and towers. Steel and Wood

BROWN & DYSON, 640 So. Center St. Stockton, Cal.

away much disappointed.

After that no one came, and Alfred began to hope that the fascinating doggie might, perhaps, be his, after all, and was trying to forget all about the feelings of the possible little go-cart baby-girl, when, late in the afternoon, the bell rang once more, and there came a short, stout, and elderly but very jolly-looking gentleman.

"In reference to a little bronze beagle dog, I understand from my cousin, Mrs. Blake, madame, who called here this morning," he explained, and then asked to see Alfred. Mother invited him into the sitting-room and called her small son, who came just as the jolly gentleman was ending his story—"and threw it at them. It did not hit them nor hurt them, I'm happy to say," he concluded, "but you just ought to have seen those cats run." The jolly old gentleman laughed so heartily that mother laughed, too, as she said, "Here is Alfred."

The jolly gentleman took Alfred on his knee and asked him all about the doggie—even then firmly clasped in a warm little hand—and why he had tried so hard to find the owner. And, when the little boy described the probable grief of the presumable baby, the gentleman chuckled so violently that Alfred almost slid from his lap. "Why, sonnie," he said, patting Alfred's curly pate, "it was I who let the doggie fall," here he glanced at mother and chuckled again, "from the window. I was getting rather tired of the doggie anyway, and I don't want it back any more. I only called to tell you you might keep the dachshund doggie, and here," slipping a bright and shiny ten-cent piece in Alfred's empty hand, "is something to buy him some dog-biscuits."

Then the gentleman bowed to mother and took his departure, leaving Alfred free from all painful misgivings as to sorrowing go-cart babies, in blissful possession of the dachshund doggie, which has been christened Caesar, and which even now—adorned with a big bow of blue baby-ribbon—occupies a soft and sheltered corner in the recesses of the nursery toy-chest.—Christian Register.

ECONOMICAL USE OF THE UNIVERSAL BREAKFAST DISH.

That all eggs have about the same per cent of food value in them, but of course they vary in size, was brought out on the agricultural demonstration train run jointly by the University of Arizona college of agriculture and the railroads of the State. Mrs. G. W. Barnes was the lecturer on domestic economy, who told about the digestibility of an egg:

Two eggs lightly boiled digested in 1 3-4 hours.

Two eggs raw digested in 2¼ hours.

Two eggs poached, plus 5 grams of butter, digested in 2½ hours.

Two eggs hard boiled digested in 3 hours.

Two eggs as omelets digested in 3 hours.

Food value of eggs.—Is due almost entirely to the fat, and what we call protein (which is food value) and is the white of the egg. One egg contains as much food value as one-half tumbler of good, rich milk, or 1½ ounce of fat meat.

Ways of determining freshness of eggs:

1. Hold in front a candle flame in a dark room, and the center should look clear.

2. Place in a basin of cold water and they should sink and lay flat on the bottom of the pan on their side.

3. Place large end of the egg to the cheek and warmth should be felt.

RECIPES.

Hard Boiled Eggs.—Drop egg into boiling water and let stand in a covered saucepan for forty minutes. Set on the back of the range so that it will not boil.

Poached Eggs.—In a shallow pan, two-thirds full of boiling water put ½ teaspoonful of salt to a quart of boiling water, break the eggs into the water; move pan to the back of the range. When whites have turned pearly white and are quivery, the eggs are ready to serve—on slice of toast.

Puffed Eggs.—Separate white and yellows, add seasoning to the white; beat until it will stand alone, spread on a buttered slice of toast into a cup shape; drop in the yolk, butter, one-half teaspoon, and bake in a moderate oven.

Omelet.—Allow one egg for each person. Two eggs, ½ teaspoonful of salt, two tablespoonfuls of hot water, one tablespoonful of butter, dash of pepper. Separate yolks from whites. To the yolks add the seasoning and beat, also water. Beat the whites until they will stand alone, then fold in the yolks. Heat omelet pan, butter, turn in the mixture, spread evenly, cook slowly on the range. When well "fluffed" and delicately browned underneath, place pan in oven to finish cooking at the top. Turn out on a hot plate, garnish with sauce or greens. Variations of omelets by adding meats and fruits and vegetables.

GERMS LIKE GIRLS BETTER THAN BOYS.

"Fathers and mothers, lucky enough to have both boys and girls, know how clean the girls keep themselves, and how the boys disregard dirt," says Dr. H. W. Hill of the Minnesota Public Health Association. "From earliest childhood the little girl's hands and face are washed, and she evades dress-stains, combs her hair, and tries to look nice. But every normal boy, up to the age of fourteen, revels in dirt, and looks forward to the Saturday night bath with virtuous contempt or dread. But boys do not suffer infectious diseases as much as girls. This was brought out in an investigation made of 8,900 children of all ages and sexes. We requested the mothers themselves to report what diseases their children had had. Girls had had more infectious than boys of the same age. This goes to support the modern view that dirt and disease have no necessary relation. It is not the dirt boys revel in that does harm. It is the germs in other people's bodies that should be dreaded. The girls encounter infection more than the boys because they are more sociable, meet other children more, and associate with them more intimately than boys do."

HOW SAMBO GOT THE TURKEYS.

The following story illustrates what Sambo, a religious colored man thought of the efficacy of prayer. He said: "Yesum, I am a prayin' man. I believe dat de Lord do answer de prayers of de righteous. But man must do his part. To illustrate dat ar pint. Now, once I prayed and prayed, dat de good Lord would send Sambo one of dem fat turkeys what belongs to neighbor Jones, but dat prayer was not answered. De Lord was not going' to do all de work. I pleaded wid de Lord to send me after the turkey. So one dark night, when everybody was asleep, I went over to Jones and cotched dat fat bird and fetched him home. Yesum, de Lord answers prayer, but de Christian must do his part." This might have been the same philopher of whom we heard, who, after manipulating a hoe for several hours in a corn field one very hot day, mopped the perspiration from his face, and looking up at the Sun and shaking his hoe at it, said: "Where was ye Mister Sun last January, when we wanted you?" — R. A. Dague.

WHY BABY WAS SO SMALL.

Ethel Clayton, who lives in West Philadelphia, was wheeling her very young baby sister along the street the other day, when a friend of Ethel's mother, who had not yet seen the baby, passed, and, passing, paused to look and admire.

"She is a dear baby," she said. "She has such a sweet little face. But she is very tiny, isn't she?"

"Oh, yes, she's quite small," Ethel answered, with an air of great knowledge. "But that's the kind we wanted. We had to get a little one, you see, because we live in a flat!"—Philadelphia Times.

A RELIGIOUS INNOVATION.

A certain well-brought-up little girl, who lives in the near vicinity of Rittenhouse square, yawned at the breakfast table last Sunday morning and ventured a polite proposition to her mother.

"I really don't feel at all like going to church this morning," she remarked. "Can't we just send cards?" —Philadelphia Times.

Robert was spending the summer near Glen Rapids. The visitors in the hotel made many excursions to the rapids, and Robert heard a great deal of talk about "shooting the rapids." One day he hurried to his mother, saying, "Mother, they keep telling that story about shooting the rapids every day, and I don't believe it." "Why, Robert! Why don't you believe it?" "Well they never take a gun, and nobody's ever brought home any rapids."

A lady was asking her children what they would be willing to give up, as self-sacrifice, during the Lenten season. When it came the turn of a small boy of seven, he at once volunteered with great cheerfulness to give up soap!

The pupils in a school were asked to give in writing the difference between a biped and a quadruped. One boy gave the following: "A biped has two legs and a quadruped has four legs; therefore, the difference between a biped and a quadruped is two legs."—Tit-Bits.

A Chicago banker was dictating a letter to his stenographer. "Tell Mr. Soandso," he ordered, "that I will meet him in Schenectady." "How do you spell Schenectady?" asked the stenographer. "S-c, S-c—er—er—er —Tell him I'll meet him in Albany." —The Argonaut.

The Value of
STILETTO
The banker's endorsement on a certified check is an absolute assurance to you of its value—the name STILETTO on any piece of hardware—any tool—any farm or garden implement or can of paint is equally as great an assurance of value. STILETTO stands for the highest quality attainable in the article which bears its name—it is a positive guarantee of worth—see to it therefore when buying anything for the house, garden, factory, farm, bench or shop — that STILETTO is stamped upon it. It warrants your confidence.
Wherever good goods are sold you can get STILETTO brand.
Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.
STILETTO
REG. U.S. PAT. OFF.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Jan. 20, 1915.

WHEAT.

The upward movement has continued, as the export movement has taken so much of the northern crop that some handlers are predicting a shortage for domestic use. All lines have advanced about 10c per ctl.

Cal. Club, Ctl	$2.30@2.35
Forty-fold	2.40@2.45
Northern Bluestem	2.50@2.55
Northern Club	2.30@2.35
Northern Red	2.30@2.50

BARLEY.

The nature of the current movement is indicated by one day's arrivals this week, when 148,000 ctls. passed through for export, and 200 ctls. arrived for the local market. There is, however, a strong demand for feed in the country, and prices on both grades show a further sharp advance .

Brewing & Shipping	$1.55@1.60
Choice feed, per ctl	1.50@1.55

OATS.

Black seed is now little more than nominal, both supply and demand being of negligible proportions. Red feed has again been marked up, as northern offerings are being taken up for export, and white also is higher.

Red feed	$1.55@1.60
Seed	1.80@1.90
White	1.80@1.85

CORN.

The high prices of other feeds have caused a heavy demand for all kinds of corn, especially for poultry feed. California and eastern yellow remain firm as last quoted, while Egyptian is higher.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

BEANS.

The demand shows a marked revival for the last week, with large shipments to the eastern and southern markets. As there is every indication of a sustained demand, and supplies are by no means excessive, prices on most descriptions show a very marked advance. Blackeyes and small whites are especially strong, though bayos, cranberry and horse beans, red kidneys, etc., are all higher than last week. The leading handlers of limas note a great improvement in eastern business, and believe the crop will be closely cleaned up at present prices or better.

(On Wharf.)

Bayos, Cal., per ctl	$5.25@5.50
Blackeyes	4.75@5.00
Cranberry Beans	4.25@4.50
Horse Beans	4.00@4.50
Small Whites	5.00@5.25
Large Whites	4.50@5.00
Pink	4.00@4.25
Limas	5.25@5.35
Red Kidneys	5.50@6 00
Mexican Red	5.00@5.25

SEEDS.

There is nothing new in this line, the present demand being rather slow, though there is not much offering in most varieties.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3½@ 4 c
Millet	2¾@ 3¼c
Timothy	7½@ 8 c

HAY.

Hay continues to come in on about the same scale as before, and there is little change in local conditions, though the market has been a little easier than usual during the week. Offerings are in excess of requirements, and buyers show very little interest. Stocks in the country are said to be still very heavy, and more pressure to sell is expected as the time of spring tax payments approaches, so the outlook for prices in the near future is not encouraging. Offerings of alfalfa have been slightly larger, with a fair local demand.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	40@ 45c

FEEDSTUFFS.

There is a lively demand for most lines of feed, and with the principal grains commanding extreme prices, several descriptions of feed are still advancing. Efforts are being made to substitute cheaper feeds for the more expensive, resulting in a very firm feeling all along the line. This week bran and shorts, as well as rolled barley and oats, have been marked up.

Alfalfa Meal, ton	$15.00@16.00
Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	40.00@41.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	34.00@35.00
Shorts	33.00@34.00

VEGETABLES.

The local demand has been a little livelier for the last few days, and with rather light offerings in many lines, prices show a little more firmness. String beans hold steady at the recent advance, and limas and peas are higher. Bell peppers are scarce and high, with a slight advance in chilis. Los Angeles tomatoes have eased off, as most offerings are in poor shape; though some Imperial stock sells up to $1.75. A little eggplant is again appearing. Attractive lots of Delta celery are doing better, with some fancy selling at $1.60 per crate, and southern lettuce also has advanced sharply.

Mushrooms, lb	10 @20 c
Peas, lb	11 @15 c
Peppers, Bell, lb	10 @12½c
Chili, lb	5 @ 6 c
Carrots, per sack	30 @40 c
Tomatoes, crate	30 @75 c
Beans:	
String	10 @15 c
Lima	10 @12½c
Eggplant	8@10 c
Cream Squash, box	25 @40 c
Celery, doz	10 @15 c
do, crate	$100@ 1.40
Sprouts, lb	2 @ 4 c
Lettuce, crate, So	60 @ 1.00
Rhubarb, box	75 @ 1.25
Hothouse cucumbers, bx	$2.50@2.75

POTATOES AND ONIONS.

Potato prices show quite a wide range, according to quality, with first-class stock tending to advance, as such goods are unusually scarce. Ordinary offerings, however, are quite plentiful and move slowly. Onions are fairly steady as last quoted, while garlic is now very closely cleaned up and held at extreme prices.

Potatoes, Oregon, ctl	$1.50@1.75
Salinas, ctl	1.50@2.00
River Burbanks, ctl	1.00@1.15
Sweet Potatoes, ctl	1.50@1.75
Onions, yellow, sack	90 @1.00
Garlic, per lb	19 @ 20c

POULTRY.

Offerings of turkeys are rather light now, and have been well received, though without change in prices. In other lines values remain about as before, with receipts about balancing the demand.

Live Turkeys, lb	20 @21 c
do, dressed	22 @25 c
Broilers, small	23 @26 c
Fryers	19 @20 c
Hens, extra, per lb	17 @18 c
Small Hens, per lb	16 @17 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb	9 @10 c

BUTTER.

The market shows a little better tone this week, both extras and firsts standing a little higher. Supplies are coming in fairly well, both from nearby and northern points, but have been readily absorbed by the trade.

	Thu.	Fri.	Sat	Mon	Tu.	Wed.
Extras	28	28	28½	29	30½	30
Prime	25	25	26	26	26	26
Firsts	24	24	24	24	24	24

EGGS.

Prices continue to jump up and down from day to day, showing a range of 5c. for the week. Supplies at the moment are rather light, and extras are higher than last week.

	Thu.	Fri.	Sat	Mon	Tu.	Wed.
Extra	30½	29	31½	34	29½	30
Sel. Pul.	27½	26	30	30	28	28

CHEESE.

Flats have been moving well, and show a slight advance, the better offerings of Monterey cheese also being stronger.

Fancy California Flats, per lb	14½c
New Young America, fancy	13c
Monterey Cheese	14@16c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	26	26	28	29	29	31
Eggs	28	28	29	31	35	31
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

Cranberries are no longer much of a feature, and offerings of cold storage pears are limited, leaving apples as about the only thing worth mentioning on the market. Local sales continue slow, and while there has been a little firmer feeling, caused by the receipt of some shipping inquiries, values have not improved quotably.

Apples, Newtown Pippin	50@ 90c
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, box	1.00@1.50

DRIED FRUITS.

The dried fruit situation is becoming more encouraging right along, as inquiries from outside markets for nearly all varieties have been steadily increasing, and with only limited supplies in most lines, it appears that the strength will sooner or later extend throughout the list. The only quotable advance is on prunes, which can no longer be had below 6 c., while there is a very fair demand from the east. Apples are moving fairly well, and may get better figures, especially if foreign deliveries can be made. Apricots are very scarce. Peaches are getting a little more attention, and some packers quote 3¾c as the inside price, but a good many sales in the country are still reported below that. The southern market, however, is picking up, the high price of other fruits is getting more attention for peaches in other markets, and the remaining stock should be sold at prices that will cover the cost of production, at least. The New York Journal of Commerce says:

Owing to demand from the interior and a little more inquiry from local distributing trade, the market for spot apricots is firmer, and the trend of prices is upward. On choice Royals ex store here 9½c seems to be the best that can now be done, though some holders might still be disposed to shade this figure a little. On extra choice 10c is named by most holders as the best they will accept on spot stock, while on fancy 11c is generally quoted. Peaches are not active on orders from the local trade, but, according to advices from California demand from interior markets is increasing, and, as the bulk of the Coast stock is well controlled, a firmer feeling prevails among sellers.

In California prunes for forward shipment from the Coast not much business is being done on orders from distributors in this section. Holders of California goods receiving more orders from interior consuming markets, with supplies of the more popular sizes getting into smaller compass, are disposed to raise their quotations.

Evap. Apples, 1914	4½@5½c
Apricots, 1914	6 @9 c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5c
Prunes, 4-size basis, '14	6@ 6¼c
Peaches, new	3 @4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction reports are to the effect that oranges are in better demand at a little higher prices. Lemons are unchanged.

At New York on Monday, January 18th, oranges averaged from $1.60 to $2.85 per box; Boston prices were about the same, while Philadelphia, Cincinnati and Baltimore auctions were a trifle lower on that date. Lemons range from $3.20 down to $2.55 per box.

Shipments from Butte county have about cleaned out the crop there—the total shipments up to January 16th being 486 cars. From Tulare county the shipments up to Jan. 16th were 4,955 cars, being nearly 1,000 cars in excess of last year. The navel crop from that district has been about all shipped. From Southern California the shipments up to Jan. 17th were 2000 cars of oranges and 629 cars of lemons, as against 2980 of oranges and 314 cars of lemons to same date last year.

San Francisco business in citrus goods is a little better this week, with some improvement in prices, though stocks are still too heavy to permit any pronounced firmness. Navel oranges have been marked up a little, and grapefruit is also doing better, with some strictly fancy stock selling up to $3.

Oranges: Navel, box	$1.25@2.00
Tangerines, small box	1.10@1.50
Grapefruit, seedless, box	1.75@2.00
Lemons, box	1.50@2.50

NUTS.

There is more demand for strictly fancy almonds this week, and some buyers are offering 18c to 20c for first class Nonpareils and IXL's, which are getting well cleaned up. Less desirable offerings, however, receive little interest. It is said that California walnuts of desirable quality are now pretty well cleaned up.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

Prices are little more than nominal, as very few sales are being closed, and there seems to be an almost unlimited amount scattered around the country. Some dealers, however, express hope of finding an outlet for a good deal of stock before long, though there is no assurance that this can be done.

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

HOPS.

Dealers report a good many lots of last year's crop still scattered around the State, and they are now taking more interest in such offerings, taking all that can be had within the range quoted.

1914 Crop	9 @13 c

LIVE STOCK.

Live wethers and lambs show a slight advance in the local market, though the only lambs now appearing are yearlings. Other lines are steady as last quoted. Sheep are still a leading feature in the country, as some large sales are being made in northern California at rather high prices.

Steers: No. 1	7 @ 7¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½@ 5¾c
Bulls and Stags	3 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs	7 c
100 to 225 lbs	7½c
Prime Wethers	6½@ 6¾c
Ewes	5¼@ 5¾c
Yearling Lambs	7½@ 7¾c

DRESSED MEATS.

Steers	10¾@11½c
Heifers	10½@11 c
Veal, large	13½@14 c
Small	15 @15½c
Mutton, Wethers	11½@12½c
Ewes	11 @11½c

Suckling Lambs ...13½@14 c
Dressed Hogs .....11½@12 c

HORSES.

There are signs of increasing activity in the local market, as more inquiry is noted for heavy stock, and a few more desirable drafters are being offered. Miscellaneous arrivals, also, are fairly large at present, and the market seems to absorb them without difficulty.

Publisher's Department

One of our advertisers from Napa county writes us that the announcement of his Duroc hogs in the Rural Press recently, sold out everything inside a month. "It is the best farm paper in California to advertise in."

One hundred and eighty-five new paid subscribers were added to our list during the past week.

As a result of publishing in this paper recently the query of one of our lady subscribers relative to finding a market for goose feathers, we have had several letters sent to the office by other subscribers, asking for the address as they wished to buy them. Which leads to the conclusion that a liner advertisement in our columns would find buyers for many articles produced on farms for which there was no local market.

Work on our new book, "California Garden Flowers," is progressing slowly. We had hoped to have the book ready for the trade before this, but owing to circumstances we now expect to have it completed by Feb. 10th.

Our new book, "California Poultry Practice," is meeting with a fine reception. The sales are growing steadily, and buyers express themselves as well pleased with it. We anticipated a good demand, but sales are growing faster than we hoped for.

ORPINGTONS FOR FARMERS.

(Continued from page 123.)

ates in strings.

For Layers.—Now what can be said of Orpingtons as layers? After raising them for twelve years we are satisfied that while some of the non-sitting breeds may lay a few more eggs in summer time, the Orpingtons will outlay them 3 to 1 in winter at a time when eggs are worth more, usually, though this winter the prices have been very low. They make good sitters and excellent mothers; but here too we find a little difference, the Buffs are better sitters, as a rule, than the Whites. And the Whites can be broken up much easier than the Buffs can, under the same conditions. This, to me is an indication that the broody instinct can be bred out of the Whites, in fact I have bred it out, in a measure from a good many of my birds, but do not think it wise to go too fast at such reform.

A hen that makes a good layer of good sized eggs and wants to raise a family is entitled to a chance. After raising her breed the chicks that come from her eggs will be strong and well endowed with her good qualities, so I always encourage a good hen to sit and raise a brood, then when she commences to lay I see to it that she consorts with the right kind of company and use her eggs for a special hatching. Like all other breeds there are good and poor strains; good and poor specimens; culls are bred, that ought to be sent to market for table purposes; the culls in the White variety are not so noticeable as the Buffs owing to color and the greatest deterioration has occurred in the Whites, owing to this one fact.

FEDERATED POULTRY ENCOURAGED.

E. J. Talbott, Secretary of the Federated Poultry Association of San Francisco, receives the following letter characteristic of many that are coming as the object of the Association becomes better known:

"You have commenced a good work and I can assure you that you will receive the support of our association as far as it can.

"We have just organized and Prof. Dougherty is to speak to us this week. Thank you for your kindness in including us. We wish the Federation success.

"C. D. ANDREWS, Pres.

"Lanare Co-operative Poultry Association."

SELECT GRAIN EXHIBIT FOR THE EXPOSITION.

Competing for the opportunity of displaying their exhibit of grains and grasses at the Panama-Pacific exposition, the members of the Wisconsin Agricultural Experiment Association presented recently at the midwinter grain show the largest and best showing of grains and forage crops ever assembled in the Badger State.

Each of the prize winning samples will be sent to San Francisco to be installed there in the State exhibit. It is certain that Wisconsin will be well represented in this department of the international exposition.

The officers of the association reported that the past year has been one of the best since this organization was formed fourteen years ago. The membership has increased to nearly 2,000. In ten counties, orders or branch associations have been organized the past year. Such district organizations now exist in 47 or more than one-half of the counties of the State.

Prof. R. A. Moore, secretary of the association, reports the following average yield tests of pedigree grains for the year 1914: No. 12 corn 58.5 bushels to the acre; No. 7 corn 59.8 bushels; pedigree oats 37.1 bushels; pedigree barley 33.3 bushels; pedigree rye 25.1 bushels; winter wheat 26. bushels and spring wheat 16.9 bushels.

[The "Association" here mentioned is composed of graduates of the Wisconsin College of Agriculture who have gone back to the farm. They are trusted with the first field tests of grains that have been bred up for Wisconsin conditions on the College seed-breeding plots and have found their connection with the Association a profitable feature of grain growing. The Association fills orders for seed from all the continents of the world by collecting it in small amounts from members. It also has numerous other activities such as grain exhibits conventions, etc.—Editors.]

BUY IT NOW

We farmers can bring back prosperity at once by buying our Spring needs now, instead of waiting.

FOR SALE 3000 Pounds of Bitter Almonds

CALIFORNIA ALMOND GROWERS' EXCHANGE

Sacramento, California

Equipment for frost fighting won't be delivered on time unless it is ordered now—or sooner.

Classified Advertisements

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

BEST ALFALFA land in King's county; 83 1-3 acres, 80 of which in alfalfa, one to three years old; plenty of water; six miles from railway station. Worth $12,500. For sale for cash price or on easy terms to right party. If interested write Attorney L. E. Petree, San Jose, Cal.

FOR SALE—28 ACRES, 5 acres vineyard, 1½ peaches, 20 acres of alfalfa. 6-room house, barns, windmill. Water piped to house. Under the ditch 1½ miles from Modesto. Price, $10,500. Terms. John Robinson, R. 1, Box 21C, Modesto, Cal.

HAVE VERY DESIRABLE place on the Sacramento river, but being short of money to improve, would sell half or would consider taking partner with A1 recommendations. For full particulars, address Box L, this office.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

FOR RENT.—185 acres level land, suitable for dairy or garden. 60 miles from Oakland—½ mile from S. P. station; 50 acres alfalfa; ¼ mile river front. Box O, this office

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg San Francisco

ALFALFA LAND—27 acres Oakdale Irrigation ditch. House, barn, well. Lease 5 years, cash rent, $150 per year. Joe Black, 2222 Broadway, San Francisco.

FOR SALE—Biggs Rice Farms. Proven the finest land in this section. Improved land, $110 to $150 per acre. Terms. Wm. H. Boyles, Biggs, Cal.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

STAMPS FREE.—205 different foreign or 101 United States, with Mekreel's Stamp Weekly, 27 Kast, Boston, Mass., six months; remit, 25.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

WHOLESALE PRICES on merchandise of all kinds. Truly co-operative. Write for plan. Pacific Co-operative League, San Francisco.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AGRICULTURAL HYDRATED LIME—Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

NOW IS THE TIME to get a good Fox Terrier Pup. I have some for sale. C. R. Fontana, Box 464, Dixon, Cal.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R 2, Woodland, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., box 12, Nordhoff, Cal.

BELGIAN HARES.

SPECIAL SALE of thoroughbred Belgian Hares. Write for prices. Hurd Bros., Rabbit Yards, St. Helena, Cal.

TREES AND NURSERY STOCK

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

CALIFORNIA GROWN SOUDAN GRASS SEED—Absolutely free from Johnson Grass or other weed seeds. I have a limited amount of this seed. Until sold will fill orders less than ten pounds for $1 per pound; over 10 lbs., 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

DON'T EAT HIMALAYA BLACKBERRIES until they are ripe—dead ripe; then you will eat them whenever you get a chance. All tender sweet pulp and juice; scarcely a trace of seed or core. A few plants will supply you and your neighbors. Order plants now. R. E. Hodges, Underwood Bldg., San Francisco.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville.

BURBANK'S THORNLESS BLACKBERRY—A very limited supply of this new wonderful plant, a new creation, fast grower and heavy producer of fine berries, for sale at $1.50 each, or $1.00 each for 5 or more. J. I. Jewell, Santa Rosa, Cal.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Riviera, Cal.

CHOICE MANZANILLO OLIVE TREES.—Will be two years old this planting season. Cuttings taken from some of the heaviest bearing trees in California. Diameter, ⅝-inch and larger. F. F. Palmer, Box 235, Claremont, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail. Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia ave., Whittier, Cal.

PLANT RUSSIAN RIVER non-irrigated trees. More hardy. Better root system. Self-reliant; didn't have to be weaned. Got the go—you get results. Price list, all kinds, mailed on application. Miller & Gebbi, Healdsburg, Cal.

CHOICE MANZANILLO OLIVE TREES—Will be two years old this planting season. Cuttings taken from some of the heaviest bearing trees in California. Diameter ⅝ inch and larger. F. F. Palmer, Box 235, Claremont, Calif.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

WALNUT TREES—Eureka and El Monte varieties a specialty; also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

BUY FRUIT TREES of the grower. Finest apricots and Pears, 12½c, 10c and 8c. Apples, 5c. Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

STRAWBERRY PLANTS—Gold dollar and Marshall at $3 per thousand. Head River and Magoon at $4 per thousand. N. A. Stimson, Denair, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

SEED CORN—Large growing white dent. 10 cents per pound by mail for selected ears or graded shelled. C. W. Jenkins, Live Oak, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

WANTED.

YOUNG MAN, who is now foreman on large stock ranch, wishes to lease an improved property—on shares or for cash. Wishes to raise hogs and dairy cattle. Has a technical agricultural education and small capital. Address Box N, this office.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

Managing the Business of 8,500,000 Telephones

Imagine a manufacturing business having millions of customers scattered over the country, with millions of accounts on its books, most of them less than $30 a year, and including a multitude of 5-cent charges.

Consider it as having shops and offices in thousands of cities, and reaching with its output 70,000 places, more than there are post offices in the United States. Think of the task of patroling 16,000,000 miles of connecting highways constantly in use.

This gives you a faint idea of the business of managing the Bell System.

Not all the 8,500,000 telephones are in use at once, but the management must have facilities always adequate to any demands for instant, direct communication.

In so vast an undertaking, every branch of the organization must work in harmony, guided by one policy. The entire plant must be managed in the light of accumulated experience, and with the most careful business judgment.

The aim of the Bell System is to make the telephone of the utmost usefulness. This requires an army of loyal men and women, inspired by a leadership having a high sense of its obligations to the public.

Animated by the spirit of service, and unhampered by red tape, the 150,000 Bell employes have the courage to do the right thing at the right time upon their own initiative. They work together intelligently as a business democracy to give the public good service.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

Little Stories of Success

No. 1

You've probably heard of the Colony Holding Corporation. They're laying out several thousand 5 and 10-acre orchard tracts around Atascadero in San Luis Obispo County. The Caterpillar Tractor is the cheapest way they've found for clearing the land. Mr. Lewis, the president of the company, declares that hand work costs nearly double Caterpillar work for clearing. After he discovered the comparative costs, he let 500 men go and replaced them with Caterpillars. It is hard, rough work pulling trees and stumps in rough ground. But the Caterpillar is built to stand it, and with its long, wide track it can go almost anywhere a horse can.

If you're thinking of getting a tractor and live near Atascadero, better drop around and watch these Caterpillars at work. Or write us and we'll tell you who has one in your neighborhood.

THE HOLT MFG. CO.
(Incorporated)
Stockton San Francisco Los Angeles
Both Expositions — San Francisco and San Diego

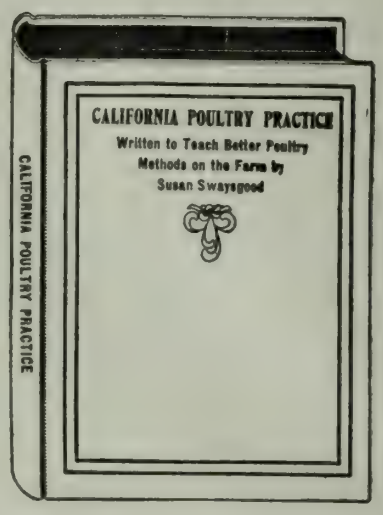
CATERPILLAR
Reg. U.S. Pat. Off.
Don't say Caterpillar unless you mean Holt!

CALIFORNIA POULTRY PRACTICE

Written to Teach

BETTER POULTRY METHODS

On the Farm



BY

SUSAN SWAYSGOOD

Contents by Chapters.

1 Some of the Advantages of California Poultry Raising.
2 When and How to Start in the Poultry Business.
3 Location.
4 The Colony Plan.
5 Open Front Houses.
6 Large and Small Plants for Eggs.
7 The Care and Management of Eggs.
8 How to Build an Incubator Cellar.
9 How to Run the Incubator.
10 Raising the Chicks.
11 Why Chicks Die in the Shell.
12 A Few Don'ts in Raising Chicks.
13 Brooders and Brooding Systems.
14 The Building of Brooder Houses.
15 Poultry Appliances.
16 Raising Broilers.
17 Feeding for Eggs.
18 Balanced Rations, What are They?
19 Feeding the Breeders.
20 Fattening and Preparing Fowls for Market.
21 Balanced Ration for Heavy Breeds.
22 The Mold that Injures Poultry.
23 Egg Foods, or Condition Powders.
24 The Value of Milk in the Poultry Yard.
25 The Management of Poultry During the Summer.
26 The Molt in California.
27 The General Purpose Fowl.
28 Capons.
29 Prepotency and Prolificacy.
30 The Mediterranean Class.
31 The American Class.
32 The French Breeds.
33 The Asiatic Class.

Just from the Press

Mrs. Swaysgood has spent a lifetime in raising poultry, mostly in California. This cloth-bound book of 160 pages, beside half-tone pictures, tells of the up-to-date methods now used on California poultry farms. Every reader of this journal should have a copy.

Price, $1.00 Postpaid

Pacific Rural Press

525 Market Street

San Francisco

Vol. LXXXIX—No. 5 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, January 30, 1915 LOS ANGELES

State Library 7-1-16

Blowing Straw in Barn Pays.

[Written for PACIFIC RURAL PRESS.]

Grain raising on the diversified farm has become exceedingly unpopular since the bonanza wheat days. This is probably due to the cutting down of the yield caused by the depreciation of the strength of the land and to the fact that there has been no commercial fertilizer cheap enough to restore profitably the chemicals needed in the soil for this purpose. It is greatly to be regretted that the use of manure on the diversified farm is entirely applied to orchards, truck gardening and similar purposes; while the grain fields, which have depreciated from fifteen or twenty sacks to the acre to eight or ten sacks to the acre, have been left entirely untouched by this most valuable of restoratives available to the average farmer.

The use of barley on the farm, whether it be the fruit ranch, dairy farm, or the generally diversified farm, is a conceded necessity. The use of wheat for flour must be admitted to be a most valuable factor toward keeping down the farmer's expense bills. Oats will always naturally be needed for the seeding of hay land. The farm work horses, the dairy cow, and the piggery will always require that one of these three grains be produced or be purchased. If purchased, there will always be the middlemen's profits and the expense of hauling and storage. It may, therefore, be considered that any farm that can produce these grains is that much better off than the farm which is forced to buy them, unless they can raise other things still more profitably.

Saving All the Straw Adds Fertility to the Soil.

Let us turn to the most important by-product of grain, namely, the straw. We need not touch on the necessities of straw, for instance, such as bedding for horses and hogs; but turn immediately to that most important use—as an absorbent for liquid manure.

The old method of handling straw was so expensive and so inefficient as to preclude many farmers from giving it the important part that it should play on the farm. For instance, the loading of the wagons with straw is a very slow, expensive operation; the hauling from the field requires large wagons that will carry at best small loads; the pitching of the straw into the barn is an operation which seems to have remained in the same place that it did years ago, and to which operation no modern machinery has presented itself for a quicker and more efficient solution in handling. In fact, it requires some times several handlings to get the straw from the wagons and properly stored in the barn.

There is, however, a new method that has been used on the Melone Ranch Company at Oak Knoll, Napa county, that may appeal to many. This method is accomplished in the following manner: First of all, the settings or stacks of grain, whether they be wheat, barley, or oats, are no longer made in the field; but are hauled direct from the spout of the header or from the reaper, if such be used, to a large lot adjoining the stable containing the work horses. They are so placed that when the big steam threshing outfit visits the place in the fall of the year, it can place its derrick wagon, separator, cleaner and strawchopper in such a manner as to have the spout of the grain separator, from which all of the waste straw is blown, carried directly into the loft of the horse stable. This can be seen in one of the accompanying illustrations. The pipe leading from the threshing machine is about fourteen inches in diameter and protrudes five or six feet into the barn. The elbow on the end of this pipe can be turned in such a direction as to blow the straw toward any corner of the barn desired, much as the silage from a silage cutter is blown into a silo. In this way, better straw is obtained for the bedding of the horses and the absorption of the liquid manure, and none of the straw is wasted. This waste in the field from the wind and during the hauling process amounts to a great deal and is, in fact, the best part of the straw.

Then it should be noticed that all of the grain that goes through the separator and is generally scattered broadcast in the field in the old manner is, by this new process, saved and can be gathered up from the floor of the barn at the end of the next year and fed to the stock.

This saving alone would pay for any little cost incurred in making a hole in the side of the barn, which is really the only expense entailed on the farmer in this new operation.

Among other important advantages, it might be mentioned that the straw is put away far quicker by this method. The average threshing machine threshes out three or four settings in a day's running, and at the end of the day's threshing the straw is all nicely stacked in the barn ready for the winter. No machinery need be purchased by the farmer for this operation. Further, among other advantages, no insurance on the grain while stacked in the field need be carried, as it is threshed right at the barn and can be dumped in the bin the day after the threshing. Again, the fields are all available for pasturage immediately after heading as the grain is not left stacked. In the field there is no danger of the stock breaking in on the grain, trampling the stacks and even injuring themselves by overeating of grain.

After the straw is placed in the stalls for the night's bedding, the litter is much more readily removed an account of the straw being chopped than when whole straw is used and is far more absorbent. A greater quantity can be carried off in the litter carrier than when the straw is not chopped and a greater amount stored in the manure pit because of the same fact. Again, the straw in the manure pit much more readily decomposes and can be then much sooner available for fertilizing than when the whole straw is put in.

The traveling threshing machine prefers this method of threshing, as it is not obliged to move from one field to another; but makes one setting to handle all of the grain to be threshed on the ranch.

There is no doubt but the ingenious farmer can devise a method of using a blower run by a motor or gasoline engine to blow the grain up into the bin in the barn in the same manner that the straw

(Continued on page 139.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisement must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., January 26, 1915.

Stations	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.14	23.27	23.27	60°	38°
Red Bluff...	.58	12.28	13.44	62	32
Sacramento.	.20	6.66	10.15	58	34
S. Francisco.	.81	10.49	11.89	62	44
San Jose....	.55	8.24	8.61	64	32
Fresno.....	.14	3.71	4.92	64	36
Indep'nd'nce	.00	1.18	4.87	58	20
S. L. Obispo.	.48	8.31	9.73	68	36
Los Angeles.	.32	4.90	7.41	68	46
San Diego..	2.34	6.52	4.84	66	46

The Week.

There will come to California as a by-product of this year's expositions a line of elegant publicity which, perhaps, most of us had not anticipated. We expected to startle and please the world by these uniquely beautiful and significant show-downs and show-ups of resources and industries, and to set the world to talking, but we probably had not anticipated making such a dent in the world's literature as is now beginning to appear. Of course, we expected a lot of good ephemeral publication in papers and magazines, but to get California gloriously into books which are likely to live—that is the surprising joy of it. And we do not mean books which will only live locally—but the books of the world's width: in what the scholars call "lit-er-a-toor"—not the "lit-ra-chewer" of commerce and promotion. Of course, such books will not be written by us ourselves—resident, provincial Californians that we are We keep up our din and clatter, of course, and the grand things we can say of California are charitably pardoned by the world as innocent symptoms of the disease megalocephalitis; harmless in our case, but dangerous in some cases, as, for instance, the aggravated outbreak of it recently in one of the nations of Europe. For this reason, resident Californians could not make the books to which we refer, even if they had the talent for it Such books can only come from those who have graduated from California life into the world's higher literary atmosphere —these are the ones who can take the world by the ears and compel attention.

For example, that exponent of the higher literary criticism, the North American Review, says of Gertrude Atherton's new book entitled "California": "A valuable point about it is the way in which it shows the striking wholeness and consistency of California's history. We Easterners, struck by the melodramatic color of certain of its periods, are too apt to think of it as episodical and disconnected. The fact is, that in no society have certain salient qualities been more persistent. * * * The result was a society ruled, not by virtue of money or family, but by vigor of mind and body; and as such vigor is confined to no one class the result was a pretty constant turmoil, which has by no means subsided, even today. Yet, though the gear is lowered, the machinery is the same. There has never been but one California, in the nature of things there never can be another."

California Is Different.

Thus this world's exponent of discrimination emphasizes the point that California is different, and accepts Mrs. Atherton's demonstration thereof. But there is another book just out, entitled "California" also, and it is by Edwin Markham, for forty years a Californian, who entered the world's guild of writers with "The Man with the Hoe," which is voted good poetry, even if it is poor agriculture, and it made his fame. Mr. Markham's new book glorifies the physical features of California, as no one who has lived among them can escape doing, and he, too, describes the California people, which, after all, are the greatest resource of the State. He writes: "They are hospitable to culture, they like books and music and painting and the drama. Much of their life is spent out of doors. There is usually an April touch in the air. Energy, vitality and cordiality abound. Somebody, summer and winter, may always be found celebrating something"

It is true, indeed—the receptivity, the confidence, the human-kindliness, the bouyancy of the California people! It is the product of their historical experiences and the grandeur of their environment. And now the world knows it: not because California claims it, but because a poet grants it. The world has always been led by poets—not by orators nor by warriors. And now the world, weary, wounded and woebegone, is listening for a poet's call as never before. All Europe is looking for the combination, "energy, vitality and cordiality." It is being destroyed for its admiration of energy, vitality and cruelty. Two books entitled "California," by two leaders in world-literature, appearing almost simultaneously—it is one of the greatest things the Expositions have done for the advancement of the State. Joy to the world: in California, "somebody, summer and winter, may always be found celebrating something."

A Secretary of Agriculture.

But let us get down to earth. There appears in full upon another page a bill which is pending in the Legislature at Sacramento for the organization of a State Department of Agriculture, which everyone is commended to read and carefully consider. It has very strong support from the near-farming interests and organizations, so far as we have heard, and it proceeds from the State Fruit Growers' Conventions as the work of a committee duly appointed. It has many very obvious advantages from the point of view of efficient organization, possible economy and avoidance of conflict and duplication of work through the host of commissions which now exist. Can it do what the people desire, as well as they? We cannot answer that at the moment, for we do not know. Everyone should consider it from the point of view of the public service now performed for the branch of agriculture in which he is interested. We can see clearly enough that if it loses nothing which is worth while, it certainly gains very much It is surely very fitting, theoretically, that the greatest industry of our State, operating in many specialties, should have a single executive department of the State operating through divisions for these specialties, because this industry can then speak and act as a unit when that is desirable or necessary, and the Governor, the Legislature and the people would not be distracted by the raucous cries of a lot of petty chieftains whenever a problem or a pest appears upon the horizon. But we do not propose at this moment to argue the general question, the bill is before you: go to it in your societies or in these columns, as you prefer. It should, however, be noted now that this bill does not include all State effort, which is chiefly related to agriculture. It takes into combination, as you can see from the bill, those commissions which relate most directly to practical agriculture. There is another bill, of which we have not yet seen a copy, which creates another grand combination of what may be called near-agriculture work, such as conservation, forestry, some forms of water-work, fish and game, etc., and practically duplicates the Secretary of Agriculture with a Secretary of Resources (perhaps). At first sight this bifurcation does not please us at all—but perhaps we do not know enough about it yet. At first glance it seems to lose by segregation exactly all that it has been hoped to gain by combination: that the Governor of the State, instead of driving a six-cylinder, seven-passenger automobile with force and grace, would be ordered to propel and parallel a pair of jitneys, facing backward with one foot on each engine-hood. However, we are not ready to paint that picture just now.

The University and Rural Credit.

We wish to call particular attention to the reorganization of the official agriculture of the State into a single executive department because it is fundamental in a scheme of rural credits and colonization which a committee of University professors has commended to the Legislature after several months of study and investigation. This scheme, of which we shall have the details in a later issue, for the bills have been introduced, is based upon a rural credits measure which provides for a State fund to be administered by a board consisting of the Secretary of Agriculture, Bank Commissioner, Controller and one other to be appointed by the Governor, and that loans will be made for thirty-five years at not less than 4 per cent interest. This bill carries an appropriation of $200,000 for the organization of a bonding fund from which nearly $4,000,000 can be raised for the purpose of making loans to farmers and home-builders, the bonds being issued upon mortgages to not more than half the value of the property, and guaranteed by the State. As the credit of the State is involved in these debentures, a constitutional amendment authorizing it has also been introduced.

The other measure provides for the settling of farm lands by the State for private owners, under conditions which will insure success to

the settlers, and the amount of land to be settled by each person will be determined by a commission consisting of the Secretary of Agriculture, State Engineer, Attorney-General and Dean of the College of Agriculture at the University. Bonds to the amount of $1,500,000 are to be issued to carry on the scheme, and an appropriation of $40,000 is asked to start the project. The proceeds from the sale of bonds will be used to make necessary improvements, the actual cost of which will be added to the price of the land—the whole to be repaid in installments covering a long term of years at low interest.

The Purposes of These Acts.

The foregoing outline does not undertake to show how the effort to enable the State to aid land owners, who need capital for improvements, is administered and safeguarded. The reader must wait for that until we get the copies of the laws. The same is true of the colonization act, which proposes to take good land from owners at fair wholesale rates, make improvements thereon at cost to settlers and select settlers according to character and agricultural knowledge and efficiency—selling to each an amount of land which will enable him to live and pay out, according to the kind of farming he undertakes. The land-owner will only get the appraised value of the land and low interest—if he desires to have his land subdivided and sold in that way. Otherwise he can do in the future as he has done in the past. The indication is that owners would hand over to the State all the land which can be used, if such a plan of improvement and subdivision should be provided for. No land could be accepted by the State authorities unless its quality and capability were reported favorably by the College of Agriculture: no settler would be given land unless he could show qualifications for success: no money would be advanced for equipments and buildings unless they were approved, and no expenditure for other than specified purposes would be permitted. The program essentially is to take good land, prepare it for good farming by a settler who can and will do good farming, and to help him to succeed by easy terms of repayment and dependable advice in the lines of production which he may undertake. It is to help men who can use good land well to get on the land; to stay on the land; to own the land.

The Rate of Interest.

It is not the purpose of the measures produced by the University committee to arbitrarily fix rates of interest. It recognizes that that is practically beyond fixing by law except as to usurious rates—and that is not directly involved in its work. The rate of 4 per cent is mentioned in connection with bonds, because all local financiers, so far as heard from, agree that a four-per-cent bond with State guarantee will be considered desirable by both personal and institutional investors. The operation of the proposed law would be to equalize interest rates throughout the State, and to reduce the exactions, aside from interest, which are sometimes inflicted upon even good borrowers. These exactions are sometimes shameful and the rate of interest charged in some places is extortionate. These laws are, however, not presented as financial panaceas; they are intended to do a certain work reasonably and successfully, and their influence may be greater than the measure of their transactions. If so, it will be for the public benefit.

There is one point regarding interest rate which this writer would like to say personally, and not as a member of the University committee, which has neither said nor done anything about it, so far as we know. Edward F. Adams, writing under his own name in the Chronicle, says this: "One thing overlooked by some who propose using State funds to make mortgage loans is that it is a proposition to have the State—which in this case means its taxpayers—engage in competition with the thrifty citizens—mostly those of small means—whose aggregate deposits make the loanable funds of the savings banks. Those banks now usually pay depositors 4 per cent. Formerly they generally paid 3 or 3½ per cent. To the extent that the taxpayers enter into competition with the depositors in savings banks the taxpayers would tend to diminish the earnings of the money of the depositors."

On this point we desire to remark that we do not see that it is true at all. It is true in European experience that the savings banks, which cried that they would be ruined when the governments, all the way from Italy to Ireland, began to advance money for rural credits, soon actually found that they had lots of money which it would be profitable to them to have rural credit societies use, and so they began to urge these societies to take loans from them for their current uses. And we were in one large savings bank in Northern Italy where the directors, in their statement to the Rural Credit Commission, made a virtue of their dealings with State-aided rural banks, because they had no losses with them. It is a great mistake to add to the fears of our local financiers who are managing banks, and it is almost funny to say things which might tend to intimidate their depositors in the issue which is now pending in this State, because nothing has worked out that way in decades of European experience. Nothing will be done to reduce the rate of interest to depositors, because these depositors will buy 4 per cent bonds if the banks try to pay them less, and perhaps such bonds will pay more if money is worth it because the 4 per cent is a minimum, not a maximum in the bill. Besides the short-time loans for equipment would naturally be somewhat higher than the bond-rate.

The trouble is not that depositors will get less interest: they are more likely to get more. The trouble is, and some may count it a blessing, that the immense margin between what the depositor gets and what the borrower pays is likely to be reduced. Two or three per cent difference in these interest rates is too much and sometimes it is even twice as much as that. The taxpayers' share in this matter, and it is relatively small because the work when in operation will pay its own expenses, will not be against the depositor's interest-earning: it may be against the present frightful cost of handling money. Our banking systems are too expensively operated. The people who own them get too much interest on their investments. In European land banks the stockholder gets the same interest as a depositor: in America, the stock-owners get—what? The taxpayers' share in this matter is against that, in more ways than we have space to indicate.

Queries and Replies

Querists must give name and address.

Quince vs. Blight.

To the Editor: Is quince root resistant to pear blight?—W. E., Colfax.

It has been used largely because it is considerable more resistant than pear roots.

A Tight Soil.

To the Editor: If I bore fifteen feet and strike water, which rises to within five feet of the surface, is my water table five or fifteen feet? I cover an acre of land with water, and I find that it goes into the ground at the rate of one-eighth inch a day. Under the above conditions, do I stand a fair show of washing alkali out of the soil? The salts are mostly below 18 inches, and evidently quite heavy, judging from the way the soil is streaked, as I have noticed in boring post holes. Almost everything grows now, but as I irrigate I am thinking of the future.—M. W., Dixon.

Your water table is practically at five feet unless you have broken an impervious hardpan in boring—which, if not broken, might hold down water below it. Under the conditions you describe the water-movement is too slow to wash out alkali. You will have to dig deep, open drains or lay tile to move away the water faster. The one-eight inch of which you speak is partly lost by evaporation.

Knowing Beans.

To the Editor: I am thinking of planting 5 or so acres of "Blackeye Beans." If planted the first of April will they be off about the middle of June without water? Is there any demand and where and at what time of the year? Would the Tepary bean be more profitable?—P. R. E. Sacramento.

Beans are not as lively as that. If you could plant as early as April without danger of frost (and we are not at all sure about that), you might get dry beans in July; or, if the land is pretty dry, you will get dry vines without beans before that. Black-eye beans are of the cow-pea class, and they like to grow quite long in soil that has enough moisture. Tepary beans will be more likely to succeed in dry soil. They are very small, new and fashionable, and the seed may be in good demand for planting. They are not yet staple enough to predict prices very confidently. Black-eye beans are salable as soon as harvested to any dealer.

Planting Asparagus.

To the Editor: What time of the year would you plant two-year-old asparagus roots in bottom soil? Also, how deep and how far apart in rows? A Subscriber, Cloverdale.

We would rather have one-year-old roots and we would plant whenever the ground is not too wet to work well. The planting season extends from November to April, according to the soil and how the roots act. They ought to go in as early as other things are right—while they are dormant, but February and March usually do. If it is a field proposition for the market, plant in rows, say six feet apart, in your district and two feet in the rows. In the peat soils the rows are made even eight and ten feet apart, to get plenty of room and land for ridging. Plow out furrows so as to get nearly a foot in depth: set the roots and work in a cover of two or three inches at first, working in the rest of the soil to a level by spring and summer cultivation. Do not cut anything the first year and very little the second year, if you are working for long-lived strong plants.

Keeping Cherry Trees Young.

[Written for PACIFIC RURAL PRESS.]

To the Editor: Please give me directions for pruning old cherry trees.—M. V. G., Elverta.

In the Alameda county cherry district, where no irrigation is practiced, the Royal Annes suffered severely from the dry years and many were either lost or large branches were cut out, dead.

When an old cherry tree dies severely in the tops, E. Llewelling believes there is little use to save it. He has a 20-year-old tree that was cut back all over the top last winter to stubs two inches or more in diameter. Last summer many of the fruit spurs elongated into twigs 4 to 10 inches long, but the chances for that tree to be worth while are not very good. The procedure necessary with old trees dying back is to cut everything back to strong, sound green wood and thin out overthick branches. The fruit spurs will become twigs and new twigs will appear at various irregular points along the branches. These twigs will have fruit buds near the lower end and leaf buds near the tips. The fruit buds are plump and shaped like a plumb bob while the leaf buds are either conical or cylindrical with a conical end. It is not always possible to distinguish those that are close to the dividing line in shape. The fruit buds will bloom and develop into spurs as the years go by.

J. F. Sarmento had four cherry trees which at 15 years old had no fruit except on the tips, owing to thickness of branches and twigs which shaded the inside fruit wood, turned it yellow, and killed it. They had 13 or 14 main limbs. He cut out all but eight, close to the junction at the head and painted the stubs with lead and linseed oil—he says any kind of lead paint will do and either boiled or raw oil. The raw oil takes longer to dry and he believes it will stick longer.

That was 15 years ago, so that now the 30-year trees are full of vigorous wood inside and out—not allowed to grow so thickly as to shade the inside wood to death. The old stubs are entirely healed over.

Twig Pruning.—With the black Tartarians, A. E. Crabb and Wm. August have a system of pruning which has brought their 15 to 20 year trees into prime condition. Very few big limbs have ever been cut out of them—the stubs of these are painted with lead and linseed oil.

The system is to cut off the ends of the limbs not over an inch in diameter all over the outside of the tree. Some of these have shown signs of dying both from dry weather and attacks of San Jose scale. Very few inside branches are cut back—if they get too thick they are cut out entirely while small. No attention has been paid to whether the cut is just above a twig or a fruit spur. If to a spur, the spur lengthens the following season to a twig varying in length according to the vigor of the limb and the number of other twigs and fruit spurs.

A look at the tree as a whole makes one think of the naked ribs of an umbrella turned inside out to about 45 degrees and not all in a circle. The limbs are long but stocky. They are full of fruit buds. Scattered about through the tree and even occasionally on the trunk below the head, are new spurs appearing and new twigs grown six to eighteen inches. The center is filled to the right thinness by small branches from these larger ones.

If pickers were careful not to knock off the spurs and there were no other accidents, they would continue bearing indefinitely on the old spurs which would elongate each year only enough to support four buds and a terminal which develops into leaves or a twig. Growers seem not to know the limits of age at which a fruit spur fails, but it is reasonable to attempt to get a few new ones each year. This object seems to be gained by the twig clipping referred to above.

Keep Tree Within Reach.—Another object mentioned first by Mr. August, is to keep the tree down within reach of the pickers and out of the wind. Long slim swaying branches, he says, produce small inferior fruit which bruises and gets injured so fruit people do not want to buy it. These upper limbs are likely, anyhow, to consist of a few inches at the tip well filled with fruit buds, then several inches of smooth bark with occasional scars, then the rest of the distance thickly set with fruit spurs. The fruit on the tips might be injured and one object of the clipping is to take off all but a bud or two of the smooth wasted part of the twig, making the sap go into spurs on the older, stockier wood.

Where a spur has been knocked off by a picker nothing will ever grow again, according to Mr. Llewelling, Mr. Sarmento, and Mr. August; and this seems to be true. But other dormant buds must exist either about these spurs or between them, for it is a fact that new twigs and spurs may be seen low down on old limbs. These are induced to grow only by cutting back the limbs.

Regulate Cutting by Vigor.—Old trees, or those weakened by drouth or disease, should be cut back much more severely than vigorous growing ones. They will then have enough strength to send out plenty of new wood growth. This is desirable, if not necessary, for Mr. Llewelling says that it is only on new wood that new spurs grow; that spurs are thrifty only so long as the wood they grow on is thrifty, and they should be cut out when they become unthrifty. He advises rigid cutting out of all weakening wood in order to throw all strength to the strong limbs. Mr. Crabb, on the other hand, states that any limb cut off at two inches diameter is sure to die slowly and the new shoots will not have much chance to bear.

In cutting new wood, it is well to remember, as Mr. Sarmento has observed, that a cherry twig full of single buds, if cut off, will send out new wood but won't bear any fruit to speak of. If allowed to remain until some compound buds appear (several buds from the same point), and then cut above one of them, they will bear fruit indefinitely.

Don't attempt to graft one variety of peach onto another. Wait till spring and bud.

KIRKMAN'S
Reliable Trees
Make Horticulture Profitable
Our stock of fruit trees in several of the leading varieties will be entirely exhausted before February 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once, please, letting us know what varieties you expect to plant. We want to supply you if we can.
KIRKMAN NURSERIES
2523 Tulare St.,
Fresno, Cal.

ALFALFA SEED
Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.
We are actually offering California's best product.
Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.
Samples, prices, etc., on application.
V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

OUR SERVICES ARE FREE
We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.
We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.
OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.
Write for Booklet.
CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco

Write for this
Nursery Catalog

MISSION AND MANZANILLO OLIVES.
Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.
CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

Orange and Lemon Trees
Big--Clean--Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
We Can Save You Money Write For Prices
McMillan-Graffen Nurseries
Established 1900 Spadra, Cal.

Martinez Nursery
Established 1884.
Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.
THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

Citrus Re-adjustments Necessary.

[By G. Harold Powell.]

Increase in Citrus Crop.—From 1900 to 1914 the citrus fruit crop of California increased 254 per cent. The acreage has increased 128.9 per cent in the last decade. The shipments from Florida and California have more than doubled in the same time. The Exchange organizations have, therefore, an obligation, not only to sell their fruit wisely from year to year, but to develop a distributing and selling system and an advertising policy at the same time which will cause consumption to keep pace with the increase in production. When production exceeds consumption, then the investment of the grower is jeopardized.

Adjustments.—The following re-adjustments will necessarily take place as the crop increases: first, a large increase in the per capita consumption during the early winter months when the navel crop of the north, the early navels of the south and the bulk of the Florida crop of oranges and grape fruit will naturally be marketed; second, an increasing competition between Northern Valencias, late Southern navels, and miscellaneous varieties, such as Seedlings, Mediterranean Sweets, and St. Michaels, between May 1 and June 15 when the young Valencia groves of the North come into full bearing; third, a large increase in the consumption of Valencia oranges during the summer and fall months when the young Valencia groves of the South come into bearing; fourth, an increasing competition between the ripe late Valencias of the Southern coast districts with the shipments of early oranges and grape fruit from Florida in October and November and with the early navels of the North in November; fifth, an increasing competition of California lemons with imported lemons and an increase in the total lemon consumption of the country.

Fundamentals to be Recognized.—The average standard of the fruit that leaves the state must be raised, both in grade and in keeping quality. The grade of fruit depends primarily on the grower and secondarily on the grading in the packing house. The keeping quality depends on the care in handling the fruit in the groves and packing houses. The by-product industry must be developed to utilize the lower grades that are now shipped.

Fruit of good eating quality only can be shipped in the future if the industry is to maintain its integrity with the consumer. The shipment of immature or frost injured fruit, or of misbranded varieties, within the state, or in interstate commerce should be made a state and federal statutory offense.

The distribution of the oranges and lemons of each grower must be uniform throughout the year on a merchandising basis; neither the grower nor the shipper can speculate on the market. The fruit must go forward naturally from each grove during the period when it possesses the best quality for that district. Regular distribution increases consumption; it stabilizes the business of the shipper, the jobber, and the retailer. It furnishes the consumer a supply at the lowest average price and gives the producer the highest average return because the product is handled by everyone at a reasonable distributing profit. The distributing cost of citrus fruit after it reaches the jobber, like many other food products, represents approximately 45 per cent of the consumer's cost. Erratic, speculative distribution increases the distributing costs; it results in a lower price to the producer and a higher cost to the consumer.

Advertising Increased Consumption.—During the past few years the Exchange has increased the per capita consumption of citrus fruits by advertising. The population of the United States has increased 21 per cent during the past decade; the consumption of California oranges increased 74.6 per cent during the same period. The production of California oranges and lemons is increasing rapidly and the Exchange, looking to the future, as well as to the present interest of its members is, by judicious advertising, creating a larger consumption of oranges, lemons, and grape fruit. At the same time it has established for the "Sunkist" brand a national standard of quality that is a cash asset to every Exchange grower.

Primarily the function of our advertising is to increase the consumption of citrus fruits. To do this it is necessary to have a brand around which we can build our advertising arguments. This brand is the consumer's protection. It is his guaranty as to the quality of the fruit. In other words, we want him to feel that all he needs to know about an orange or lemon is, that it is "Sunkist." We must make the consumer realize that the name "Sunkist" on an orange or lemon means just what the sterling mark means on silver. Our advertising will create in the minds of the consumer a public consciousness of the food value of oranges and lemons. This can only be done by maintaining the highest possible standard of quality, for unless an article has quality it cannot be successfully advertised. The permanent prosperity of the citrus industry depends on getting a sufficient number of people to use oranges and lemons, and this can most thoroughly and economically be accomplished by giving the public the reasons why they should use them, and suggesting to them the various ways in which citrus fruits can be served. Advertising is not a mysterious thing. It is simply telling the people the truth about the thing we have to sell; telling them through those channels in which they have confidence, and to which they are accustomed to look for information and guidance.

Support the University. — The growers must give their loyal support to the State University and to the United States Department of Agriculture in their investigations of the difficulties which beset the production and handling of the crop. The progress of the industry in solving these problems will be proportional to the support which these institutions receive. No wiser appropriation of public funds is made than that which relates to the upbuilding of the agricultural resources of a state.

Co-operation of Members.—The California Fruit Growers' Exchange is vital to the permanent stability of the 200 million dollars invested in the citrus industry. It is the one predominating factor, formed and managed by the growers at the cost of operation for their own benefit, that has solved the most important fruit-marketing problems for the in-

(Continued on page 135.)

Armstrong Nurseries
ESTABLISHED 1889

OLIVE TREES

Place Your Order With Me Now

For

MISSION and MANZANILLO

OLIVE TREES

—and I will prune and otherwise prepare the trees for digging, shipping and transplanting to the field, and guarantee ninety per cent of them to live and grow.

Don't Take Chances on Poorly Grown Trees

—trees that are doubtful as to being true to variety. **My stock is scientifically propagated from cuttings,** secured from the best producing olive orchards in the State, thus assuring you of "safety first" and no disappointments at fruiting time.

You should have a copy of my "Booklet" on the Olive and its culture, containing a brief summary of "facts," which all intending olive-tree planters should know. Write for a copy. It's free.

Also, write me, stating the approximate number of olive trees you will plant and I will quote you prices,—such as will meet with your approval, and assure you of receiving the best stock to be obtained in California.

A free copy of my 1915 64-page General Catalog and Price List will be mailed you on request. WRITE TODAY.

John S. Armstrong, Prop.

406 Euclid Ave., Ontario, California.

Soon Time to Graft Walnuts.

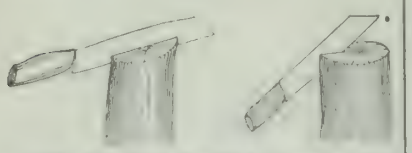
[By Geo. C. Payne, Campbell.]

[Mr. Payne has local and far-away fame as a walnut grafter and propagator. We have known him and his father, lo, these many years. Editor.]

When it is possible, I always leave walnut scion wood on trees as long as possible, cutting two or three weeks before any signs of starting. They are certainly kept in a better condition on the tree. I use only wood of last year's growth. This wants to be round with buds not too far apart, and the plumper the wood around buds, the better. Wood, with buds far apart, is nearly always more pithy, and more of the nature of a water-sprout. It has been the custom with many who have a walnut orchard and sell wood, to cut only those long sprouts that grow downward. This is the most unfruitful growth on a tree, and a repetition of this selection for a few generations would produce an entirely barren tree; not only that, but the tree would have a strong tendency toward a weeping tree. I mention these sprouts for the reason that they are quite universally used, especially with some of the choicer varieties where wood is high and scarce.

I select more upright or horizontal wood that has made a medium growth. Spurs on young trees that are a foot or less in length make good wood. I never use terminal buds, unless wood is very choice, for the reason it is the last growth of the season and many times the wood is not so well matured. On short spurs terminals could be used to better advantage, if necessary.

Having cut the wood into foot lengths if possible, I used to keep it in moist sand till used. That necessitated a most thorough cleansing to prevent dulling of my knife. Of late years I have been using coarse sawdust, or still better planer shavings from a planing mill.



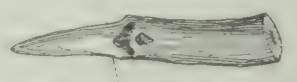
Split the stub slightly, then set the knife at an angle so the bark won't be loosened.

The sawdust or shavings should be thoroughly saturated with water (soaked for 3 or 4 hours) and then drained before using. If not wet enough there is danger of the shavings heating.

Place a two-inch layer of wetted sawdust or shavings in a box, then a layer of wood horizontally about two inches deep. Chink in well with more sawdust and pile it two inches deep, then add another layer of wood. The sawdust should be kept moist enough at all times to sprout barley readily. If it gets too dry, the scions wither or bud prematurely—if too wet, they become waterlogged. It is better, however, to err on the wet side. The boxes so packed should be kept in cool places, as cellar or basement.

Graft When Buds Swell.—There should be a flow of sap before starting to graft. I usually wait until the buds on stock show signs of bursting. The walnut scion, being very pithy with little wood, if set before a flow of sap, is very likely to lose its vitality by becoming too dry.

If grafting over English walnuts it would be policy to start in a little earlier than on Blacks, using the condition of the buds as a gage, for the reason that the English has a greater flow of sap at the start than Blacks. Black walnuts permit a longer grafting period than English. They can successfully be grafted when there is a growth of 4 to 6 new leaves on the end of twigs.



Wedge the cleft open to half the diameter of scion at dotted line. The top side of this scion shows the proper way to trim it.

March is usually the month to begin operations here, and I have grafted American blacks until the 15th of May, using French varieties which are of late budding.

I might state here that it is very difficult to graft some of the early budding varieties, such as Santa Barbara, Santa Rosa, etc., onto American black. For when they are ready to grow there is little or no sap. On the other hand some of the very latest budders can be successfully grafted onto any early stock. Nursery stock should be grafted as soon as bark will peel, for if too late they "bleed" badly.

Have Sharp Tools.—First, last and all the time, have sharp tools. The knife for cutting scions is, of course, most important. I use an ivory handled I. X. L., or Henkle, budding knife, large size, or a Joseph Rogers iron-handled, single-bladed grafting knife, the blade is shaped like a budding knife.

After I have worked off the factory edge on soft and oil stone, I use a strip of pine wood ½ in. x 2 in. x 14 in. On one side I pour some heavy oil and then sprinkle on flour of emery. This makes a good side to bring knife to edge in a hurry. On the other side I tack a strip of soft leather to finish blade on.

For splitting knife, I use a long-bladed butcher's knife (Roger's). This can be ground with rather a short bevel, so if a knot is struck in splitting, it will not bend or break. For splitting maul, I use one turned out of hard wood, very similar to an old-fashioned potato masher. Length of maul 4½ inches; length of handle 6½ inches, and diameter of maul 3 inches. Any good crescent-shaped pruning saw can be used. Care should be taken in sawing not to loosen bark on stub.

For opening split in stock, hickory wedges are used. These may be 6 or 7 inches in length and of different sized limbs. The only particular point about them is the taper. A too abrupt taper will be hard to drive into split and will jump out on slightest provocation, and the reverse will stick in split too tightly. A moderate taper with the edges a little thinner than middle will be a help. Taper handle of wedge so it can be moved back and forth in loosening in split without hitting scions.

How to Graft.—Having selected your tree to graft, if it is a large one, saw off limbs where they will measure from 2½ in. to 4 in. in diameter. Select two opposite sides of stubs where they are smooth, free from knots, and will split straight.

Place splitting knife on top and tap until wood just begins to split. Next press down on handle, bringing knife to a diagonal position; tap it a few light blows. This cuts through bark and wood, otherwise the wood will sometimes split in another direction than bark. Repeat this cut on other side of stock. Next drive wedge in split, opening it about one-half diameter, or slightly more, of scion where cleft cut begins.

THE MOST IDEAL PLANTING SEASON IN YEARS.

Fresno—

Growers of WILSON'S Quality Trees

THE FRESNO NURSERY CO. INC. TRADE MARK QUALITY QUALITY SERVICE FROM THE ROOTS UP

Nursery

Established 1889

Be Sure and Let Us Figure on Your Tree Wants

Our Stock Of All Commercial Varieties of Fruit Trees and Grape Vines is Complete. Submit a list of your Exact Wants for Quotations:

Company

If you want the best NURSERY STOCK that money will buy you want "WILSON'S QUALITY TREES." Our 52-page Catalog mailed free. We offer all varieties of APPLES, PEARS, CHERRIES, PLUMS, PRUNES, APRICOTS, FIGS, PEACHES, OLIVES, ALMONDS, GRAFTED WALNUTS. We also grow in quantities, English, Huntington and American White Elms, Date Palms, Fan Palms, Oleanders, Loquats, etc. Send for our catalog and submit a list of your requirements. Our Packing Methods are perfect, insuring safe arrival.

Address THE FRESNO NURSERY CO., INC.

Box X615 Fresno, California.

We've Been Pleasing Planters For 26 Years

Cutting the Scion.—Many grafters in trimming a scion for insertion, make a concave cut. This will never do in walnut grafting, as the walnut is very pithy wood and a cut like this would leave but a mere strip of wood, which, if conditions were not favorable, could easily dry out. Furthermore, a slim cut like this does not

Wrong way to trim scion. The narrow strip would dry out.

possess the growing force of one cut exactly the reverse.

Having selected the scion, which should be straight growth where the cleft cut is to be made, cut it in two about 2½ in. below bud, make a slanting cut.

Now with lower bud on the upper side of the stick, begin with budding knife about opposite or a little lower than the bud. Cut just through the bark to wood, then continue downward, cutting very gradually deeper until about two-thirds of cut is completed, the remaining one-third is cut considerably more abruptly.

Now turn scion over so lower bud is downward and make same cut as first. Make these cuts so that outside of graft will be about twice as thick as inner. This because of pressure of stock must touch side of graft. Leave but two buds on scion. There is no gain in leaving more.

Now to the stock or stub again. With budding knife begin, about 2½ inches, or the length of cleft cut on graft, down on one side of split in stub and make a counter cut of graft so that when graft is placed in stock it will exactly fit. It will take a little practice to do this. In ordinary grafting we make graft fit stock or stub, but here conversely.

Having cut off graft to two buds, place it in stub so that the wood of stub and of graft are "flush," that is if bark of stub and graft was removed there would be a true circle, the graft not set in too far or out. Prepare opposite side of stub the same, then remove wedge, taking care not to move graft.

Waxing.—Next have some old newspaper and chink in cracks between grafts, push down a little below surface of cut. This saves much wax, also makes a safer seal with the wax. Now wax over the entire top of stub, tips of grafts, and on sides, taking care to wax thoroughly around each graft; leave no air holes. Also wax at least an inch below where split in bark ceases. In a few minutes the wax will harden, then rewax on sides, between grafts and around each graft. If wax covers bud it will do no harm.

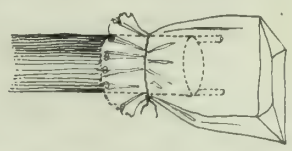
Next with paper bags, cover the grafts, tying mouth of bags tightly around stubs and leaving a space, inside, of an inch or two from tips of grafts to bottom of bags, so when upper buds grow they will not be crowded against bottom of bag. It is a good idea to have an assorted lot of bags. For ordinary tree grafting, bags from ½ to 2 or 3 pounds will meet requirements. This covering of grafts is one of the secrets of walnut grafting. When we have dry, windy springs, if grafts were not covered, a very small per cent would grow.

Sometimes, when paper bags are not to be obtained, newspapers can be used; a sheet the size of some of the San Francisco dailies is large enough. [M. L. Fitch of Santa Rosa uses this method successfully with several advantages which will be mentioned in a later issue. — Ed.] Fold it from bottom to top, and then wrap it around stub in form of a cylinder, letting it reach a couple of inches or more above tips of grafts. Bring top edges together, fold over, split a small twig and place on like a clothes-pin to hold it tight together.

Quite frequently it is desirable to graft a small limb where but one graft can be put in. A graft placed vertically on a horizontal limb will seldom grow. Split and place graft on side of limb.

After-Care of Grafts. — Examine grafts after a week by removing bags, to see if wax is all right, that is, not cracking. It is seldom necessary to rewax, but I always try to be on the safe side. Keep off all sprouts for a distance of a foot or two below grafts. Do not let these sprouts reach any great size as they are sure death to walnut grafts, if left too long on stubs.

When the grafts have made a couple of inches growth, I tear open bag on north side, exposing young growth, which is very tender, to



Leave room in the sack for the grafts to grow.

light. Then in a few days bags can be removed entirely. I usually select a day that is cloudy or of a mild nature to do this.

Walnut grafts should not be pinched back, but allowed to grow. They make such an extraordinary growth that they will not stand up against winds and need to be supported. A piece 1x2x8 ft. makes a good support. This can usually be tacked to a tree with 8 penny nails in a position to support graft which is tied to stick with bale rope. Place rope around, cross, and then tie to stake. By crossing the graft it will not rub against stick so much.

I wish to add that there is absolutely no need to avoid splitting through pith of limb. As far as my experience goes it makes no difference where stub is split. But one thing that most grafters err in is in using too thick a splitting knife, which, when driven into stub, bruises or slips bark badly. Always use a thin bladed tool. Walnuts split easily.

When possible in grafting a tree I always leave a limb or two ungrafted. This acts as an escape valve for surplus sap and does not give tree such a shock. These limbs must or should be smaller than limbs grafted, if not, they will soon get a monopoly on sap, at expense of grafts. After grafts are well established, say a foot or more in length, the ungrafted limbs could be cut off and cut waxed. If large tree, leave limbs on for one year.

CITRUS READJUSTMENTS NECESSARY.

(Continued from page 133.)

dustry in the past. It has developed an international distributing and marketing system and an international advertising campaign that looks to the future with a view to assuring the permanence of the growers' investment. Only when the growers stand shoulder to shoulder in meeting their problems systematically can they be worked out successfully.

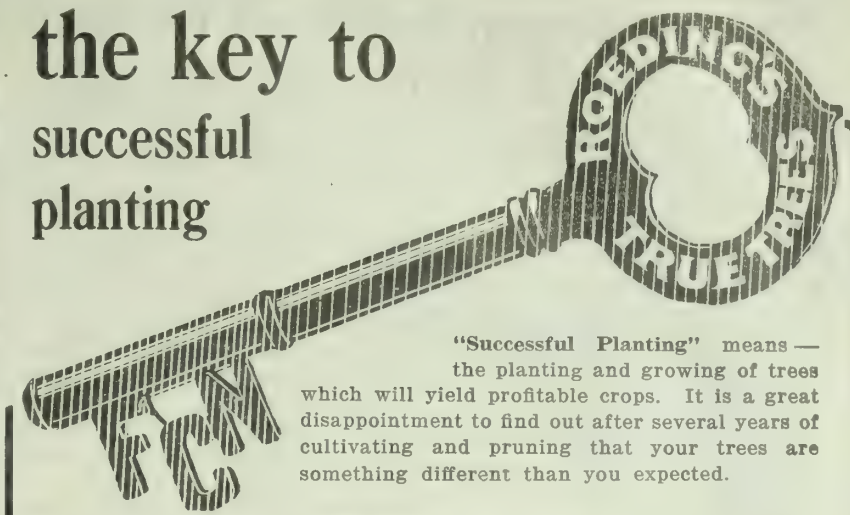
Be ready to spray when the buds swell.

Use sharp tools in pruning.

The San Joaquin County Farm Adviser has been conducting demonstrations in grape pruning near Lodi with the assistance of University professors.

Clean out your berry patches and don't leave any canes that have borne their fruit.

the key to successful planting



"Successful Planting" means — the planting and growing of trees which will yield profitable crops. It is a great disappointment to find out after several years of cultivating and pruning that your trees are something different than you expected.

every tree guaranteed true to name

we grow everything that grows

NO MATTER what you may be figuring on planting this season you can be sure of securing absolutely first-class stock if you place your order with the Fancher Creek Nurseries. We have a splendid assortment of all the best varieties of deciduous and citrus fruit and ornamental trees, vines, plants, etc. Every tree is of the same high quality that has made the name "Roeding" synonymous with quality and success.

GUARANTEE YOUR PLANTING

To plant "Roeding's True Trees" virtually amounts to guaranteeing your planting, for we take an interest in you and your orchard to help you to success. We offer you the benefit of our more than 30 years' experience in California horticulture, and are always glad to advise either in person or by letter with our customers, as to planting, pruning, irrigating, etc.

WRITE FOR CATALOG

Our 1915 illustrated price catalogue is now ready for distribution. If you haven't already received a copy, write for it today—free.

Fancher Creek Nurseries

Incorporated.

BOX 18 FRESNO, CAL.

Paid-up Capital, $200,000.00,

Geo. C. Roeding, Pres. & Manager.

Fruit Trees ! Fruit Trees !

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.

Phone 170. Cor. First and Cedar Sts., Chico, Cal.

Produce Spurs; Not Wood on Pears

[Written for PACIFIC RURAL PRESS.]

Next to what they call "yucca cactus palms" on the Mojave desert, a well-pruned, aged pear tree looks most as if in mortal agony with colic all over it. There isn't much new growth, but the tree is filled inside and out with plump fruit spurs, branched and subdivided into as many as fifty fruit-bearing spurs, twisted into all directions from up to down and trying to find new directions to grow. Such an orchard with trunks eight inches in diameter and three feet and a half to the head is operated by J. H. Bigier in Alameda county.

His orchard suggests that the slower you can make the wood growth on a full-bearing pear tree, the better crops you can produce. Many other pear orchards have been visited, but seldom has one been found with such a healthy, plump, bud and spur growth as this.

A pear keeps bearing indefinitely on spurs first formed years ago. As each season passes and fruit is borne on a spur, new buds grow from the swelling to which the pear stem was attached. These have no preference as to direction except that they want sunlight. They spend practically no energy on wood growth. Only enough wood is usually made to support the leaves which are to nourish their particular fruits. As the years go by, if they are not thinned out by clipping off some of them at the point from which they started, the outside ones shade the inner ones and the suffering spurs languish to death. Thus it happens, even in Mr. Bigier's orchard, that many of the fruit spurs are naked for some inches from their mother-limb of wood growth.

Sunshine is Vital.—Direct sunshine is essential to the continued activity of leaves of most fruit trees. Activity of leaves is essential to all wood and fruit growth. The sap sent up by the roots is of no use whatever in building up wood or leaves or fruit until it has been combined with air elements by sunshine on the leaves, and chemically transformed into the materials of which wood and fruit can be built.

But though many of Mr. Bigier's spurs are agonized out-spread clusters of buds far from the base of the spur, he has had foresight not commonly found among pear growers. Many trees we have seen had few or no fruit spurs farther inward than a foot or two from the outside of the tree.

The buds themselves may have been too thick on Mr. Bigier's spurs, but he has not allowed the new wood growth to become so thick as to kill out all the spurs inside.

It is a common fault of pear pruners to leave too much wood within the tree or simply cut it back, which is the very thing to be avoided on a pear, which does not need much new wood to keep it bearing indefinitely. Cutting back new wood forces more of it to grow.

Less New Wood, Less Blight.—Besides the waste energy and plant food involved in forcing so much new wood, besides the shade and killing of inside fruit which it involves, there is the greatly increased danger from pear blight which enters easiest and works fastest in the succulent wood growth. Mr. Bigier does clip off all but a bud or two of the new growth on the outside of his trees, because even with that stimulation, they grow less than two feet in a season, which helps draw vigorous circulation of sap. Not enough of these new twigs are cut back to overdo the extra wood growth, the rest being either taken off entirely or left unmolested. The new wood growth within the trees too, was either taken out entirely or left entire. It does not grow many inches long anyway.

Some of the new wood is produced by rapid elongation of fruit spurs, which are thus more or less deprived of a chance to bear fruit. This growth might be considered abnormal, and perhaps due to unusual influences stimulating wood growth. Such influences might be loss of crop by unfavorable weather, unusually heavy pruning of the top without pruning the roots to correspond, or unusual cultivation and fertilization. Such "abnormal" growth may be more desirable than the normal wood growth from twigs and limbs.

However, it may be taken as a general rule that, whatever treatment keeps the fruit spurs and buds plump and healthy, at the same time producing a minimum of strictly wood growth, is the best treatment for full-bearing pears.

EMPERORS VS. ALMERIAS.

Red Emperor grapes, preserved in kiln-dried redwood sawdust for the Christmas market, will return California growers about $400,000, according to an estimate by the secretary of the State board of viticultural commissioners. According to his figures nearly 200,000 drums were preserved in sawdust and stored in New York in advance of Christmas. The new industry, formerly monopolized by Almeria grapes from Spain, has proved most profitable this season, the first time it has been attempted on a large scale. It was developed through experiments of the United States Department of Agriculture. The price f. o. b. California has averaged about $2.25 per drum, and as the expense is said to be only about 85 cents, the vineyardist secures $1.40. Other methods of preserving grapes are being experimented with by the commission.

PREVENT CHERRIES DYING.

To the Editor: On a recent trip through the Santa Clara valley, I observed many large cherry trees which had died last summer. No one seemed to know why. What should be done to prevent further loss of such trees?—W. T. R., Palo Alto.

This trouble is general throughout the cherry districts, though it did not seem to affect black cherries in Alameda county. We believe it was due to the strain on the trees caused by the dry years. This can be avoided in future by installation of dependable irrigating plants. If irrigation is impossible, heavy thinning of leaves and twigs in summer would save much of the wasted moisture. Deep cultivation is good in early spring to increase water holding capacity; also very shallow cultivation through the summer to keep a dust mulch without exposing the lower soil to the dry air.—Editors.]

More time and expense in planting trees in one year means less expense and bigger crops through many years.

REX ESTABLISHED 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS Have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.

WRITE FOR BULLETINS.

California Rex Spray Co.

BENICIA, CALIFORNIA

FINEST

NURSERY STOCK

IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN CALIFORNIA

Economy and Expensive Fertilizers.

are inconsistent terms. Give your pocketbook as well as your soil a square deal. Proper soil care is the safest investment you can make.

Finely Ground, High Grade Shield Brand.

Phosphate Rock

The Phosphate of Lime, is the key to an ideal system of economical and permanent soil fertility.

UNITED STATES PHOSPHATE CO.
405 MARSH-STRONG BLDG., LOS ANGELES.

ETTERSBURG STRAWBERRIES

These are the varieties bred largely from our native species and other wild species. They are new and different from the regular varieties, exceeding them in vigor, productiveness and HIGH QUALITY. They are wonderful berries here, and they will be for you, too. Write to ALBERT F. ETTER, Briceland, Calif., for catalog and price list.

DO IT NOW

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

Digging Nursery Fruit Trees.

[Written for PACIFIC RURAL PRESS.]

Digging trees as fast as eight horses can walk may be seen during the winter months on the 500-acre nursery ranch of Silva-Bergtholdt Co. in Placer county. Peach, pear, plum, cherry, walnut, quince, and apple trees planted last spring or grafted last winter have been set a foot apart in long rows in the picturesque hills of the Sierras. Many of them are eight to ten feet tall now; and, the frosts about December having deadened the leaves, digging and preparing the trees for sale now keeps about two dozen men busy. The digger throws them out somewhat after the fashion of a potato digger.

How the Digger Is Made.—A quarter inch iron plate 8 inches wide and about 9 feet long was bent into U shape and the upper ends bolted near the back ends of two plow beams. A cutting shoe four inches wide is bolted in front of this by strap irons. A heavy strap iron braces it from the middle of its sides to the back end of the plow beam. A heavy rod runs from a corresponding point on the cutting shoe forward through a strap iron fixed to hold the rod loosely under the front end of the beam. Four horses are hitched to an eye in the end of the rod and a boy on the first one guides them at the turns.

A few inches behind the front end of the beam is a vertical iron strap ½x2x20 inches, at the lower end of which is a 16-inch iron wheel. A strap iron brace runs from the other side of the wheel backward and up to the beam. Both the brace and the vertical strap are clamped to the beam by clevises. By this means the depth of the cutter is regulated. A gaspipe handle is bolted and strap braced to the back end of the beam. The other side is fixed similarly.

From the cross bar at the bottom of the U between the beams, extending backward and upward are steel bars. About 18 inches back of the blade, these are bent downward and again forward to the blade again where they are welded. This makes a long triangular loop about 8 inches deep at its back end. Several such looped bars side by side make a sort of elevating platform to follow the cutting edge of the U. This raises the trees, dirt and all, in a traveling hump and lets them fall back in place standing. When convenient, a gang of Orientals pulls the trees and stacks them up for inspection and grading.

A Trick in Pulling.—An inexperienced puller will take hold of a tree with both hands and pull till the stars seem to fall. He will find many that won't yield. An experienced puller gets the first one as best he can, and pulls all the rest toward the space left by those previously pulled. He lays the tree diagonally across his leg above the bended knee and takes hold with both hands. One arm rests on the leg alongside the tree. Holding on and straightening his legs, the tree has to come. Leg muscles are stronger than back muscles.

Inspection and Grading. — About three inspectors shake the dirt from the roots, prune off unsightly stubs, and discard those showing signs of aphis, root knot, crown gall, hairy root, borers, or other pests. Such trees are a very small minority. The good trees are piled as inspected into three or four sizes.

Several men then tie them in tight bundles of ten each with tarred string. Another man or two are digging trenches in the soft earth, standing the bunched trees upright in them with tops of roots below the surface of the ground. Loose dirt is tramped well over the roots to keep them moist till the trees are hauled seven miles to town. There they are packed in bales to be shipped; or else "heeled in" again to await orders. Each bunch is labeled with the name of its variety stenciled on a wooden slip which is fastened to one of the trees by a soft fine wire as soon as the bunch is tied together.

One digging machine can keep three or four gangs busy sorting and tieing. It gets all the roots, tearing or breaking practically none. This is important, because the roots are not pruned at the nursery. They should, however, be pruned just before planting.

UNDERGROUND PIPE BEFORE LEVELING.

To the Editor: A and B each bought land in a tract owned by a development company. At the time of the sale, the company reserved the right to lay irrigating laterals across the land. This they laid at a uniform depth across the land in its natural state without taking into consideration the contours as reported by their civil engineers. When the land was leveled in a way that it could be irrigated the pipe line was exposed in such a way as to prevent farming across it for some distance. Will A and B be obliged to lower the pipe at their own expense, or should the company pay for their own negligence?—T. H. D., Puente.

Each instrument reserving the rights of way for irrigating laterals, etc., must be carefully interpreted in order to understand the conditions for which it was drawn. If there is no specification regarding the size, location, and method of constructing the conduit, the rule of reasonableness alone governs. If, considering all existing conditions, the conduit has been laid in an unreasonable manner, the company is liable.—Editors.]

OVER FIVE ACRES CLINGS.

While so many are planting cling peaches, it is well to note what a Fresno county peach grower has experienced. He says one ought never to have less than five acres of clings if he has any at all to sell. The cannery buyers want so many tons in one solid body for their convenience, and if the crop promises to be plentiful, they can't afford to bother with only an acre or two.

APRICOT TOP GRAFTING.

To the Editor: What time of year is best to graft Blenheim apricots, on another variety which is unprofitable?—A. S., Mountain View.

[Do it any time now before sap flow gets too strong, following directions in issue of Jan. 23. That may seem like extra work, but the one who takes care in handling life processes is the one who wins the game.—Editors.]

"Behind each tree is our guarantee"

Our name and guarantee stands back of every tree leaving our nursery. We specialize on foothill grown stock for hardiness, good, well branched roots, freedom from root knot and disease. They are superior to and unequalled by those grown in any other soil or location.

TRUE TO NAME

SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS

REMEMBER
When you purchase
Silva-Bergtholdt Trees
you buy from a firm who are fruit growers and shippers as well as nurserymen.
Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree.
Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

Write to-day for our Fall Catalogue
giving accurate description of each variety and valuable suggestions as to tree planting.

Order now while the assortment is still fairly complete.

The best varieties are selling rapidly. Don't wait too long.

ALMONDS
Plant Almond trees for profit. California has a monopoly of the American market, which demands four times the present supply. We have an extra fine lot of trees in all the standard varieties on Bitter Almond and Peach root.

WALNUTS
Mayette—The true Wiltz strain for productiveness, freedom from blight, and quality, has no equal in any of the other standard varieties.
Franquette — The true vrooman strain, next to the Wiltz Mayette. The best Walnut for Northern and Central California. Our scions of Mayette and Franquette are absolutely of true strain, cut from selected trees.

CLINGSTONE PEACHES
California Canned Clingstones have a monopoly of the markets of the world for the reason that Eastern grown Clingstones can be canned only for pie fruit.
Tuscan — Are our improved round Tuscan; firmer; more symmetrical; more productive; not subject to windfall and split-pit and preferred by all canners to the Oblong Tuscan commonly propagated.
Phillips—We cut our buds from a block of trees that have proven of an exceptionally good strain of this variety.
Levi—A fine late Cling and desired by many growers to prolong the canning season. Very productive.

Our trees received first prize and gold medal at the State Fair.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

OLIVES
Our Mission Olives are worked on Picholine root. The Picholine is a stronger growing and a deeper feeding root system than one grown from cuttings. Plant Olives only on Picholine root.

PRUNES
Prunes are a staple money maker. Our parent trees of French, Imperial, Sugar and Robe de Sargeant have been selected for quality, productiveness, and size of fruit.

PEARS
The California Bartlett monopolizes the markets of this country and Europe. The opening of the Canal route reducing the cost of their transportation East and for Export by one-half, will create a demand for the California Bartlett and California grown Fall Pears that the present planting cannot supply. We have a fine block of Bartlett, Comice, Winter Nelis, Anjou, and other varieties. Buds are cut from selected parent trees.

CHERRIES
The first and best fruit of the summer season, grown only in California during their season of ripening and more profitable even than Oranges in Riverside County. Don't miss this fruit in your planting.

APRICOTS
Apricots being another fruit grown successfully only in California. Have a monopoly of the American market, and canned and dried the export demand is unlimited. We have a fine lot of trees in the standard varieties—Royal, Blenheim, Moorpark and Tilton on Peach and Apricot root. They are selling fast.

Write to-day for our catalogue, price list and full information about planting—it's free.

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

Farming as a Business.

The farmer is learning to get the results from scientific demonstration by experts. He is finding out that under certain conditions the soil will produce more than under different circumstances.

For instance, animal fertilizers put back into the soil those things taken from it—nature's way.

Animal fertilizer releases in the soil those life germs which are absolutely necessary to the growth of crops.

GOLD BEAR is the brand name for the animal fertilizer made in our government-inspected plant, under the most favorable conditions.

GOLD BEAR fertilizer has proved its worth in the fields of California in the growing of more and better crops to the acre—it has been tried and tested and found to be the one great help needed by the farmer who conducts his farm as a business

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Send for the Gold Bear Booklet.

Western Meat Company

704 Townsend St., San Francisco

SEED POTATOES

If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.

WRITE FOR PRICES.

Our 1915 Catalog telling how and when to plant is now ready. Mailed free upon request.

Alfalfa Seed a Specialty

VALLEY SEED CO.

510-512 Jay Street, Sacramento, Cal.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY

EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION

June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS

525 MARKET ST., SAN FRANCISCO, CAL.

Publishers

Growing Almonds Erect.

The almond tree is one that is given very little attention in the way of pruning after it has grown up enough to get in approximately its right form, and even in the first few years it is given not too much care. There are strong reasons for believing that more trouble with almond trees, young and old, would be amply repaid.

Now, down in Australia they are starting fruit growing in just about the same soil and climate, oftentimes, that we have here and California growers will be interested in reading what the Australians are holding to be the proper handling of the tree. It has a bearing upon the systematic pruning of the almond which Mr. Coates advocated in our columns some months ago, although it is not undertaken in the way Californians would probably do it:

If set in orchard form the trees should be placed not nearer than 25 feet from each other in any direction, but if used as a wind-break 10 or 12 feet apart will be found more suitable.

Framing and Pruning.—In many respects the almond tree possesses characteristics closely in common with those of the cherry. Each include a group of varieties of erect habit, as well as one whose members exhibit dependent tendencies. The manner in which they develop fruit-bearing wood is almost identical; but the tenacity of life exhibited by the fruit spurs of the cherry is not repeated in those of the almond. The matured wood of the almond is tough and hard. Consequently even the varieties with distinctly pendulous habits may be erected into sturdy trees. Judicious manipulation, however, is essential from the outset. Whether grown for sheltering purposes or in orchard form, the almond should be started upon a short stem. The main and secondary arms should be formed and spaced as carefully as possible. These will not be direct carriers of fruiting wood to any extent. With the tall-growing varieties illustrated in the Drakes they should be short and pointing away obliquely from the trunk. The varieties such as the Nonpareil, which have spreading tendencies, should have the main arms set obliquely, but the secondaries should be turned again to a vertical direction. The latter sort of section also requires to be built up very sturdily in this position for several years. If this is not adhered to the pendulous character will exert itself too soon for the shape to be attained which will permit cultivation to be done close up to the tree. After the main and secondaries are set on the erect growing variety the tree should be allowed a good length of growth at the third winter's pruning. This will cause many of the buds on this portion to break into short laterals or spurs, and thus the tree will turn to fruitage at an early age. At the next winter's pruning the greater portion of the annual extension upon the leaders should be retained.

Proper Treatment Repaid.—If further pruning of the leaders should be deemed desirable this process would be followed for a number of seasons, leaving a greater or lesser length of leader, just as the vigor of growth increased or decreased. The subdivision of the leaders would be permitted to increase in number, but not to the extent of injuriously overshadowing the fruit wood located on lower limbs. So soon as any of the leaders fail at their tops or the fruiting wood below begins to die out, the renewal of such limbs must be undertaken. The annual shoots of the almond consist of wood shoot or leader, fruit shoot, fruit twig, leaf twig, leaf spur, and fruit spur. On economic grounds it is not considered necessary to apply regular pruning to these shoots upon the almond. The leaders are pruned as indicated, but in the opinion of experts there is substantial reason for suggesting that if a little more detailed and systematic attention were given to the lighter laterals the results would repay the time thus spent. The shortening back of the longer fruit shoots after they have borne a crop, so as to concentrate the sap into a lesser number of spurs formed upon them, the cutting back of the leaf buds which are located on the base of the fruit twigs after those shoots have ripened nuts at their extremities, or similar restrictions applied to the leaf twigs when their characteristics are clearly defined, would, in each case, tend to keep the lower portions of the trees clad in healthy fruiting wood. The reduction in number of the leaf spurs and fruit spurs when weakened or too numerous would follow as a matter of course with the shortening applied to the shoots upon which they are directly borne.

Renovating Old Trees.—Old trees of good varieties that have grown straggling may be cut off within a foot or two of the ground and restarted. The best shoots should be selected and encouraged to make growth to frame the tree. All others should have their growing points pinched out from time to time. This is better than removing them absolutely, as, when pinched, they help to shade the trunk and elaborate sap sent up by a now unbalanced root system, which otherwise might find vent by forcing up a mass of suckers. If the variety be inferior the same method may be pursued and buds from desirable kinds put into the retained shoots close to their junction with the old stems. Particular care must be taken in pruning the growths from such buds. Usually they grow rank, and summer pinching, as well as hard winter pruning, is often necessary to prevent them ascending out of proportion to their stability or hold upon the parent branch.

MORGAN HILL APPRECIATES FEDERATED.

The purposes as set forth in your letter appeal to us as being worthy and we shall be glad to hear from you further as to how organization is progressing.

While we are not solely an organization of poultrymen, our membership in this vicinity (which is over three hundred) comprises practically every large and small poultryman in the territory tributary to Morgan Hill. We are sincerely interested in anything in the line of a co-operative move to better the condition of the poultrymen.

Morgan Hill Farmers' Union, Inc.
By W. S. BRETON, Sec'y-Mgr.

Combining Orchard Sprays.

Spraying for insects and fungous diseases that may be present at the time, will, to a large extent, be measured by the degree of care that is exercised in preparing the solutions. Spraying is hard work, and it is right and proper to use combined sprays where possible, to avoid going over the orchard a second time.

The lime sulphur, so commonly used for fungous diseases and insect pests, can be used successfully in combination with lead arsenates, making a combined spray that holds in check the aphis, apple scab and similar diseases, also the codling moth. The proper method of making this combined spray is to place the lime sulphur in the spray tank first, then fill with water and after this has been thoroughly mixed add the arsenate of lead, which has been reduced to a very thin paste or heavy liquid, and as soon as it is added to the lime sulphur solution, the entire mass should be stirred vigorously and continuously during the entire time that the tank of liquid is being applied. If the arsenate of lead is added to the concentrate lime sulphur, it frequently makes trouble in the spray pump by gumming and clogging the pump, and proves inefficient as a spray solution.

A tobacco spray can be added to an arsenate of lead spray, or to a lime sulphur spray, or these three materials can be used in one solution, making a very satisfactory combined spray. The tobacco spray can not be used satisfactorily with Bordeaux mixture or with Paris green sprays.

With the spray solutions properly prepared and properly applied, satisfactory results are usually obtained. There is a strong tendency to use more arsenate of lead than is necessary. Two pounds of arsenate of lead for each hundred gallons of water has practically always in practical work given good results. The arsenite of zinc is a much stronger poison than the arsenate of lead and frequently burns or scorches the foliage during the damp weather. It is efficient in controlling the codling moth, but has this one fault.

Lime sulphur does not lose its strength by standing, provided it is kept in closed vessels. The commercial solution in ordinary strengths does not crystallize out or change in its chemical composition. Barrels of this material left over from last year are perfectly satisfactory for this year's work.

Wash. Exp. Sta. O. M. MORRIS.

BLOWING STRAW INTO BARN PAYS.

(Continued from page 129.)

is handled, as described in this article. Such a blower costs about $70 and could be run by a 10 H. P. engine or motor. In this way, the expense of purchasing sacks could be avoided and the expense of hauling the grain up into a bin in the barn, besides avoiding the danger of having an early rain injure the grain out in the field.

[We would like to add the following note from the Oregon Agricultural College:

"When farmers apply the torch to straw stacks, they are sending up in smoke plant food to the value of three dollars for each ton burned. They are also robbing the soils of organic matter that would tend to make them light, porous, and easily worked, and so greatly increase their water holding capacity. These values to sand and heavy soils are often as great as the plant food values, thus making the entire worth of the straw about $6 per ton. Let farmers compare this value with the cost of hauling the straw and applying it to the land, and they will burn no more straw. For cultivated crops the straw-covered area should be disked and plowed under, but that is a charge on the cultivation fund rather than on the fertilization fund. On meadows and pasture lands the straw may be applied as a light top dressing in the fall. Since much of the material in the straw came from the lands, it must be returned in some form to that land, or the land will become unable to produce profitable crops."—Editors.]

CORN WORM BEATS US.

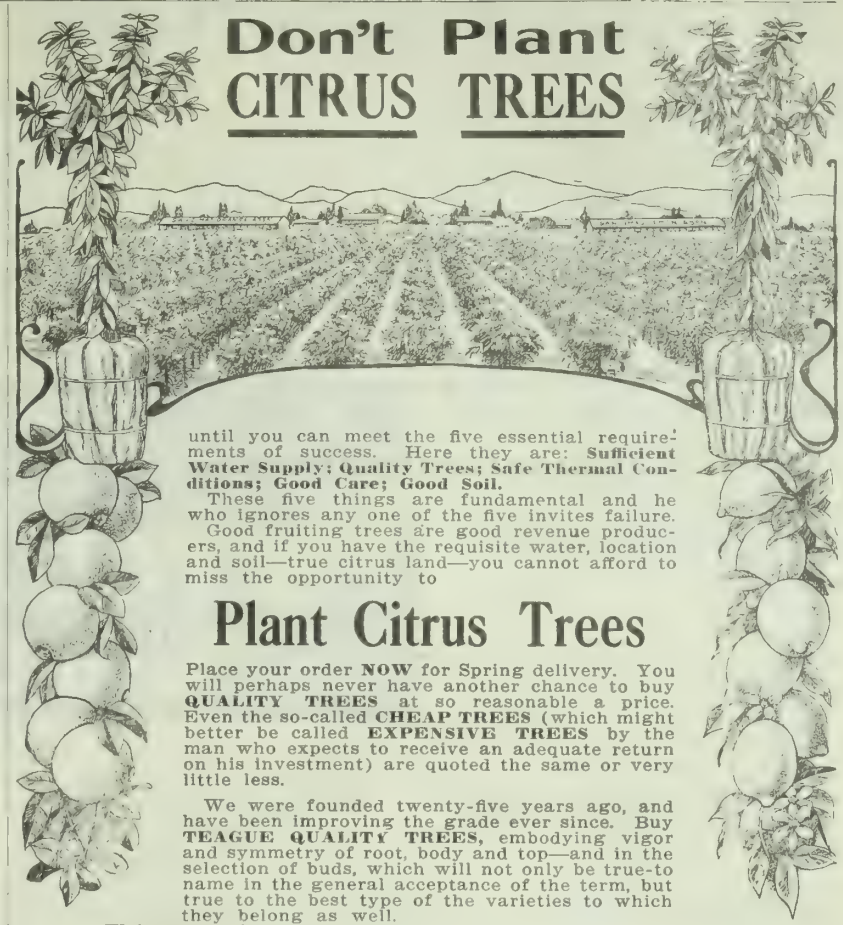
To the Editor: Can you tell me of any way of preventing the corn worm in popcorn? We raised several acres which would have been fine but for the worms. No ear escaped and a third was destroyed entirely. What was left had to be hand cleaned before shelled. Is there no remedy, or certain time of planting to escape the worm?—L. F. W., St. Helena.

[Most everything has been tried. Colonizing blackbirds in your cornfield is as promising as the best. Late planted corn sometimes escapes. Mr. Fontana of C. F. C. A. found a Kansas man once who could grow sweet corn in California without worms. That would have made a tremendous addition to the Association canning operations. The Kansas man grew 20 acres, planting early corn in alternate rows to capture all the eggs and worms. The Association got 3 dozen cans out of the patch. Undaunted, they put in 300 acres next year, according to Mr. Bentley of the Association, and they didn't get as much canned corn as from the 20. Next year the Kansas man wanted to plant three more rows of trap corn to one for canning. We admire his persistence more than its adaptation.—Editors.]

FIGS NEED ROOM.

The fig is a broad spreading tree and needs plenty of room and sun. It should not be planted nearer than 35 feet from its neighbor. It should be headed up four or five feet. Otherwise with increasing age, the drooping branches will interfere with cultivation. The fig tree responds to good soil and cultivation like other fruit trees. Its water requirements are less than most of our orchard trees. Irrigation should not be applied more than two or three times during the summer, and should be withheld after August 1, especially from young trees, in order to retard the growth and permit the wood to ripen, the better to prepare the new growth to resist the winter frosts.

Plant deciduous trees pretty soon.



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

FREE Send us your name—we will mail you our regular Monthly Bulletin. **FREE**

WHAT AND WHEN TO PLANT

The year of 1915 and its initial month are here. It is the year of all years in the history of California, when every owner of a garden, regardless whether that garden be large or small, should exert the greatest possible effort to produce a wealth of color in it.

Within the next few months thousands of visitors will be within the confines of our State; to have our home grounds and public parks and gardens a mass of beautiful flowers will not only delight our guests, but will prove of economic value as well. Every flower, every shrub and every tree adds to the beauty of home and landscape effect.

You Will Need

Our Monthly Bulletin, **"What and When to Plant."** It is a guide for you—will help you in the caring for your garden, home grounds, etc. If you have a garden, you cannot afford to be without a copy. Send for yours today.

Howard & Smith
Olive and 9th St., Los Angeles, Cal.

The Alpha Combination Power Spray Outfit

IS
capable of a continuous high pressure maintenance.
Completely equipped, ready for use, with 100, 150, 200-gal. tank, on an all-steel frame and platform, ready to be mounted on Farm Trucks.

A Thoroughly Dependable Outfit.
Send for Circular 3B.

DE LAVAL DAIRY SUPPLY CO.
SAN FRANCISCO, SEATTLE.
Everything for the Dairy.

Olives Olives Olives

Strong, Vigorous Trees for Spring Planting at reasonable prices. All well rooted cuttings from selected trees. For information write

TETLEY, MERRIMAN & GERNERT, Riverside, Cal.

SEED No doubt the early rains and mild winter are causing you to think about **SPRING PLANTING.**

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

Smyrnas in Sacramento Valley.

To the Editor: Do you know of Smyrna figs being raised in Sacramento valley?—A. N., Orland.

[Answered by G. B. Abbott, Corning.]

[The Smyrna fig grows well here and sets full crops each year, but as we never had enough capris, we do not get full crops. The capris seem very slow in maturing crops that will winter over. A group of the oldest capris in this colony has supplied us with what insects we have had. My own capris are beginning to winter a few and are holding more of the winter crop than ever before. Am hoping that next season I shall have a good supply of the insects. As the supply was very short last spring throughout the State and as the local crop was a failure, I had no crop of Smyrnas. But my neighbor procured 30 crates of capris from the U. S. Plant Gardens and he had some 1500 pounds of fine fruit, most of which he sold in San Francisco. I believe he is quite pleased with the possibilities of the Smyrna fig in the Sacramento Valley. This was his first experience in handling them, having taken up an orchard that had been neglected for some years.

ACCLIMATED SEED CORN.

To the Editor: My experience convinces me that corn is as profitable a crop as any on irrigated land. The matter of seed is of far greater importance than with any other farm crop. Seed from the east or just ordinary shelled corn will not produce a good crop. It is useless to plant corn for a grain crop unless one has seed that has been grown and selected in California for a great many years. It must be a large productive variety that is naturally adapted to the climate in order to produce big crops. Furthermore, the seed is best planted where alfalfa has grown or stable manure has been spread.

With acclimated and selected seed of a large growing white dent variety on land given a dressing of stable manure two years previous, last year with very ordinary care I secured a yield of 50 cwt. per acre.

Live Oak. C. W. JENKINS.

PLANT CACTUS DRY AND CLOSE.

To the Editor: What time of year is spineless cactus planted? Can it be planted in Jan. or Feb.? What sort preparation, how to plant, must it be exposed to sun and made flabby before planting, how long to cure, do they require water?—A. S., Mountain View.

[Under the above head is a communication in our issue of July 25 which just about hits the spot. Plant only in the dry summer months, leave slabs on mother plant if possible, until a week or two before planting time. Then spread them in the sun till they begin to wilt and plant right side up with the point where the slab was cut, downward about four inches deep, absolutely without water and closer together than most people recommend. The better the preparation of soil and cultivation, the more the plant will respond. When you are sure they have rooted well, a little water will be all right and when they have begun to produce paying crops, keep the ground moist, but not wet, underneath.

J. B. Wagner of Los Angeles county plants them a foot or two apart in rows just far enough apart to straddle with a wagon. Each crop is taken off back almost to the mother slab. The outside row is picked first Then he can straddle it with the wagon to be convenient in picking the next row. He gets heavier crops per acre, easier harvested, and the sand where they grow requires only half the irrigation per plant because they shade the soil. He irrigates only once a year. One plant in the field had four slabs to start growing with in the spring; in July it had 36 slabs. With non-hardy varieties, closeness of planting reduces frost hazard because both the plants themselves and the ground, more protected by them, hold the heat of the day farther into the night.

ASPHALT NOT GOOD ON CHERRIES.

Asphaltum paint soaks into soft wood and is not good to paint stubs of cherry trees. Cherry wood is very soft and porous—it rots quickly. Asphalt paint does not prevent it from checking and thus does not preserve it from decay or borers. A lead paint is always needed on cherries to present a solid coat of paint to the weather and protect the wood fibers entirely.

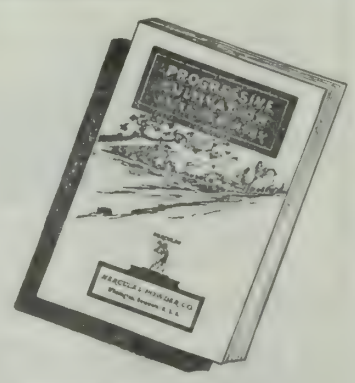
The Use Of Hercules Dynamite On Farm, Orchard and Ranch

THE series of bulletins on dynamite which will appear in this publication are published with one aim in view—to give you intelligent and accurate information with regard to the large place dynamite can be made to fill in your work.

Every statement made with regard to the use of Hercules Dynamite will be absolutely accurate and based on results obtained in actual field work. The various diagrams and plans will show the best methods of using dynamite. The illustrations showing the results obtained from the employment of Hercules Dynamite will be copied from actual photographs.

We are always glad to give any information or assistance to those interested in the use of dynamite. Thousands of men whose interests are the same as yours are saving time, labor, and money by its use. What is equally important, they are getting better results.

We urge that in justice to yourself and your work, you send for a book which we have published, entitled, "Progressive Cultivation." Use the coupon in the corner of this announcement.



HERCULES POWDER CO.
Chronicle Building,
San Francisco, Cal.

Please send me a free copy of your book, "Progressive Cultivation." I am interested in Dynamite for

Tree Planting

The two illustrations above show fully the value of using dynamite in planting trees. These drawings are exact copies of photographs of two trees planted at the same time and in the same orchard. The one on the left was planted in a spaded hole, the other in a dynamited hole. The growth and development of the latter is almost twice that of the former. This difference always shows when Hercules Dynamite is used.

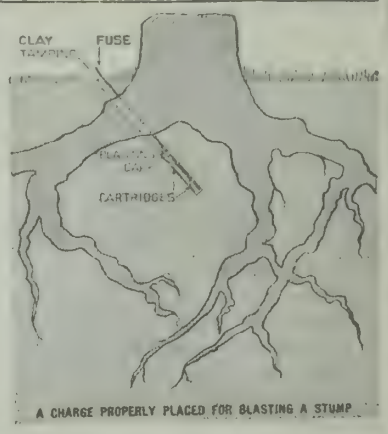
The ground is thoroughly broken up. The roots have a chance to spread in a natural manner. Also the work of planting is done more quickly and at less expense. In "Progressive Cultivation" are given interesting details with regard to the use of Hercules Dynamite for tree planting. Are you familiar with the method and its results?

Stump Blasting

Every man who has had experience in pulling stumps *without* the aid of dynamite knows only too well the amount of labor and time involved.

When you have land to clear, use Hercules Dynamite. You not only save labor and time—and, as a result, money—but you also thoroughly break up the subsoil and very effectively prepare the land for cultivation.

The diagram given shows the best way of removing one kind of stump, that with matted, spreading roots. When dynamiting a stump with a tap root the charge should be placed differently to get the best results. "Progressive Cultivation" tells just how stumps of various kinds can be most readily removed.

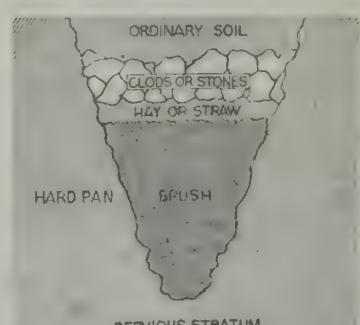


A CHARGE PROPERLY PLACED FOR BLASTING A STUMP

Drainage Work

The draining of swamps and ponds can be done better with Hercules Dynamite than by any other means. There are several ways in which dynamite may be used. We have room to illustrate only one of them — the crater method. By this method the hard soil forming the bed of the swamp is broken up and the water drains off through the loose stratum below.

In "Progressive Cultivation" full details with regard to drainage work with dynamite are given.



BLASTED CRATER FOR DRAINING SWAMPS AND PONDS

Kern County Teparies.

To the Editor: I raised 15 acres of white Tepary beans last year in the extreme end of the San Joaquin Valley, southeast of Bakersfield in what is known as the Weed Patch District. The land is a sandy loam. Irrigated once before planting and once after the beans were up. They do with much less irrigation than other beans.

I find the Tepary bean does well in this climate, the heat does not blight them. They bloom and set beans through the hot weather. I planted them on April 15, and began cutting them July 15, 90 days after they were planted.

The yield was about 800 pounds per acre. I expect to plant about 50 acres this year and be planting by April 1st.

I sent samples to F. B. Nims, manager at Stockton for J. K. Armsby Co. He communicated with the San Francisco office, who said there was no question that a ready market could be secured for them. Mr. Nims says: "Should your beans this year again prove successful there would be no doubt but what we could get almost any price for these beans for seed" and asks for two bags to try in their "arid lands adjacent to Stockton."

Arvin. C. L. ADAMS.

TIGHT-BARKED EUCALYPTUS.

To the Editor: I would like to get a kind of eucalyptus that will not have unsightly shreds of old bark hanging where I can't reach them or falling into trees planted under them.—Subscriber.

[Answered by Supt. John McLaren of Golden Gate Park.]

[If you want a tree with persistent bark I would recommend the Eucalyptus corynocalyx. If a tree with smooth, ivory-white bark, which scales off in narrow strips leaving a beautiful milk white surface is desired, Eucalyptus viminalis would answer the purpose.]

PLENTY OF CAPRIS NEEDED.

[By G. P. Rixford, U. S. Dept. Agr.]

The Lob Ingir or Smyrna, which is the greatest commercial fig of Asia Minor and the same as the Calimyrna of California, fills about all requirements of a first-class fruit. It is superior to any other in cultivation. I am aware that the long-established White Adriatic is still being planted to some extent, but with the mistaken idea that it is a more prolific bearer than the Smyrna. The Smyrna far surpasses it in size, sugar content, and flavor, while in yield, if properly treated, it is not inferior to the Adriatic. If sufficient Blastophaga-infested capri figs are supplied to pollinate the young Smyrna crop thoroughly, the yield will fully equal, if not exceed, the most prolific Adriatic. In this connection, I may mention that a tyro in fig growing at Clovis last fall asked me if I could account for the small yield of his six-year-old Smyrna trees. He said: "I hung on them twice as many capris this season as last and still the crop was small." I asked him how many capris he used. I was amused when he innocently replied, "Last year I hung one fig in each tree, and this year two." Had he used 10 or twelve capri figs to each tree instead of two, the result would have been more satisfactory.

Adriatic figs sell for about one-half the price of Smyrna, three cents for the former and six for the latter. Looking a little into the future, one thing is certain. The importation of Turkish figs into the United States never can be stopped by the production of the Adriatic. The shipment to the eastern states of these sulphur soured Adriatics is about as damaging to the reputation of California figs as the shipment of unripe grapes to the reputation of our table grapes. Some of the most experienced fig growers in the state are now grafting over their Adriatics to Smyrna.

NATIONAL GRANGE, OAKLAND.

Already Oakland is preparing for the 1915 convention of the National Grange, which will be held here next November. With one exception, that of the National Education Association, the Grange meeting will be the largest of the many to be held in Oakland this year. The National Education Association meeting will, it is estimated, bring more than 60,000 persons to Oakland.

The decision to hold the Grange convention in California was reached at the last national meeting, but the place was not decided upon. San Jose, Sacramento, and Oakland were the three most favored cities. In the final decision reached by the executive committee of the California State Grange, Oakland was chosen for several reasons, principal among them being its accessibility to the big Panama-Pacific Exposition, its ability as the main railroad terminal of the State to handle the heavy traffic satisfactorily, and the fact that it is amply able to provide hotel accommodations for the thousands that will be here.

The convention will be held in Oakland's new $1,000,000 municipal auditorium, which is said to be the most complete building of its kind in the world.

BERMUDA BEATS ORANGES.

To the Editor: I have 40 Jaffa orange trees 20 years old. Part of the leaves are yellow. They haven't been cultivated for ten years and the Bermuda grass is all through them. They don't seem to grow as they ought to.—L. D., Glendale, Ariz.

[Plow the Bermuda grass under when it is as nearly dormant as possible and cultivate it as deeply as you can every time a grass spear shoots above ground. That will be a lot, and it will be a lot of trouble to plow through the orange roots perhaps, but it is what they need. This is for the benefit of the oranges—it won't hurt the Bermuda much. Some fertilizer may help. Cut out the wild wood and dead wood and thin out some of the good wood—never mind if the trees don't produce more than you can eat next season — they will the season after that, if you keep the ground always moist, but never wet for a long time. —Editors.]

Frost pots are frost insurance if you are ready.

Garden Encyclopedia--Free

Your Copy is now Ready

Prof. E. J. Wickson of the Agricultural Department of the University of California writes us as follows:
"I could not run my advisory and educational business without your catalogue at my elbow".

CITRUS, DECIDUOUS, ORNAMENTAL TREES
FLOWER, VEGETABLE, FIELD SEEDS
FERTILIZERS, INSECTICIDES, FUNGICIDES

For Prompt Service Address Dept. R

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

RELIABLE TREES

Get them from the most complete nursery in the world.

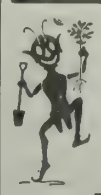
SEND FOR CATALOG A.

CALIFORNIA NURSERY CO., INC.
NILES, CALIFORNIA

Fruit Trees
ELMER BROS. NURSERY
AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

FREE Book on RHUBARB Culture
WRITE FOR IT TODAY —

Now is the Best Time to Plant
RHUBARB
BERRIES AND SMALL FRUIT.
If planted now, you should derive good results
J. B. WAGNER - Pasadena, Cal.
The Rhubarb - Berry & Cactus Specialist.



Citrus Trees With Pedigrees
Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
Balled and on the cars, 40c.
Write for special prices on quantities.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

Price $2.00 Postpaid Anywhere.

Pacific Rural Press

Publishers.

525 Market St., San Francisco

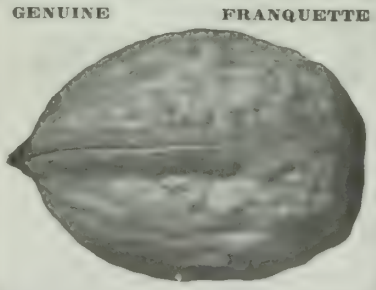
Hardie Sprayers

The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Write for Catalog.

THEO. POINDEXTER,
State Agent,
320 Market St., San Francisco

GENUINE FRANQUETTE



The best commercial Walnut; also San Jose Mayette All trees grafted on California Black Walnut root.
Sizes from 3 to 10 feet.
Prices reasonable.

SUNSET NURSERY,
525 San Carlos St., San Jose, Calif.

THE IDEAL GOPHER TRAP

Result of years' experimental work. Poisons are dangerous, gases uncertain. Ideal is only Trap that catches large or small gopher. Being round, with thin edges, rodent walks into it before detecting anything in runway.

100% EFFICIENCY.

Farmers say it's worth dozen other makes. Saves lawns, gardens, valuable trees. Price, 50c at dealers. Circular free. Sent postpaid any address in U. S. on receipt of 60c; two traps $1.10; six, $3.00. Money back if not satisfied.

E. J. Chubbuck Co.
731 MARKET ST., San Francisco, Cal.

Department of Agriculture Bill 164

An Act creating a Department of Agriculture and creating the office of Secretary of Agriculture; defining his powers and fixing his salary; providing for the reorganization and consolidation of various departments and the administration of said departments under one head to be known as the Department of Agriculture, and defining the powers and duties of its officers.

The people of the State of California do enact as follows:

Section 1. There is hereby created a department of the state government to be known as the department of agriculture.

The office of secretary of agriculture is hereby created. The secretary of agriculture shall be the chief officer of the department of agriculture. He shall be appointed by the governor immediately after the taking effect of this act. His term of office shall be four years, and until his successor is appointed and qualified. He shall be a civil executive officer and shall receive an annual salary of seventy-five hundred dollars, paid in the same manner as other state officials, and his necessary expenses incurred in the discharge of his official duties. Before entering upon the duties of his office he shall take an official oath and shall give a bond in the sum of twenty thousand dollars, conditioned upon the faithful performance of his duties; the cost of said bond, if any, to be paid by the state. He shall maintain his office at Sacramento.

Supersedes All State Agricultural Bureaus.

Sec. 2. The department of agriculture shall succeed to and is hereby vested with the duties, purposes, powers and responsibilities of the various bodies and offices herein mentioned; that is to say, said department acting through and by said secretary shall have power, and it shall be his duty:

1. To exercise all the powers and perform all the duties now vested in and required to be performed by the state board of agriculture.
2. To exercise all the powers and perform all the duties now vested in and required to be performed by the state agricultural society.
3. To exercise all the powers and perform all the duties now vested in and required to be performed by the state commissioner of horticulture.
4. To exercise all the powers and perform all the duties now vested in and required to be performed by the state board of horticultural examiners.
5. To exercise all the powers and perform all the duties now vested in and required to be performed by the state dairy bureau.
6. To exercise all the powers and perform all the duties now vested in and required to be performed by the board of examiners of veterinary medicine.
7. To exercise all the powers and perform all the duties now vested in and required to be performed by the state veterinarian.
8. To exercise all the powers and perform all the duties now vested in and required to be performed by the state board of sheep commissioners.
9. To exercise all the powers and perform all the duties now vested in and required to be performed by the stallion registration board.
10. To exercise all the powers and perform all the duties now vested in and required to be performed by the state board of viticultural commissioners.
11. To exercise all the powers and perform all the duties now vested in and required to be performed by the state superintendent of weights and measures.

Three Distinct Bureaus.—Sec. 3. For the purpose of administering the affairs of the department of agriculture it shall be organized into three bureaus, to be known respectively as the bureau of animal industry, the bureau of horticulture and the bureau of economics.

The bureau of animal industry shall be organized into two divisions to be known respectively as the division of live stock, including bees, and the division of dairying.

The bureau of economics shall be organized into three divisions to be known respectively as the division of land settlement, the division of fairs and exhibits and the division of markets and statistics.

Secretary of Agriculture Controls Appointments.—Sec. 4. The head of each bureau shall be known as director of said bureau. The head of each division shall be known as chief of said division. The directors of bureaus and the chiefs of divisions shall be appointed by the secretary, and shall hold office at the pleasure of the secretary. Nothing in this act shall be construed to prevent the secretary of agriculture from acting at the same time as director of one or more bureaus, or the director of a bureau from acting at the same time as chief of one or more divisions.

The directors of bureaus, together with the governor and the secretary, who shall be ex officio members, shall constitute an advisory board to the secretary.

The bureau directors and the division chiefs may be required to give bond at the discretion of the secretary in such sum and on such conditions as he shall determine, the premium on such bond, if any, to be paid by the state.

Civil Service for Minor Positions.—Sec. 5. All assistants, experts, inspectors, clerks and other employees necessary for the administration of the affairs of the department shall be chosen by the secretary in accordance with the rules and principles of civil service, as provided by the laws of this state. They shall continue in office until removed for cause by the secretary, as provided by law, and shall be assigned to any bureau or division which the secretary may designate. They may be required to give bond at the discretion of the secretary in such sum and on such conditions as he shall determine, the cost of such bond to be paid by the state.

In the first appointment of directors of bureaus, of chiefs of divisions and of all other officials, assistants, experts, inspectors, clerks and employees the preference shall be given to officials and employees who are now holding corresponding positions on or under the present boards, commissions or officers, with kindred functions, named in section two hereof, to whose powers and duties the secretary succeeds hereunder.

Salaries to be Determined.—Sec. 6. The directors of bureaus, chiefs of divisions, and all assistants, experts, inspectors, clerks, and other employees shall be paid such salaries or rates of compensation as the secretary may determine upon, by and with the advice and consent of the state board of control, including their necessary expenses incurred in the discharge of their official duties.

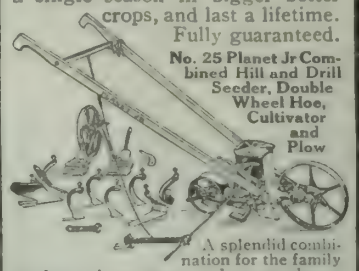
Powers and Duties of New Officers.—Sec. 7. Every director, chief, inspector, agent or other official in any division or bureau, subject however to the supervisory control of the secretary, shall possess and exercise the same powers and perform the same duties as the secretary, with respect to all matters within the scope of the duties assigned to him.

Sec. 8. The secretary of agriculture is empowered to make such transfers, changes and consolidations of the work of the board, commissions and officers above named in section two of this act, and of the bureau divisions above named in section three of this act, as he may deem necessary.

With the approval of the governor of the state and within the limits of this statute and the provisions made by the legislature for the financial support of this department, the secretary of agriculture is authorized and empowered to create administrative divisions of the department or of the bureaus of the department, to establish positions in these divisions and with the approval of the state board of control

Planet Jr. Seeder:Harrow

Planet Jr tools are the greatest time-, labor-, and money-savers ever invented for the farm and garden. They pay for themselves in a single season in bigger better crops, and last a lifetime. Fully guaranteed.



No. 25 Planet Jr Combined Hill and Drill Seeder, Double Wheel Hoe, Cultivator and Plow

A splendid combination for the family garden, onion grower, or large gardener. Is a perfect seeder, and combined double and single wheel-hoe. Unbreakable steel frame. Capacity—2 acres a day.

Planet Jr 12-tooth Harrow, Cultivator, and Pulverizer

72-page Catalog free

Write postal for it.

S L ALLEN & CO Box 1203F Phila Pa

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds are too large. They will tell you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

WEST COAST
The Cut Rate
Seed House

116-18 East 7th St.
LOS ANGELES, CAL.

Avocado Trees

Nursery stock grown under the most favorable conditions possible. Not the ordinary alligator pear trees raised under lath or in pots, but—

Every One Guaranteed To Be Vigorous Field Grown

I have made a special study of this new and promising fruit industry. Let me acquaint you with the wonderful possibilities.
Trees from 4 ft. to 7 ft. high, $2—$3.
Budwood—all standard varieties at reasonable prices.

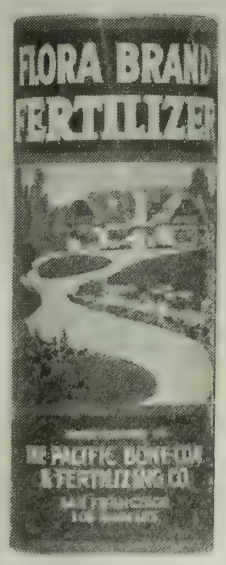
W. A. SPINKS,
DUARTE, CAL.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, showing the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Beautify Your Home



With the aid of

Flora Fertilizer

spread on the lawn and around the flowers. For your spring planting of berries and vegetables — just the thing.

Write us for our prices on complete fertilizers, Nitrate of Soda, Bone Meal, Potash Salts, Superphosphate, etc.

Pacific Bone Coal & Fertilizing Co.
203 Clunie Bldg.
San Francisco.

TREES

French and Imperial Prunes, Bartletts and other Pears; Tuscan and Phillips Clings, Fay, Elbertas and other Peaches, Cherries, Plums, Apples, Grafted Walnuts, etc. Stock pure and of best strain. Place orders promptly. Prices reasonable.

TABLE GROVE NURSERIES
Healdsburg, Cal.

TREES
Grown on Sandy Loam Soil

No Spike Roots.
Almonds on Almond & Peach Root.
All Varieties of Fruit Trees for sale.
Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of water.

RIPON NURSERY and IMPROVEMENT CO.
J. F. STUART, MGR.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

"Bauer" Berries
Strawberry plants—Klondike, Aroma, Gandy. Every plant guaranteed. Send for free 68-page catalogue.
J. A. BAUER, Judsonia, Ark.
Strawberry Specialist. Establ'd 1880
Box No. 7

RHUBARB
$550.00 from one-fourth acre. Come and see it, or write and I will tell you how you can do as well. Roots for sale.
J. M. STONE
Lodi, Calif.

to fix the salaries of such offices. Action taken within this section shall be fully described in the biennial report of the secretary of agriculture to the governor, and shall by the governor be transmitted to the legislature.

Sec. 9. The secretary of agriculture shall also succeed to and be in control of all records, books, papers, offices, equipment, supplies, moneys, appropriations, land and other property, real or personal, now or hereafter held for the benefit or use of said respective boards, commissions and officers above named in subdivisions one to eleven, both inclusive, of section two of this act, the same to be held in trust for the State of California.

The secretary of agriculture is hereby authorized and directed to assume the control and continue as successor in the management of all of said existing departments of the state government named in and as provided in section two hereof, subject to the provisions of this act.

The said boards, commissions and officers named in subdivisions one to eleven inclusive of section two hereof, to wit: The state board of agriculture, state agricultural society, state commissioner of horticulture, state board of horticultural examiners, state dairy bureau, board of examiners of veterinary medicine, state veterinarian, state board of sheep commissioners, stallion registration board, state board of viticultural commissioners and state superintendent of weights and measures, and each of them is hereby abolished, and shall have no further legal existence, but the acts and laws under which they existed and all laws prescribing their powers and responsibilities are hereby expressly continued in force.

Section 10. The secretary of agriculture is vested with the power and is charged with the duty of administering and enforcing, in addition to the laws heretofore provided for, the following laws and acts, to wit:

1. The net container act, approved May 24, 1913, Statutes of 1913, page 247.
2. An act to regulate the sale of commercial fertilizers, approved March 20, 1903, Statutes of 1903, page 259, and amendments thereto.
3. An act to prevent the spread of noxious weeds, approved March 22, 1907, Statutes of 1907, page 876.
4. An act to regulate the manufacture and sale of insecticides and fungicides, approved May 1, 1911, Statutes of 1911, page 1248, and amendments thereto.
5. An act to regulate the production and sale of certified milk, cream, ice cream, butter and cheese, approved April 25, 1913, Statutes of 1913, page 83.
6. An act relating to cold storage of foodstuffs, and cold storage warehouses, approved June 13, 1913, Statutes of 1913, page 769.
7. An act to prevent the destruction of foodstuffs, approved June 5, 1913, Statutes of 1913, page 387.

Sec. 11. The secretary of agriculture may confer and meet with officers of other states and officers of the United States on any matter pertaining to his official duties, or to the work of the department of agriculture; and he may collect and disseminate such information relative thereto as he may deem wise and beneficial.

He shall make a report to the governor at least thirty days before the commencement of each biennial session of the legislature, containing an account of all matters pertaining to his department and its administration and work.

Sec. 12. It shall be unlawful for the secretary or any assistant, director, chief, inspector, clerk or other employee, to be interested directly or indirectly, either as owner, agent or solicitor, in the sale or purchase of any article, commodity or product for the use of the department or used or produced by any person with whom he may come in contact in his official capacity.

Any person violating the provisions of this section shall be guilty of a misdemeanor.

Sec. 13. The regents of the university shall cause to be made, without expense to the department of agriculture, other than the actual expense necessarily incurred in doing such work, chemical analyses and bacteria tests of any and all substances that the secretary of agriculture, or any of his assistants, directors, chiefs, or inspectors may send to them, and shall report to the secretary without unnecessary delay, the result of any analysis or test so made; and when called upon by the secretary they shall provide the assistance of experts and chemists in any prosecution for the violation of any law pertaining to the work or duties of the department.

Sec. 14. The secretary of agriculture shall adopt reasonable rules and regulations to govern the proceedings and work of the several bureaus, and divisions of the department; and to govern all investigations, inspections, proceedings and hearings not otherwise especially provided for.

Full Investigations Made Possible.—Sec. 15. The secretary of agriculture, any bureau director and any division chief, for the purposes contemplated by this act, shall have power to administer oaths, certify to official acts, take depositions, issue subpoenas, compel the attendance of witnesses and the production of books, accounts, records, and memoranda of any person, firm, association or corporation and shall have access to all places and things, subject to the provisions of such laws as are being administered by the department. In the discharge of his duties such director or chief shall have every power whatsoever of any inquisitorial nature granted by law to the secretary, and the same powers as a notary public, with regard to the taking of depositions.

Sec. 16. Except in his report to the secretary or when called upon to testify in any court or proceeding at law, any such director or chief who shall divulge any information acquired by him in respect to the transactions, property, or business of any person, firm, association, or corporation while acting or claiming to act under such order shall be fined not less than one hundred dollars or more than five hundred dollars, and shall thereafter be disqualified from acting in any official capacity in the department of agriculture, or under the secretary.

District Fairs.—Sec. 17. The presidents of all district agricultural associations, societies or boards, now existing or hereafter created for the management of any regular district fair under any state law, shall constitute an advisory board to the chief of the divisions of fairs and exhibits of the department of agriculture.

State Fair.—Sec. 18. There is hereby created a board of managers for the state fair, to be known as the board of state fair managers, consisting of six members, together with the chief of the division of fairs and exhibits, who shall be ex officio member and chairman of the board. They shall be appointed by the secretary of agriculture by and with the advice of the chief of the division of fairs and exhibits, no two of whom shall be chosen from the same agricultural fair district. They shall hold office at the pleasure of the secretary, and shall serve without pay, other than their necessary expenses incurred in the discharge of their official duties. Their duties shall be to provide for, manage and conduct a state fair each year at the state fair grounds at Sacramento, and to make a detailed report thereof to the secretary. They shall have control of the state fair grounds and all property used by the state board of agriculture. They shall succeed to the state board of agriculture, and except as herein otherwise provided, shall have all of its powers and shall perform all of its duties. The secretary of agriculture shall be ex officio member of the board of state fair managers. The board of state fair managers shall be charged with the exclusive management and control of the state agricultural society as a state institution. The secretary of agriculture, as a member of the board of state fair managers, shall be president of the state board of agriculture. They shall choose a secretary-treasurer, who shall be paid such salary as they may determine upon, by and with the advice and consent of the secretary. He shall give bond upon such conditions and in such amount as the board of managers may determine, by and with the advice and consent of the secretary of agriculture.

Sec. 19. The attorney general shall be the legal adviser of the secretary of agriculture in all matters relating to the department and relating to his powers and duties.

Upon request of the secretary, the attorney general, or under his direction, the prosecuting attorney of any county, shall aid in any investigation, hearing, prosecution or trial had under the laws which the secretary is required to administer and shall institute and prosecute all necessary actions or proceedings for the enforcement of such laws, and for the punishment of all violations thereof, arising within the county in which he was elected.

The sheriffs and constables in the several counties shall execute all lawful orders of the secretary of agriculture in such counties.

Sec. 20. Upon the taking effect of this act the secretary of agriculture shall be authorized and empowered to expend any appropriation made for any board, commission or officer named in section two hereof, the powers and duties of which are vested in and required to be performed by the secretary of agriculture, as successor under the provisions of this act, for the purposes for which the same was appropriated.

Sec. 21. All acts and parts of acts inconsistent with or in conflict with any of the provisions of the act are hereby repealed.

Don't cut off feeder roots while fruit is in bloom.

Absolute Protection Against
FROST DAMAGE
BOLTON ORCHARD HEATERS
One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.
Write for our new booklet R. P.
The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

MAXWELL'S NURSERIES, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

LIME FOR LAND
HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

Mechanical Power on the Farm.

MIGHT AS WELL ENJOY LIFE.

[Written for PACIFIC RURAL PRESS.]

"It's a shame," says a good mother on a big apple ranch in Sonoma county, "to live in this beautiful country and never see anything except what is between here and town. Our son came to see us after we moved here—he has a fine position back East—and when he had looked over our place, he said we'd have to have an automobile.

"Oh, dear, what beautiful rides he did take us through Sonoma county—in the mountains and through the orchards—isn't the country around Glen Ellen wonderful!

"It gives us something beautiful to think about when the commonplace get wearisome—and we have kodak souvenirs of our rides, too—we send them East to show our friends what they are missing. We like to have pictures to show our friends here, too, but besides that, we have lots of fun taking and developing them.

"We have had lots of pleasure showing our visitors the beauties of the county and taking them to entertainments in Sepastopol and Santa Rosa and Healdsburg, and taking them on picnics even way into the glorious Russian River. We would take along our bathing suits—the auto made a capital dressing room—and we would spend our afternoon in the warm water or in the shade on the banks or under the trees that overhang the water—or in the evenings we would dig into the warm sand and enjoy exquisite repose out there under the stars where all the cares of all the world looked too small even to be interesting. Then in the night we'd ride home in the back seat tired, refreshed, comfortable.

"But our troubles began when my son had to go back East. Father took the wheel, and he wasn't always steady. Sometimes he'd get to enjoying the scenery like he used to when son was driving, and we've been scared out of all the pleasure of some of our rides.

"On these mountain roads and some of the rough roads among the hills, you have to have a good grip on the wheel and a good foot on the brake and a good eye to see.

"But father is more careful now; he has better control of the machine; he hasn't even run us near the edge of a bridge in weeks; so we are getting to enjoy the automobile like we used to."

POWER SPRAY EQUIPMENT.

It is very important that the spray outfit be ordered long in advance of the time when it is actually needed. Last season several fruit growers who waited until February found that the manufacturers had booked so many orders that they were unable to make shipment for several weeks and when the pumps were received in August it was too late for the early sprayings. Plan for equipment now, advises Dr. A. W. Morrill, Entomologist of the University of Arizona Agricultural Experiment Station.

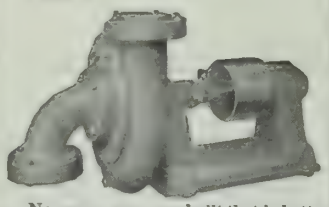
The pump is the first part of the equipment to consider. This should be capable of maintaining a pressure of 150 pounds or more when a nozzle of a suitable type is being used. Barrel pumps frequently stand in the way of fruit growers providing themselves with spray pumps capable of giving satisfactory results. Where there are not more than five hundred deciduous trees to be sprayed, a high pressure hand pump may be used. Such pumps, fully equipped, cost between $30.00 and $50.00. One of the best on the market was sold last season for $29.00 delivered anywhere in Arizona, equipped with hose and extension rod, but without nozzle.

For orchards of between four and ten acres a power sprayer is recommended. This spray should be capable of supplying one line of hose when using a suitable nozzle, and of maintaining with such nozzle a pressure between 150 and 200 pounds. Such sprayers are listed in manufacturers' catalogs between $120.00 and $160.00, including the tank, one line of hose, cut-off extension rod and nozzle.

Orchards consisting of ten acres or more can be sprayed most economically with a power sprayer of the largest type, supplying two to four lines of hose and maintaining a pressure of 200 pounds. There are a few orchards in Arizona in which such a sprayer is needed.

The best spray pump is of no avail unless it is properly equipped. For ordinary orchard spraying, the hose should be firm, fifty feet in length and the bamboo extension rod 8 to 10 feet in length. A cut off and a strainer connection should be placed between the pump and the hose. There should be another cut-off at the lower end of the extension rod. At the upper end there should be an elbow joint to which the nozzle is attached. Two types of spray nozzles should be provided. For the calyx spray of apples and pears a nozzle which throws a flat fan shaped driving spray is recommended. The Bordeaux nozzle is the best known type of this kind, but one known as the Blizzard has the advantage of simplicity and lacks the side lever which in the case of the Bordeaux causes trouble by catching on the branches of the trees. For summer applications a rust spray nozzle is needed. Such nozzle will be found listed in any spray pump catalogue. Those with interchangeable caps or disks with different size

CROP INSURANCE
PUMPS ENGINES

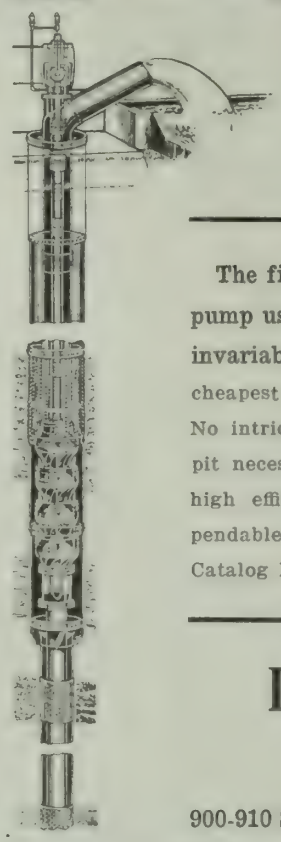


No pump was ever built that is better than this Miller Automatically Water Balanced, Enclosed Runner, Ring Oiling line of Centrifugal Pumps. No pump on the present market is as good. Our catalog will convince you. Write for it. You might as well get something that will last and cost you less to operate, than something cheap when the good costs no more than inferior. We are pleasing others, Why Not you?
Norman B. Miller Co. San Francisco, Cal.
503 MARKET STREET

I HAVE PULLED 3000 STUMPS

Big Pacific Coast Stumps, ALONE, without horses, powder or digging, with a
"K" HAND-POWER STUMP PULLER
I KNOW you can pull your stumps with the "K," cheaper, quicker and better than with any other known device.
WEIGHS ONLY 171 LBS.
One man easily handles—made of Krupp steel; can't break or get out of order. Simple, compact, developing 48 tons' pull. Pulls any stump that ⅝-inch steel cable will hold. 200 feet steel cable and all equipment included. Works anywhere. Used by U. S. Gov't in Alaska and by several states and counties.
You can make $25 land worth $200 an acre in spare time work.
Write today for catalog showing actual photographs of the "K" in use and special money-saving offer.
W. J. FITZPATRICK
Box 3[illegible] 1[illegible] 262d Ave.
Seattle, Wash.

The Irrigation Season Will Soon Be Here
Be Prepared by Installing the
LAYNE & BOWLER PUMP



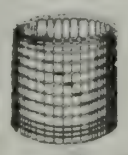
"LET THE WORLD'S LARGEST WATER DEVELOPERS SOLVE YOUR PUMPING PROBLEMS."

The final choice of the modern irrigator and pump used is the LAYNE & BOWLER PUMP invariably. It will positively produce the cheapest water and with the absence of trouble. No intricate mechanism to get out of order. No pit necessary. The Layne & Bowler Pump is of high efficiency—durable, compact—rendering dependable service year in and year out. Write for Catalog No. 25.

Layne & Bowler Corporation
900-910 Santa Fe Ave., Los Angeles, Cal.

PIPE
For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped
2nd Hand and New
Screw Casing Fittings and Valves Guaranteed for Pressure
PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

Plan for High Priced Market
INSURE biggest and best crops by planting *accurately* with the Aspinwall. Just the driver required. Planter opens furrow, drops seed—any size—covers, marks next row, and if desired sows fertilizer—*all in one operation.*
Aspinwall Potato Planter
Attachment for corn, peas and beans. World's Oldest and Largest Makers of Potato Machinery. Will answer, personally any questions on potato growing. Send now for free booklet.
ASPINWALL MFG. CO.
480 Sabin St., Jackson, Mich.
Cutters, Planters, Sprayers, Diggers, Sorters



Redwood Tanks
I sell to the consumer. Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. Wilson, Stockton, Calif.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

apertures are to be preferred.

Co-operation.

Fruit growers in communities should co-operate in the purchase of spraying equipment and material. If the orchards were properly thinned and the trees pruned, a small power outfit costing about $160.00 with three lengths of 50 foot spray hose or 150 feet in all, would, we believe, be sufficient to take care of all the spraying in that section. The long spray hose would permit many of the smaller orchards to be sprayed without its being necessary to haul the spray pump off from the roadway.

TRACTOR SCHOOL NOW ON.

[Written for PACIFIC RURAL PRESS.]

Learning the latest in traction engineering, by handling the machines at the factory where they are made, under instruction of Prof. F. L. Peterson, late of the University of Cal., and with the help of the manufacturing company's experts, a large number of Holt Caterpillar owners and operators are attending the four weeks' school arranged free of tuition by that company in Stockton. The school began Jan. 18 and will continue till Feb. 13. The idea is to give lectures, demonstrations, and practical operation of traction engines and harvesters to all patrons, and it goes on rain or shine. The company recommends the full month's course, but parts of it may be taken by those who can't stay all through. The tuition of $25 charged non-owners of Holt machines is refunded out of whatever they may purchase.

POWER LEVELING FOR IRRIGATION.

[Written for PACIFIC RURAL PRESS.]

A subdivision development company is opening up several sections near Porterville, putting most of it into olives. Ten thousand olive trees were contracted for in one bunch. But this tremendous acreage, which will total 2,000 acres for olives alone, has to be quickly leveled for irrigation. Early this month, a combined scraper and leveler was put to work. The ground is first plowed eight inches deep and then a tractor pulls the scraper over it, taking a strip eleven feet wide. This is one place where timeliness and quick work mean big money to the company and early development for the community. Only the tractor and giant scraper could get the land ready for sale this spring, in time.

STEADY PUMPING.

Running a 20 h. p. distillate gas engine for 31 days at a stretch, Geo Kettleman of San Joaquin county irrigated his ranch at 1000 gallons per minute. His No. 5 Samson pump has a 6 inch suction pipe and 8 inch discharge. The engine burned 50 gallons of 9 cent distillate every 30 hours.

COST OF ELECTRICITY.

To the Editor: Our electric iron is marked 110 volts and 5 amperes. How can I tell how much it costs per kilowatt hour?—W. B. H., San Bruno.

[Answered by E. P. Gibson, General Electric Co.]

[An electric iron, toaster, percolator or any electric heating or cooking device of standard make will have a nameplate attached giving the voltage and ampere rating; often it gives the watts. To find the cost of operating your electric iron, multiply the volts by the amperes: 110 times 5 equals 550. This result is in watts as one ampere times one volt equals one watt. Then to reduce 550 watts to kilowatts you divide by 1000, as there are 1000 watts in a kilowatt. This gives .55 kilowatts. Look at your light bills and you can determine what you pay per kilowatt hour. Suppose it is seven cents; then multiply $.07 by .55 and you get $.0375 or three and three quarters cents per hour as the cost of operation.]

COMBINE TO BUY TRUCK.

[Written for PACIFIC RURAL PRESS.]

In Alameda county are over 600 acres of rhubarb which will soon be coming onto the market via Lorenzo. Many of the producers have an acre or so a long distance from the station. They will have to spare some help and a wagon to take barb to town every two or three days. Why shouldn't they get together, put up money enough to buy an auto truck, hire one man to run it instead of taking the time of a dozen men to haul their barb to market? The manager at the shipping point finds it a business proposition to use an automobile for himself, and he isn't so hefty either. More need still of mechanical power to haul the hefty barb to town.

It will be some pumping plant that W. R. Spence is installing near Biggs to irrigate 640 acres of rice land recently purchased. The outfit will cost $10,000 and will be operated by a 75 horse power electric motor. The big pump may also be adapted to solve the problem of drainage when that arises.

Automobilists of Northern California are behind bills in the Legislature intended to revise the method of computing horsepower, so as to reduce the tax, and also remove automobiles from the personal property list where they are now taxed some more.

"BEST ON THE SURFACE OF THE EARTH"

"AMERICAN" SURFACE IRRIGATION PIPE

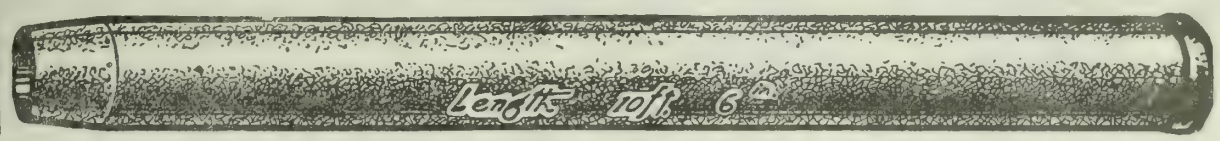
The pipe with the original double-locked turned seam — stronger — more durable — more convenient— more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character. In lengths 10 feet 6 inches.

Let our irrigation engineers solve your problems—FREE.

Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.

AMERICAN STEEL PIPE & TANK CO., 354-56 Pacific Electric Building LOS ANGELES

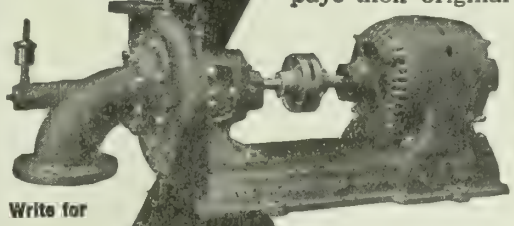
Branch: 1228 "H" St., Fresno.



"Jackson MADE"

The greatest test of any pump is its ability to raise the maximum amount at lowest cost per gallon, day in and day out, year after year.

True pumping economy is one of the great features of "Jackson Made" pumps; they work economically and their freedom from repairs and power saving pays their original cost in a few months.



If your pumping puzzles you, tell us—our expert engineers are at your service free of charge.

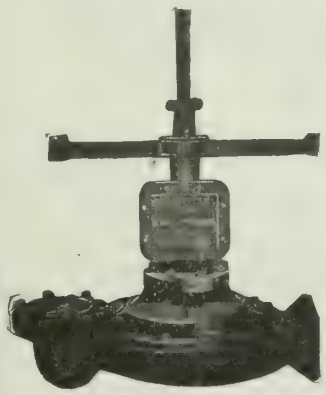
Write for Catalog No. 47A

"Jackson Made" pumps are manufactured in various styles to do your particular work at lowest possible cost.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

The KROGH Vertical Pumps



New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.

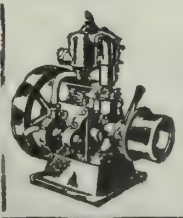
SAN RANFCISCO, LOS ANGELES

Second Hand PIPE Screw Casing

ALEXANDER PIPE COMPANY

— 254 No. Point Street, San Francisco, Cal. —

501 Clarence St. Los Angeles, Cal.



CUSHMAN Gasoline Engine

for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.

Write for Catalog

Light Weight

THOMAS R. BROWNE, Stockton, Cal.

REDWOOD TANKS—SILOS.

Water troughs, tank Windmills. Prices the lowest. frames, and towers. Steel and Wood

BROWN & DYSON, 640 So. Center St. Stockton, Cal.

Irrigation Machinery

Pumps-- Motors--Engines

Pumping Plants Installed and Guaranteed for One Year.

Send for Our FREE 72-page book on "IRRIGATION." Expert Engineers.

Three Stores to Serve You.

California Hydraulic Engineering and Supply Co.

68 Fremont St., San Francisco
31 S. Briar St., Lindsay.

AMERICAN PUMP CO., 129 No. Los Angeles St., Los Angeles.

BURN OIL

SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO., Pasadena, Cal.

One Hundred and Fifty Dollars An Acre

Good Alfalfa Land with Cheap Water Within 35 Miles of Los Angeles.

This land is on the CHINO RANCHO, straight east of Los Angeles. Much of the land faces on paved roads, and the whole tract is surrounded by prosperous farms and homes.

Close to such towns as
POMONA, ONTARIO, CHINO
and
CORONA.

Excellent alfalfa land, good for beets, corn, Egyptian corn and general farming. We believe it is specially suited for

DAIRYING AND HOG RAISING

The Los Angeles markets are always hungry for pork. The price of hogs in the interior valleys is the Los Angeles price, less freight and shrinkage. Look this up, and you will see that this Chino location is worth fully $150 an acre over anything where you have to pay the freight and shrinkage.

Yet you get it just about as cheap.

What's the use of going into the interior, when you can live where the sea-breezes blow, where the climate is sunny, dry and healthy, and surrounded by beautiful towns, homes and orange groves?

The regular terms are VERY EASY.

To men with experience in HOG RAISING we will make special terms, remarkably easy.

We have about 2,000 acres of this land. Are advertising it heavily, have parties going to see it several times a week, are making sales speedily and expect to have it all sold and gone inside the next sixty or ninety days.

The Low Prices Were Put on the Land to Make it Sell Quickly,

AND THEY ARE DOING IT.

Call upon, write, or telephone
L. B. JORALMON,
with
Thomas D. Campbell & Company
WASHINGTON BUILDING,
Los Angeles.
Home 60373, B'dway 3903

TEACHING PAYS
Teachers Receive From $70 to $150 Per Month and Have a Pleasant Occupation - Free Catalog
WESTERN NORMAL
STOCKTON, CAL.

Agricultural Review

CITRUS AND SEMI-TROPICAL FRUITS.

Loomis, Placer county, has shipped 48 cars of navel oranges and 800 boxes of tangerines this season.

The highest prices paid for oranges from Tulare county this season was $2.40 f. o. b. for a carload shipped to England.

A tract of 1800 acres in Riverside county is to be partly planted with 50,000 citrus trees and about 20,000 avocado trees.

The 240-acre lemon orchard owned by the Gillette Co. of Tulare Co. is to be irrigated through concrete pipes at a cost of $12,000 for the equipment.

A bill has been introduced into the Legislature to prevent the shipment of citrus fruits without first being tested to determine whether they are frozen. The boxes of tested fruit are to be labeled.

Avocado growing is taking a running start in Santa Barbara county. The points made in regard to its culture are that the avocado requires good drainage and some sort of soil mulch to prevent the heat of the sun affecting the roots.

The Western Fruit Jobbers' Association, which handles practically all of the California fruit sent East, is to have a convention in Los Angeles and will be shown the Tulare county groves on their way from Los Angeles to the San Francisco Exposition.

The old fight for the 15c freight, which was added to lemons when the present tariff was fixed, has been stirring lately. The Interstate Commerce Commission has ordered refunded to the Arlington Heights Fruit Exchange both the excess freight and 6 per cent interest on it from the time it was paid to the railroads.

The students of horticultural schools throughout California are to have a judging contest at the National Orange Show to be conducted by Dean Webber of the new Experiment Station at Riverside. The students will judge the fruit before the professional judges and will have an opportunity then to see how close they came.

OLIVES AND NUTS.

An 80-acre tract of olives is to be planted on Deer Creek in Tulare county.

One hundred acres of olives are to be planted in Wheatland in Yuba county.

A 25,000 tree shipment of almond trees was recently made from Chico to Colusa county, where they will be planted in acreages from 60 down to 5.

Evaporated olives which have an especially good flavor, have been produced this season by the Maywood Packing Co. of Corning. The varieties used have been Manzanillos, Nevadillos and such of the Mission olives as were not suitable for the best pickles. They have kept test lots for a year in heated rooms, cold rooms, and damp places with no signs of spoiling.

DECIDUOUS FRUITS.

One nurseryman in Sutter county has sold 72,000 trees, most of which are peaches and prunes.

The Winters Canning Co. put up 75,000 cases of fruit at Suisun during the past season, paying $31,000 in wages.

Fifty acres of Royal Anne cherries are to be planted in Sonoma county. They are to be interplanted with Loganberries.

Forty acres of bearing prunes, peaches, and almonds in Sutter county were recently sold for $14,000.

A bill standardizing apple packs has been introduced into the Legislature. Standardization of all shipping fruits and grapes is embodied in another bill.

A Deciduous Fruit Experiment Station of the University is proposed in a bill before the Legislature, which if carried will bring an appropriation of $50,000 for the work.

Dried fruits at the Panama-Pacific International Exposition will be handled exclusively by the Winters Dried Fruit Co. They will be put up in attractive packages, advertising Yolo county.

Humboldt county is considering the establishment of a fruit and vegetable cannery to take care of their Bartlett pears, small fruits, and vegetables.

The Tulare Canning Company's outfit was recently attached by the growers of that vicinity to recover about $13,000, which they claim is due them for fruit delivered last season. The company has double that value of canned goods in their warehouses in Tulare and it is thought that satisfactory arrangements may be made soon. The growers there are expecting to form a co-operative cannery.

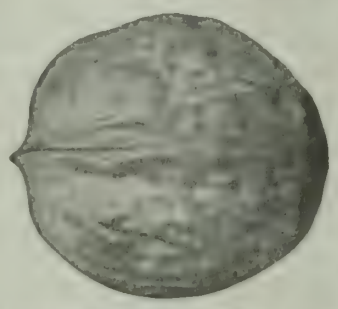
GRAPES.

The Associated Raisin Co. of Fresno is beginning a campaign to induce outside growers to join them. A meeting was recently held in the Fowler district at which a committee was appointed to get busy along this line. It is reported that the Company hopes to popularize its brands of raisins within the next few years so that they can handle the entire crop from their own packing houses.

Grape pruning has excited considerable interest around Clovis recently, where Frank Henry has been giving demonstrations. He claims that the training of vines to a high head with extended arms has resulted in the deadening of the fruit wood. He cuts this away and encourages new growth nearer the ground. Mr. Henry advocates the heavy sulphuring of all vineyards from the time the buds come out until the grapes begin to color.

Landscape Gardening a Specialty

Immense stock of
ORNAMENTAL SHRUBS, TREES AND PLANTS,
including
75 Native California Species.
also
FRUIT, NUT TREES, ETC.
Pedigreed French Prunes.



LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product.. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE
and
SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St.,
San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO.,
258 Market St., San Francisco.
CALIFORNIA SEED CO.,
151 Market St., San Francisco.
SUNSET NURSERY CO.,
92 41st St., Oakland.
VALLANCE BROS.,
31 Glen Ave., Oakland.

California Native Plants

Write for my new price list of **California Native Plants,** containing seventy choice species, all of which are worthy of a place in any garden.

THEODORE PAYNE,
345 Main St., Los Angeles, Cal.

AGRICULTURAL LIME
HIGH GRADE MANURE
H. B. Matthews, 1623 La Loma Ave., Bkly, Cal.

Write for a copy of
Morse's 1915 Garden Guide
Just off the press
Mailed Free

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Every packet of
Morse's Seeds
Vegetable or Flower, are dependable seeds. Fully tested before packed.
For Sale Everywhere.

MISCELLANEOUS.

Tea plants set out in Butte county over a year ago are still thriving, not having been hurt much by the recent cold weather.

A Kern county judge suggests that a 1000-acre county farm should be acquired to give demonstrations on correct farming methods and incidentally to take care of the jobless.

To enable the State under the Carey Land Act to acquire United States lands at 50c to $1.00 per acre for purposes of colonization, a bill has been introduced into the Legislature.

Of the three hundred milion lady bugs liberated in the Imperial valley last season there seem to be only a few left. The University has sent a man thither to find out where they have gone.

A project to settle 100 families on 2000 acres in Sonoma county has recently been started. A distinctive feature is that all the buying and marketing will be done on a co-operative basis.

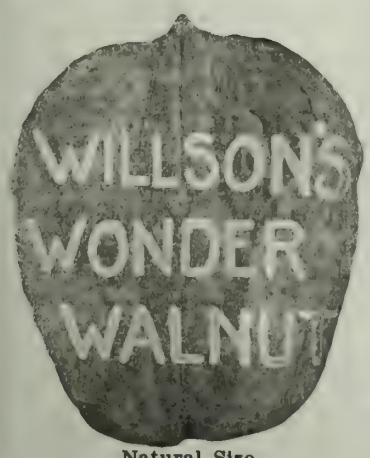
Free samples of Feterita, Milo, and Peruvian alfalfa in four or five pound packages are to be distributed by members of Congress to those of their constituents who will give this seed fair tests and report results.

Mendocino farmers recently decided in a meeting to organize for the sake of marketing their crops to better advantage. A committee was appointed to draft by-laws, which will be adopted at a meeting on Feb. 6.

The Oregon Agricultural College is to have "Farmers' Week" Feb. 1 to 6, which will consist of lectures and demonstrations. Plant diseases and means of spraying and other control will have special attention. A large exhibit of diseased plants will be used as an object lesson.

It is claimed that wholesale produce dealers have compelled Weighmasters in California cities to give the farmers short weights. Some of the Weighmasters have complained to Supt. Johnson of Weights and Measures, and a bill has been introduced into the Legislature to require all Weighmasters to get licenses and to file bonds, making false weighings a misdemeanor.

AN UNPROFITABLE RANCH
is often so because of the lack of a capable, thoroughly efficient manager. I am 32, fully equipped with both the scientific and business knowledge of farm management; have executive ability of a high order; now employed but want a bigger job. My credentials are A1; bond promptly given, if required. If you want a man who can make a ranch show its maximum profits, write me,
C. S. M., Pacific Rural Press.



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer
Customer on investigating trip says:
"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."
All trees grafted on Cal. Black Stock limited
Write for circular with prices.

Encinal Nurseries
Sunnyvale, Santa Clara Co., Cal.

TALK POULTRY TO LEGISLATORS IN FEBRUARY RECESS.

To the Editor: We enclose herewith a copy of the proposed agricultural bill—Assembly Bill No. 164—introduced by Mr. Avey and intended to consolidate the present various agricultural commissions of the State into one concrete department under the control of a Secretary of Agriculture, and request that you publish it for the benefit of the poultrymen who are readers of your paper, as well as all other agriculturalists.

We wish particularly to call the attention of those interested in poultry raising to the second paragraph of section 3 which reads, "The bureau of animal industry shall be organized into two divisions to be known respectively as the division of livestock, including bees and the division of dairying."

In this bill the poultry industry, which in this State amounts annually to twenty-five million dollars less seven million dollars lost while reaching the consumer, is not given any consideration — a deplorable oversight, to say the least.

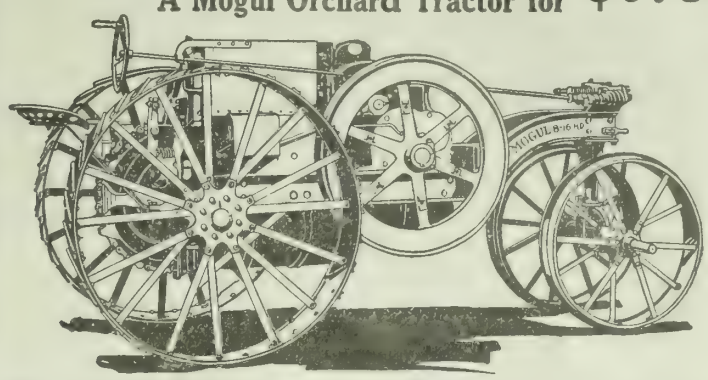
The present session of the Legislature is known as a bifurcated session; the members meet for thirty days to present proposed laws and refer them to committees, then adjourn for a month and in March reconvene to vote on the various bills. During the February recess it is supposed they will meet many of their constituents and discuss with them the proposed measures, thus more or less carrying the legislative functions to the firesides of the people and in a measure providing them a voice in the making of the laws. We urgently request each poultryman of the State to take advantage of this privilege, when your Senator or Assemblyman returns to his flock seeking encouragement and advice. Get his attention at once while he is still in a receptive mood and yet unburdened with other matters; request him to use his best efforts to have the second paragraph of section 3 of the bill amended to read: "The bureau of animal industry shall be organized into three divisions, to be known respectively as the division of livestock including bees; the division of dairying and the division of poultry."

It is not necessary that you should be a voter in order to have the right to go after your legislative representatives. Any man, woman or child engaged in poultry culture is entitled during this February recess to present his or her views on any matter before the Legislature.

Federated Poultry Association of Cal.
By GEO. H. CROLEY, President.

[The law is printed elsewhere in this issue.—Editor.]

Our New Year's Announcement
A Mogul Orchard Tractor for $675



We announce for 1915 an all-purpose Orchard tractor with 8-H. P. at the drawbar and 16 on the belt—Mogul 8-16

An Easily Handled, Short Turning Tractor

THIS new Mogul 8-16 tractor will do the work of eight horses in the orchard.

Being a four-wheeled, all-purpose tractor, you can use it every working day.

It will do plowing and seeding as well as orchard cultivating.

It will draw manure spreaders, wagons, mowers or binders.

It will run a corn sheller, feed grinder, small shredder, thresher or ensilage cutter.

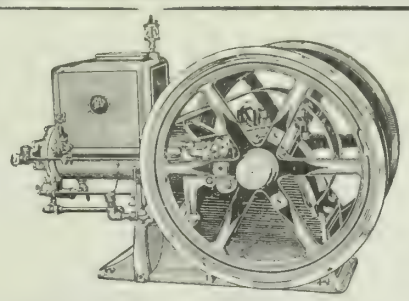
Any farmer can buy this new Mogul 8-16 tractor for **$675.00 cash, f. o. b. Chicago.**

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8-16 tractor can be sold.

If you want to use a Mogul small-farm tractor for spring work, your order should be placed now with the I H C local dealer.

Write us for full information.

International Harvester Company of America
(INCORPORATED)
Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah



Mr. Farmer—

the time of year has come when you must begin to arrange for that pumping plant. Don't put it off until you need the water. Likely your crops will dry up before you can get it installed. Better do it now. Now, remember Gregory sells the machinery to do this work. All kinds of Pumping Machinery. Little outfits complete for $75.00—big outfits in proportion.

Come in and get acquainted.

Don't forget we have a first-class Repair Shop in connection, where you can get your work done and done right.

William Gregory
602-606 N. Main St., Los Angeles

Prune Trees

A few hundred **IMPERIAL** and **SUGAR** on Myrobolan and Almond roots, first class trees. Also **IMPERIAL, SUGAR** and **FRENCH PRUNES** on same roots, in the smaller sizes at **BARGAIN PRICES.**

CHERRIES, BARTLETT PEARS,
APPLES, CITRUS TREES,
APRICOTS, ORNAMENTALS.

ROSES, GLADIOLI and DAHLIAS a specialty.
Write for new Price Catalog.

Santa Clara Valley Nurseries
Max J. Crow, Prop. Gilroy, Cal.

OF INTEREST TO EVERY RANCHER
1,000 QUESTIONS ANSWERED
[illegible]-page, handsome illustrated seed catalog. Surpasses all previous editions. Complete listing of [illegible]eds. Poultry Hints. Valuable to ranchers. Write [illegible]
AGGELER & MUSSER SEED COMPANY
6th AND ALAMEDA STS. LOS ANGELES, CAL.

Range Cattle on Stanislaus Alfalfa.

[Written for PACIFIC RURAL PRESS.]

When alfalfa hay can be bought at $4.50 to $6 a ton, as at present, it can be profitably fed out to range-raised steers. So think Messrs. James and Felton of Mendocino county, who have been carrying a lot of such animals on alfalfa hay in Stanislaus county since November 20.

In previous years it has been necessary for these, as well as other cattle owners in the northern coast counties, to either sell their steers in the fall on a poor market or else hold them over through a hard winter and turn them off on the spring grass, after the usual high winter or early spring prices have been lowered. This left a gap of one or more cents a pound per steer, which could not be filled at home.

Now it happened this year, and perhaps will in the future unless our alfalfa growers stock heavier with dairy cattle, that alfalfa hay went a-begging on many ranches in Stanislaus county and the result was that good second and third cutting hay could often be bought for $4.50 to $6 a ton in the stack.

This seemed like a good opportunity for shipping the range steers from Mendocino to Stanislaus county and thus realize on the difference of fall and spring quotations and at the same time pay for transportation charges, hay and labor through the gains made in weight. Accordingly they shipped a mixed lot of 137 head of steers from their home ranch to an alfalfa ranch about eight miles from Modesto, where there was stacked a large amount of last year's hay.

The hay was purchased at a little better than $5 a ton, the owners of the ranch providing corral room, watering troughs and feeding racks free of charge. The soil in these corrals was a sandy loam and almost ideal for winter feeding as they have never become muddy, a factor which is of great importance in winter feeding. In speaking of this feature Mr. James said: "An animal and a human are much alike in respect to their sleeping. A man can get plenty to eat, but if he doesn't have a place to sleep he will soon show it, and the same thing applies to steers. For that reason this section is hard to beat, at least on soils as sandy as the one we are feeding on."

As before stated, the stock was of mixed breeding, about half of them being of ordinary Shorthorn breeding and the balance being grade Holsteins. All of them are four-year-olds and weighed an average of about 1050 pounds when landed on the alfalfa.

Some difficulty has been encountered in feeding, as provision was not made for grading them into different sizes and corraling them accordingly. This has made it impossible to segregate the large animals from the smaller ones, with the result that the latter kind have not made the gains they should have. Then, too, the Holsteins have maintained an advantage at the feed racks as they had learned to eat from racks at calfhood, which has had a marked influence on the other stock less familiar with such methods who have been driven away from the feed, due chiefly to the fact that none of the Holsteins had been dehorned. Another year all stock will be dehorned before the feeding is started and the more rugged animals segregated from the less hardy ones.

Some difficulty has also been encountered in getting a sufficient supply of water and it is Mr. James' opinion that before the alfalfa man can expect much patronage from feeders he will have to provide a suitable water supply and better troughs, corrals and feed racks.

The stock has consumed on the average about 35 pounds of hay, which is kept continuously before them, and while they have not been weighed, their appearance indicates a gain of from one and a half to two pounds a day.

It will be seen from this that the revenue received for the increased weight at the ruling price for beef just about counter-balances the cost of maintenance, the margin in favor of the feeder being the increase in price which is ordinary with the spring market over those of the fall.

Were the buyers to pay for the better finish, which is customary in many markets, the margin of profit would also be larger.

The figures secured from this experience indicate that the returns here will be the minimum, due to the ordinary breeding of the cattle and the before mentioned difficulties, both of which could easily be overcome.

As a life saver to the grower of alfalfa in years when stock is scarce and hay cheap, the above methods should pave the way for the much desired condition of beef cattle feeding on the small farm and thus insure the success of many a dreamer's dream.

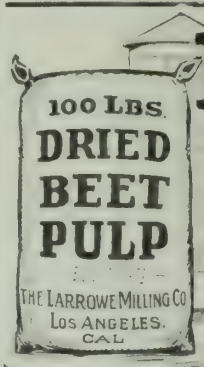
MEASURING CHOPPED ALFALFA.

To the Editor: Can you please tell me how much room would be required to store about 65 tons of chopped alfalfa hay? Is there any particular advantage in feeding this hay to dairy cows and work mules? Is there any particular way to mow or care for it?—B. F. G., Corcoran.

[We do not know of any rule for measuring chopped alfalfa, although as stated in our issue of January 16, H. T. Harrold of Orland has found that he can store approximately three times as much chopped hay in his barn as he can loose hay. It is generally considered that 500 cubic feet of loose hay in the stack will weigh a ton, and from Mr. Harrold's observation it would therefore require about 166 cubic feet of chopped hay to make a ton. On that basis a mow 40 feet long, 16 feet wide and 17 feet high would hold 65 tons. If stored next to the walls, however, the excessive weight will bulge the side walls out and you should therefore allow six inches or a foot on each side for space. The advantage claimed for chopped hay beside the saving in storage space is the smaller waste in feeding over loose hay. We have been told by reputable dairymen that this saving will amount to 15 to 25 per cent, the cattle eating practically all of the hay when in the chopped form. We know of no one using chopped hay for mules, but are inclined to doubt any great saving with such animals or horses, as they usually eat well of the coarse stems, which dairy cows do not. You can cut and cure your hay in the same manner as for loose hay and may haul it directly to the cutter from the shock if you so desire. The cutter should be equipped with a blower to elevate it into the barn or else an elevator, the former being preferable. — Editors.]

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O



LARROWE'S Dried Beet Pulp
Puts Silage in the Background
Thousands of dairymen are now feeding this palatable milk producing feed and banking their extra profits. It solves the problem of providing an all-the-year succulent feed for dairy cows.
Order a single sack from your feed dealer and prove its worth by feeding to one cow whose milk record you know.
YOU DON'T NEED A SILO
One ton of Larrowe's Dried Beet Pulp contains as much nutriment as five tons of silage and in addition is clean, healthful and succulent. It is a wonderful milk producer; convenient; economical; always ready at any season. It saves the expense of building a silo, the cost of filling it and the necessity of growing a crop suitable for silage.
LARROWE'S DRIED BEET PULP
Just Like Roots
Makes More Milk
—the ideal feed not only for dairy cows, but also for hogs, goats, sheep, poultry and horses. It is wonderfully rich in carbohydrates; makes a splendid combination with alfalfa. Larrowe's Dried Beet Pulp can be had either plain or with molasses.
Considering the present high price of bran and mill feeds and that Larrowe's Dried Beet Pulp can be substituted for them, pound for pound, and get more milk, now is a good time to commence feeding Larrowe's Dried Beet Pulp. Order from your feed dealer today.
WRITE FOR A FREE COPY OF OUR BOOKLET, "PROFITABLE FEEDING"
It gives valuable information about feeds and feeding and tells how you can get more milk from your cows at no extra cost.
THE LARROWE MILLING COMPANY
607 CENTRAL BUILDING, LOS ANGELES, CAL.

GRANDSONS OF TILLY ALCARTRA
At Prices Within Reach of Every Breeder and Dairyman.

A GRANDSON OF TILLY ALCARTRA.
We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write
J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

2-YR. OLD SHIRE STALLION
FOR SALE
SEVERN DONALD 13957 by Severn Pilot 11587
DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399
This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1900. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.
For further particulars write
J. McCORMACK, Rio Vista, California

Alfalfa Silage for Dairy.

To the Editor: I have a 50-cow dairy, feed chopped alfalfa while milking and run on alfalfa and wild grass mixed pasture. I irrigate both meadow and pasture, but in latter part of summer pasture gets short and cows shrink on milk, also in winter months. Would you advise filling silo with first cutting to have feed during dry months? and filling later with ensilage corn to feed in winter months? We only chop the last four cuttings. Would oats and alfalfa make good ensilage? What sized silo would you recommend if any? I am located in Sonoma County.—R. S. B.

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[I believe thoroughly in the value of the silo for dairy and stock farmers, in general, whether alfalfa, Indian corn or other silage crops are available for silage making, and would advise filling the silo with the first crop of alfalfa under the conditions stated. This crop will make a satisfactory silage, even if very weedy, so long as it is cut when the alfalfa is beginning to bloom, before the foxtail ripens. If cut at a later stage many of the hard foxtail heads will be likely to dry out before the silage is eaten by the cows, and may cause trouble. In making alfalfa silage the alfalfa must be run through a cutter and elevated into the silo with the least possible delay after it is mown, so as to prevent drying out, or if delays occur, sufficient water must be added in the blower or the silo during filling to bring the water content up to normal for alfalfa at blooming time. If oats and alfalfa can be well mixed in filling the silo there is no objection to siloing them together; in fact, alfalfa mixed with other green forage, whether weeds, cereal crops, or even staw, often makes silage of a less pronounced flavor than silage from pure alfalfa; doubtless because decomposition products due to the fermentation of the protein compounds are less prominent when the silage crops contain considerable carbohydrate materials like those mentioned. If the alfalfa silage is fed out during summer, the silo may be filled again in October or November with Indian corn, sweet sorghum, or one of the grain sorghums, and a supply of a valuable succulent feed thus secured for winter feeding.

Dairy cows are fed from 20 to 25 lbs. of alfalfa silage per head daily. If it is planned to feed silage about 150 days during the year nearly 2 tons per head, or 100 tons per herd, will, therefore, be required. As silage makes a good feed for other farm stock as well, it is advisable to plan for a somewhat larger silo than this, say 120 or 150 tons. A 120-ton silo may be made of the dimensions: diameter 14 feet, 36 feet high; and a 150-ton silo: 14 feet diameter and 40 feet high, or 15 feet diameter and 38 feet high. If the silo is to be filled twice during the year, as suggested, a 100-ton silo will be as large as needed, viz., diameter 12 feet, and 36 feet high, or 13 feet diameter, and 34 feet high.]

Richard A. Murphy of Indian Wells, Ariz., has purchased hay in Tulare county and is bringing his stock from Arizona to feed there.

BRAN AND BEET TOPS SCOUR PIGS.

To the Editor: Will you please inform me as to the best kind of feed for little pigs from the time they begin to eat until weaning time, if you have no cows' milk to give them? I have some about four weeks old that I have been feeding cocoanut meal, middlings, and bran. I was not able to get the cocoanut meal, so I have left it out with just the other two, mixing with water to a substance like mush and they are scouring. Is the combination of the three in equal parts a good mixture? And would alfalfa meal added to any mixture be good for them? I have been feeding the mothers on beets. The pigs seem to eat the tops and a little of the root. What would you advise feeding the mother for best results?"—A. S. P., San Jose.

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[The scouring of the pigs may be due to their eating a grain mixture containing wheat bran, or to eating beet tops, or both. Wheat bran is quite laxative; it is relatively high in fiber, containing about 10 per cent thereof or more, and also contains an organic phosphorus compound phytin which has a decided laxative effect. The same holds true with beet tops, but in this case the laxative influence comes from their high potash salts, mainly oxalates. Bran is not desirable feed for pigs for the reason stated. Middlings or shorts, on the other hand, make an excellent pig feed, and I would suggest that you feed the pigs a mixture of ground barley and middlings in the proportion of two to one by weight, or include in the mixture a little linseed meal or tankage. Both of the latter, and especially tankage, are high-protein feeds and are valuable for feeding supplementary to the grain feeds given. Ground milo or kafir corn may be substituted for barley, if available and cheaper. It would not be advisable to add alfalfa meal to rations for young pigs as it is too high in fiber. A small amount may do no harm, but tankage is better.

The sows should receive plenty of highly digestible feeds, like cereal grains and mill feeds, with protein feeds like alfalfa, linseed meal, and also some succulent feeds, pasture or roots. Wheat bran is all right for sows, but if they are receiving alfalfa hay or green alfalfa, then middlings are better and a cheaper feed. Feed the pigs at the rate of at least 2 per cent their weight of grain daily and the sows about one-half pound of hay and three to four pounds of grain feed daily per 100 lbs. body weight. If roots are fed they may take the place of grain in the proportion of 10 lbs. for every pound of grain fed.]

VETERINARY QUERIES.

[Answered by Dr. H. B. Wintringham, Petaluma, Graduate San Francisco Veterinary College.]

PIG BREATHES HARD.

To the Editor: I have a pig 2 months old that breathes very hard, his nose is some swollen and a faint odor comes from it. The pig is still sucking and eating skim milk and rolled barley; is in good form except a rough coat.—E. A. T., Lodi.

[Your pig has a foreign body lodged in his nostrils. Have a veterinarian remove it. A piece of baling wire with a ball of cotton twisted on the end will do. Turn and twist until substance catches on the cotton. After treatment would consist of syringing out nostril with 50 per cent solution peroxide of hydrogen.]

DOESN'T HOLD HER MILK.

To the Editor: I have a Holstein cow, a very heavy milker, but she can't hold her milk from noon till night.—J. E. B., Modesto.

[Milk your cow oftener.]

ULCERS ON SOW.

To the Editor: What can I do for a young sow which seems to have ulceration on and in vagina? Do not know whether she has bad pigs?—F. B., Sacramento.

[Get a human rectal syringe and inject the following, twice daily, being sure to keep parts clean: Liquor cresolis compositus 2½ teaspoonfuls, water one pint. Sprinkle the surface ulcers afterward with the following: Boric acid 1 oz, zinc oxide 1 oz, alum one dram, thymol iodide 1 dram. Put this powder on with a salt shaker.]

LEG SWELLED — HOLE IN TEAT.

To the Editor: My cow has a swelling on the inside back joint. It looks and feels like a bog spavin on a horse's leg. I rubbed some blistering liniment, also a bottle of Dr. Roberts' absorbent, but without results. The cow is not very lame, but she don't stand all her weight on that leg very long. Another cow that I bought dry came fresh, has a hole at the base of one of her teats. Would a red hot wire put into the hole (when the cow is dry again) close the hole when healed? — W. W., Modesto.

[Apply Lugol's solution of iodine to the swollen joint and rub in thoroughly with a tooth-brush once a day. If skin becomes blistered wait till inflammation subsides before continuing to apply.

A red hot wire would be good to cauterize an opening in a dry teat to produce closure. A better method is to scarify the edges of the wound and then sew up.]

BERKSHIRES
Oak Grove
Cholera Immune
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

For Sale or Exchange,
One Black Percheron Stallion
"GANTRAN"
8 years old—weight 1940.
Sound and sure.
LINDEN HORSE CO.
Linden, Calif.

"One Thousand Questions in California Agriculture Answered"
By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.
This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.
The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.
The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.
"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"
is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.
Contains 256 pages. Handsomely bound in cloth.
PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED
FARMS
On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.
This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.
Everyone who wants a farm should investigate this offer.
WRITE TO
DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

With the Live Stock Men

DAIRYING.

The Secretary of the Holstein-Friesian Association reports over 6000 active members.

W. W. Stice of Tulare recently bought 33 high grade Holstein heifers from Napa county. He had disposed of most of his old stock.

The Lucerne Cream and Butter Co. of Kings county reports thousands of pounds greater output in 1914 than in 1913, and the prospect of a greater increase in 1915.

The Oakdale Creamery of Stanislaus county recently imported a carload of 25 high grade Holsteins from Gilroy for distribution among its patrons.

The Yolo County Dairymen's Association has called on the Farmers' Protective League to frame a bill for the present Legislature to require all butter imported from foreign countries to be stamped "Imported."

The Melone Co. of Napa recently imported a bunch of purebred registered Ayrshires, from which they expect to breed a herd. An exhibit will be made at the Panama-Pacific International Exposition.

The Dairyville Association of Tehama county has a cheese factory which they have not operated for some months owing to a lack of capital. They are now looking for a chance to dispose of the outfit.

A proposition in Modoc county to establish a creamery in Alturas seems ready to be swung. Surprise Valley farmers are now sending their cream by stage to Alturas and thence by rail to Reno or Lake View. Considerable interest from outsiders has been stirred up and many letters inquiring the dairy possibilities of that section have been received since the creamery agitation started.

The Yolo County Dairymen's Association recently contracted with the Woodland Creamery to deliver all of their product to that creamery on condition that the Association be allowed to select its directors. The Directors of the Association were at once elected as Directors of the Creamery so that the producers now feel they have a firm hand on the marketing of their cream and butter. About 75 prominent dairymen attended the meeting.

BEEF CATTLE.

S. E. McDaniel of Douglas, Arizona, recently brought 400 head of cattle to Bakersfield to be sold for feeding. It is reported that the shipment brought $10,000.

There is a demand in the alfalfa districts for cows with calves. This is to use the low priced alfalfa; and the bankers of those districts are aiding the farmers to carry out this plan.

HORSES.

A syndicate of Paso Robles farmers bought a purebred imported Shire stallion from Ruby & Bowers of Davis.

The Percheron stallion, Moliere, imported from France, was sold to a bunch of Sonoma county farmers for $3600 by the Dunham-McLaughlin Co. of Oakland.

Rancho Santa Anita of Los Angeles Co. has bought from the Dunham-McLaughlin Co. a five-year-old gray Percheron and a three-year-old black. They also bought two registered mares and will buy 20 more. These will be shown at the Panama-Pacific International Exposition before being shipped to the breeding farm in Los Angeles county.

HOGS.

A great many hogs have been recently added to Madera county herds.

A mysterious disease is taking a considerable number of the hogs in Glenn county. Local veterinarians have been unable to diagnose the trouble, so a carcass has been sent to the University Farm. The trouble is not cholera.

Madera county farmers have been attending demonstrations of inoculation for hog cholera carried on by Farm Adviser T. C. Mayhew, and Dr. B. J. Cady of the U. S. Dept. of Agr. Dr. Cady also gives instructions on how to feed and house swine.

Kings county swine breeders recently attended a demonstration held by Dr. B. J. Cady and Dr. C. L. Roadhouse on the prevention of hog cholera. A tentative swine breeders' association was formed; permanent organization will come a little later.

SHEEP.

Henry Peters of the Dixon district recently sold $60,000 worth of lambs to one party.

Mrs. Isora McCoy has leased her ranch of 10,000 acres to E. J. Tharp of Marysville, who bought her 2500 sheep at $6.50 and will continue the flock on that place.

Our article on "Purebred Sheep on 50 Acres" in the issue of Jan. 23 misspelled P. A. Karrigan's name, for which he might be indignant if he were that sort.

Twenty-three hundred spring lambs were recently sold at $4 per head by J. Bidegary of Fresno to F. Freitas of Merced. Twenty-one bales of wool were sold in the same transaction at $12 per bale.

J. H. Rice of Dixon purchased 1000 ewes last summer at $5.50 each and sold their lambs last fall at $4 each. He recently contracted the sale of the coming lamb crop at $5 per head.

AMERICAN STOCK INCREASED.

In the U. S. since January 1, 1914, horses have increased 233,000; mules increased 30,000; milk cows increased 237,000; swine increased 5,685,000.

Considering that 835,000 acres of grazing were withdrawn from the total available in the national forests of California and the increased number of permits allowed for 1915, the forests will support 11,000 cattle and horses, 19,000 sheep and goats and 13,000 swine more than the same acreage did in 1914. This is due to intelligent conservation of the grass.

Durocs Cholera Immuned
and
GUERNSEY CATTLE.
Durocs out of Frankfort K, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

DUNHAM-M'LAUGHLIN COMPANY OAKLAND, ---CALIFORNIA---

This photograph is of the

Great Percheron Stallion

Bay Duke 97496

Foaled May 1, 1912; best of his age ever shipped to the Pacific Coast.

IF YOU WANT THE BEST,

WRITE US.

America's Leading Horse Importers

Dunham-McLaughlin Co.

Emeryville Race Track, OAKLAND, CAL.

See to the Horses' Teeth

[By Dr. I. B. Dalziel.]

Every horse worth feeding is worth having his teeth attended to, and it is more essential to have a horse's teeth attended to than to have him shod.

If your horse throws off a shoe you do not let him go barefooted until he is lame before having him reshod.

A useful horse is now worth from $150 to $400. What shall we do to improve our horses' condition, so that they will live longer and be more useful? Did you ever give it a thought of how many teeth a horse has; the construction of the horse's tooth; of how they masticate their food; if a horse ever has a toothache; ulcerated teeth; supernumerary teeth; elongated and irregular teeth? And did it ever occur to you that the sharp points of the teeth cut the inside of the mouth, making it impossible to properly masticate their food?

A horse young or old has sharp and irregular teeth. The animal may be fat and in good condition, but his teeth may be irregular and in bad condition.

Sometimes it takes months and even years for the horse to get thin and poor. The horse lives longer and is better able to perform his daily work if his teeth are in proper shape to masticate his food.

You do not wait until your wagon runs dry and squeaks before you oil it, so do not let your good-looking horse get poor before you have his teeth looked after.

Experience teaches the veterinary dentist that it is essential that every living horse should have his teeth properly attended to once a year, as he has an ever-growing tooth. As it grows out and wears off it becomes sharp on the outer edges of the upper teeth and the inner edges of the lower teeth.

Horses' teeth have no sensitive nerves and therefore it does not injure the tooth to cut and file it. The horse has no hollow teeth. The disease commences at the root and in the cushion or alveolar process the tooth rests in.

This cushion decays, the tooth becomes loose and the poor old horse, unable to eat, will quid the food around in his mouth and spit it out.

There never has been one-half the attention given to horses' teeth there should be. We believe in the near future a law will be enacted where it will be compulsory to have the horse's teeth examined and treated once each year.

It is not only humane but will be economy to the owner, for the horse will look better, feel better and be better able to perform his work on less food if his masticating organs are in perfect shape.

The cause of most horses "slobbering and drooling" is from the sharp teeth cutting into the mucous membrane, causing an irritation and increasing the flow and waste of the saliva, which is intended to moisten the food and aid digestion. The lack of saliva in the stomach causes indigestion and many other troubles.

I would suggest that in selecting a dentist to operate on your horses you choose one that has had an experience and whose reputation is established and not one who wishes to use your horse as a subject to gain experience.

Sweat and dust are two of leather's worst enemies. One eats the leather fibre while the other cuts it with every movement the horses make.

EUREKA HARNESS OIL

saves the life of your harness. Leather is fairly honey-combed with pores. Eureka fills them, keeping out dust, sweat and moisture. It keeps your harness *new*. An occasional application does the business—an easy task, but one that saves you the cost of many a good set of harness. Dealers everywhere.

Standard Oil Company (California)

TYPES OF POLAND CHINAS.

To the Editor: Hog breeders who advertise in the Pacific Rural Press have for sale large and medium type Poland China hogs. In all of the stock books which I have referred to I find no mention of such types. Please inform me concerning these types.—M. A. M., Lathrop.

[Our breeders advertise in the above manner due to the fact that two distinct types of Poland Chinas have been developed through years of selection on the part of the breeders, some of whom admired the smaller and more refined hog while others preferred the coarser and larger-boned one. By continual breeding for the smaller or medium sized type, many breeders have wandered a long way from the original Poland China type, which was much heavier and coarser than even our present day large type. Both have their admirers; and it is simply a matter of which type you prefer. The scale of points for Poland Chinas adopted by the National Association of Expert Judges has the following to say in reference to the most desirable size: "There should be a difference between breeding animals and those kept or fitted for show of at least 25 per cent in size. In show condition, or when fat, a two-year-old boar should weigh not less than 600 pounds and a sow not less than 500 pounds. Boars one year and over, 400 pounds, sows 350 pounds. Boars 18 months, 500 pounds, sows 450 pounds. Boars and sows six months old, not less than 160 pounds. All hogs in just fair breeding condition, one-fourth less for size. Fine quality and size combined are desirable.—Editors.]

STOCK TRESPASSING.

To the Editor: My neighbor's stock are always coming on my premises, eating chicken feed and rooting in my flower garden and orchard. I have requested him to keep them at home, but he doesn't. —A. N. J., Patterson.

[We suggest that you fence your property; and, in case it is now fenced, consult an attorney in order to stop the trespass of your neighbor's stock.—Editors.]

If your silo is to be of most benefit, plans should be made soon for the coming season.

TAMWORTHS

The Big Red Bacon and Block Hog. Send for prices and circulars.

COTTLE & HOBSON CO., Amsterdam, Cal.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. K. W. Abbott, Milpitas, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, write E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

WANTED—Good dairy cows, Holstein or Shorthorn. Sacramento Valley. Slater, Hearst Bldg., San Francisco.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Maybews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Glon & Son, Corcoran, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland, Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during December and January. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J. Mills, Sacramento county, California.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Call Building, San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

PURE-BRED Duroc-Jersey Swine. Prize winners. Limited number only. $10 each F. O. B. Western Hog and Land Syndicate, 919 Hearst Bldg., San Francisco.

REGISTERED POLAND-CHINA HOGS.—Limited number young stock from prize winners. Golden Gate Stock & Dairy Farm, R 1, Box 34, Galt, Cal.

FOR SALE—Registered Jersey Boar, 22 months old. Cholera immune. Cheap. Pehrson Bros., R 3, Box 149a, Turlock, Cal.

REGISTERED BERKSHIRES—Weanling boar pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in state. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type Prize winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP

FRANK MEACHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

Knowing a Good Dairy Cow.

[By H. H. Needham.]

The cost of producing milk and butterfat is an item in dairy science that does not usually receive the attention from practical dairymen that its importance warrants.

It is altogether probable that if more cow owners took the trouble to investigate this point there would be quite a number of dairy cows turned into beef in a short time.

The common practice of milking a string of cows and sizing up the total gallons at a milking, or taking the weekly or monthly cream check for a basis is a fine thing for the non-producers. Their defects are submerged in the flood of milk turned out by the good cows, and as long as the average is fairly satisfactory the individual performance is not questioned very closely.

It is our belief that if a pair of scales and a Babcock tester were applied to the daily production of each cow most of our dairies would be found to be from ten to twenty per cent "boarders," or cows that are not paying for their keep.

In the minds of many dairy men, if a cow pays a little more than the cost of the feed she consumes she is showing a profit. A little consideration of this point will convince any thinking man that she must produce a good deal more than the cost of her feed to even balance the account. There are the items of labor, depreciation, overhead and interest which must be charged against her production.

As to labor, to milk and take all care of 25 good cows is a man's size job; and assuming that we can get a good man for this work for forty dollars a month and allowing twenty dollars a month for his board, the cost of labor will amount to $720 per year. Statistics place the producing period of a cow at ten years, therefore she will depreciate 10 per cent a year. If they are hundred-dollar cows this will amount to $250 a year for the 25 cows. The overhead charge is a variable figure, but will probably not be less than $10 a month, or $120 a year, for the herd. Interest at six per cent will be $150 a year for the herd. Thus we have a total of $1240 for the 25 cows or $49.60 per year that each cow must produce besides the cost of her feed before she can show any profit. Assuming that the cow gives four per cent milk and that the butterfat sells for 30 cents a pound and the skim milk is worth 30 cents a hundred, she must give 3373 pounds of milk a year, or 11 pounds a day for a ten-month milking period to pay cost of keep other than feed: Taking this amount from the California average of about 5000 pounds leaves 1627 pounds of milk and her calf to pay for her feed. This, after deducting a due pro rata for maintenance of a bull, leaves $26.00. This result will be found to be pretty close to actual. In the estimate of cost no charge was made for management, which is an indispensable item. On the other hand, the item of depreciation is usually reduced somewhat by working the cow off on the other fellow before she gets too old. This practice is not exactly in accordance with the highest ethical standards, but it is business. A more commendable practice is to turn the animal into beef, but in either case there is some depreciation. The cow that does not do more than this should not, however, be too hastily condemned as unprofitable. It must be remembered that she is paying a good rate of interest on an investment, she is furnishing employment at a good rate of wages for her owner, and she is providing a handy and steady market for farm crops.

It is the cow that falls short of this that should be culled out and disposed of. There must be a great many of her kind, for we know there are lots of cows that go far beyond this in point of production. It is the tail-enders that pull the average down to what it is. If the good cows could be relieved of this burden of "boarders" the average would go up a good many points and the profits of dairying would be very much increased.

WHAT IS BABY BEEF?

"What is meant by the term 'baby beef' and what kind of cattle are used in baby beef production?" was a question which was put to Professor G. W. Barnes of the Agricultural Extension Service of the University of Arizona. He answered that fat cattle between the ages of one and two years, weighing between eight and eleven hundred pounds are baby beef. They must be well bred and of fine quality. Such cattle can be finished quicker and are the only class of cattle which can be used in the production of baby beef. The cattle to be used for this purpose should not be allowed to lose their baby flesh or baby fat. They must be kept fleshy from start to finish, for when they once become run down, it is a difficult proposition to have them finished for market under eighteen months. They must be fed a liberal ration of fat-producing feeds, especially grains. Heavier grain feeding is required for baby beef than for older beef. This is so because calves and yearlings have the tendency to grow rather than to fatten; and it is due to this tendency that we must feed liberal rations of grain to overcome the growing and have the individual put on flesh. When beginning to feed baby beeves, they should receive large quantities of alfalfa or cowpea hay, or other such rough feeds as will increase their digestive capacity so they can handle large quantities of grain. If heifer calves instead of steers are to be fed, they will finish more quickly and should be marketed earlier. The younger the prime heifers are at the time of marketing, the less discrimination in price will the butcher make between heifers and steers. The most common mistake is that of marketing before the individual is ready or ripe.

TUBERCULOSIS IN THE AIR.

[Written for PACIFIC RURAL PRESS.]

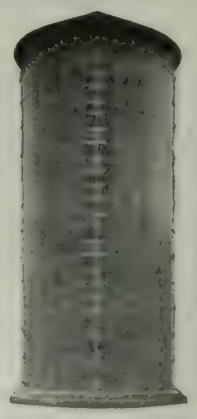
Tuberculosis may be transferred from one cow to another by way of the air, when the affected animal coughs. Tubercular matter may be coughed into hay or feed that another animal eats, and the latter may soon be tubercular. However, such matter is more often coughed up and swallowed, as in the earlier stages of too many human consumptives. In the cow, most of this passes off in the manure, part of which dries up to be blown into exposed vessels or breathed by animals and attendants, or dropped from dirty flanks into milk pails.

But tubercles are not only located in the lungs, intestines, and other organs, but sometimes they are located where, when they burst, their contents are discharged into the milk. Wretched is the infant or grown up who drinks such milk or uses cheese made from it.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



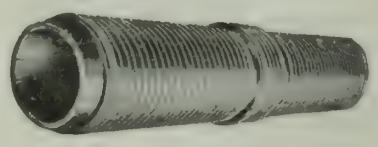
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

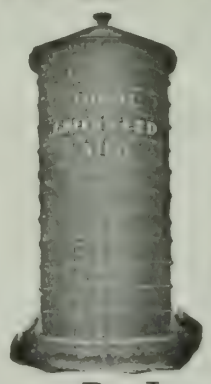


All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

Ideal Green Feed Silo



Orders for **IDEAL GREEN FEED SILOS** for spring delivery have come in so fast the past few weeks that it looks as if those who get their orders in late were going to have to wait.

Don't delay too long in sending in **YOUR ORDER.**

You should have your **IDEAL GREEN FEED SILO** completed at least two weeks before that first cutting of alfalfa is ready to put into it

Write for Special Silo Circular B.

De Laval Dairy Supply Company
SAN FRANCISCO, SEATTLE.
Everything for the Dairy.

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

A CLERK BUILT THIS HOUSE.

With no building experience, he followed the plans—so explicit—so easy, that you, anyone, can build your home.

A complete house from $195 up. Comes to you "knocked down" with each part sawed to fit, and numbered to correspond with the plans. We furnish everything, and stand back of the house with our guarantee that you will be satisfied.
Every part machine sawed insuring a perfect fit
Your home—in your spare time—at less cost.
Send for your catalogue—It's free.

READY BUILT HOUSE CO.
"The pioneer of the Pacific Coast."
973 Broadway, Portland, Ore.

Exposition Dairy Barn is Model.

[Written for PACIFIC RURAL PRESS.]

Visitors to the dairy cattle exhibit at the Panama-Pacific Exposition will not only be afforded an opportunity of viewing fine cattle of all breeds but will also have an opportunity of inspecting a working exhibition of all that is modern in the way of dairy barns and equipment. This part of the exhibit will be of special interest to California dairymen, due to the fact that the plans and specifications for this building and equipment were made by J. N. Gillman, California manager for the DeLaval Dairy Supply company, whose plans were submitted and accepted in competition with those of many of the leading architects in the country.

As completed the building is of hollow rectangular design, having a capacity of 114 stalls on each side and 28 on the two ends. In arranging the interior of the stable, the stalls have been made 3½ feet wide and five feet two inches long, facing the outside wall. These have been supplemented by adding four bull pens and four calf pens on each side of the building. These are 10 feet 2 inches wide and eight feet long. The pens as well as the stanchions, manure- and feed-carriers and other equipment are of the James make and are, we understand, furnished free to the exposition company as a working demonstration.

Next to the outside walls on each side of the building, a 12 foot space has been allowed for a driveway and feeding alley through which teams may be driven and feed hauled directly to each string as occasion demands. This alley is only accessible from the outside doors and will not be open to visitors at any time.

Between this alley and the stanchions is the concrete manger, which is two feet wide. The platform upon which the cows will stand is made of concrete, being five feet two inches from manger to gutter, the latter being 16 inches wide and drained with a gradual slope.

Running along the back of this gutter is the visitors' aisle, which is 16½ feet wide. At this point the inside wall of the building divides the stable from the parking space which runs the entire length of the hollow space within the huge rectangle. This wall is provided with windows for light and ventilation inside the building and acts as a protection to the stock as well as visitors from the weather.

Plots have been laid out in the center court or parking space in an artistic manner, a part of which will be seeded to lawn and the other to such feeds as are grown in California for dairy cows. It is intended to have these latter plots of sufficient size to give the visitor an opportunity of viewing the feeds growing as nearly as possible like they are grown under field conditions.

At each end of the side strings will be located a manure pit or enclosure, into which all manure will be taken directly from the stalls in either manure carriers or through the drains as the case may be, and from there hauled daily.

Entrance to the buildings will be made at the four corners where an open archway affords passage from the outside driveway into either the parking space or the building.

In fitting up the ends of the building, stall space was allowed for 14 head of cows, also space for a manure pit and a milk room. The stalls will be equipped with individual watering devices, and instead of using concrete flooring, cork brick will be used, it being the intention to have these end strings built more along the requirements of colder climates, where it is necessary to house the stock day and night for a considerable part of the year.

The milk rooms will be fitted with all the modern appliances and utensils for proper care of milk, and the carrier system will afford easy access from the stalls directly to these rooms, one of which is located at each end of the building.

An employees' wardrobe at each end of the building will be fitted with lockers, lavatories, etc., although no provision will be made to lodge employees in this building.

The six stave silos which have been erected and filled are situated at the extreme end of the building. The silage will be carried to the mangers in the overhead feed carriers.

Unlike most of the other livestock buildings, this one has of necessity been built for utility as well as exhibition purposes. There will be a continual exhibit of dairy cattle for the entire exposition year; and provision has been made to stable them in the same manner that they would be on any up-to-date dairy farm. This will make a feature of exceptional value to dairymen from an educational standpoint.

FETERITA GOOD FOR PIGS.

To the Editor: Feterita corn on any kind of land after a crop of barley will produce 20 sacks per acre more than Egyptian, Milo, kafir or sorghum. You can put stalks and all into a silo or just put the grain in and turn the livestock on what is left after the heads are cut off. The stock will eat clear into the ground. The grain of feterita is soft and may be fed to weanling pigs without soaking. The time to plant is in May and June after the rains are all over. One plowing and mulching of the ground is enough to make a big crop.

But if you take the barley off and then plant, you will have to irrigate, then plow and plant even as late as July 10. That will make as big a crop as ever. We did it last season and cut 32 sacks per acre. We didn't turn the stock on, and pretty good second crop headed out. You could turn the sows and fall pigs on the second crop to wean the pigs. J. P. DAGGS.

Modesto.

When something new comes your way, don't invest in it enough to cripple you if it should prove unsuitable under your conditions.

There is no good reason why you should wait till Spring before getting a

DE LAVAL CREAM SEPARATOR

ON THE CONTRARY YOU may buy a De Laval NOW and save half its cost by May. If, for any reason, you can't conveniently pay cash you can buy a De Laval on such liberal terms that it will actually pay for itself.

AS TO YOUR NEED OF A separator, if you have the milk of even a single cow to cream you are wasting quantity and quality of product every day you go without one. This waste is usually greatest in cold weather and with cows old in lactation, and it counts most, of course, when butter prices are high.

THEN WITH A SEPARATOR there is always the sweet, warm skim-milk and saving of time and labor in addition.

WHEN IT COMES TO A choice of separators De Laval superiority is now universally recognized. Those who "know" buy the De Laval to begin with. Those who don't "know" replace their other separator with a De Laval later—thousand of users do that every year. If you already have some other machine the sooner you exchange it for a De Laval the better.

WHY NOT START 1915 right in dairying? SEE and TRY a DE LAVAL NOW when you have plenty of time to investigate thoroughly. The nearest DE LAVAL agent will be glad to set up a machine for you and give you a free trial.

DE LAVAL DAIRY SUPPLY COMPANY

165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER.

60 HEAD--- POLAND CHINA PIGS FOR SALE ---60 HEAD

Both Large and Medium Type

Ready for Delivery January 15. Ten weeks to three months old. Prices reasonable and will guarantee to please or refund your money.

W. A. YOUNG, LODI, CALIF.

WHY?

Is Napa, the best place to buy DRAFT STALLIONS.

BECAUSE

Salvador Stock Farm always has high-class stallions for sale.

BECAUSE

You can be sure of getting full value for your money.

BECAUSE

Our stallions always make good.

BECAUSE

Of the reputation of the Salvador Stock Farm for square dealing, and of the fact that we are permanently located and are always ready to stand behind all guarantees.

For full particulars address

Henry Wheatley

Napa

Stock Buyer

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

AXLE & GREASE C&S LARGE HANDY BUCKET SMALL CAN WHITTIER COBURN CO. S.F. SOLE MFRS.

RHOADES & RHOADES
EXPERT LIVE
STOCK AUCTIONEERS

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Stopping the $7,000,000 Loss.

ALKALI AND MEAT EGGS.

[Written for PACIFIC RURAL PRESS by E. T. Lindley.]

The two illustrations appearing hereunder, together with this installment of my articles, continue to emphasize the importance of proper feeding; this is practically a continuation of the section that appeared in the issue of January 23.

Figure 3 represents the view before the candle of a perfect egg, such as described last week and illustrated in Figure 1, after six months in proper storage; it shows small shrinkage of albumen; and the porousness of the shell, as represented by the spots in the illustration, is not sufficient to be considered a serious defect.

This is still a thoroughly good egg in flavor, looks, and wholesomeness; and almost perfect for every purpose except for poaching; occasionally I have handled eggs more than six months in storage that poached, but they cannot be depended on for this purpose. For my own use, I prefer this storage grade to many fresh eggs such as are constantly received in this market, even in the spring when eggs should naturally be at their best.

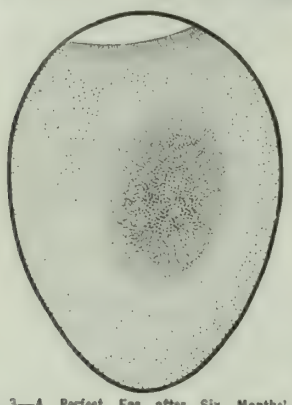


Figure 3—A Perfect Egg after Six Months' Proper Cold Storage.

It is possible to store Number One eggs for nine months with little real loss of quality and for twelve months with fair results, but the storage conditions must be perfect and of course they will, when taken out of storage, lose in quality more rapidly under parallel conditions than short period eggs.

Figure 4 represents the view before the candle of an egg that is practically worthless; it can be used for tanning and other mechanical arts, but is very inferior even for these uses.

When fresh it is known as an alkali egg, and if only a few days old it is difficult to detect except that it looks like just a weak egg affected a little by exposure to heat. When fresh it is sometimes used by bakers, but it has little value for baking because it will not beat up readily, shows little froth and is weak.

After two or three months in storage it becomes what is known as a gum egg for the reason that the yolk looks and feels like gum, and will spread with a knife like syrup. Both before and after storage the albumen is thin and watery, becoming thinner with age. The illustration represents one of these eggs after two months in storage and is intended to show that the albumen has a reddish cast with a very large air cell; and the yolk is dark and improperly shaped.

It is caused by what is usually termed alkali water, but I doubt if water impregnated with simple alkali could cause the trouble; we stated in the preceding installment of this article that fowls require alkali in at least some forms, including calcium carbonate and magnesium. In many cases water that is carelessly classed as "alkali water" is bad or impure because it contains undesirable ingredients other than alkali. I am more inclined to indorse the theory that acids are responsible for the trouble; but it should be explained that there exists great difference of opinion as to the exact cause of this defect; in rare cases it may be due to improper or damaged feed. This is one of the questions connected with the testing of eggs that has not yet been satisfactorily answered.

Another sort that is sometimes, when fresh, mistaken for a fresh alkali or gum egg is called a meat egg; it is easy to distinguish them when once in storage. It somewhat resembles the gum egg in that the albumen is thin and watery and has a flesh color or a pink tinge. In California it is caused by feeding hens on raw horse meat, but the effect of a steady diet of raw meat of any sort would be similar. When the raw horse meat is fed in very large quantities the white or albumen becomes almost as thin as water. These eggs are unfit for storage, shrink quickly, and deteriorate rapidly under any condition.

This alkali or gum egg can be avoided by furnishing the hens a constant supply of pure fresh water with grit, shell, charcoal and bone, together with abundant properly assorted feed as described in our former installments.

No doubt some readers find it difficult to readily obtain water such as is pumped from a good well and will feel that all this advice is of little value unless I can help them still further. I might suggest that filtering or boiling the bad water has sometimes made it better. At times a constant supply of crushed shell instead of an occasional feed of them has somewhat neutralized the effect of acid in the water. Any poultryman can try these and other experiments with little trouble.

Figure 4—An Alkali Egg Becomes a Gum Egg in Storage. This Gum Egg Had Been Stored Two Months.

In our next installment we will take up the proper and improper handling of eggs by the producer; this is one of the avenues of waste that helps to make up the seven million dollar loss to the poultrymen of California.

The reader has no doubt noticed that I continually mention that all this loss is out of the pocket of the poultrymen of California. Naturally

Incubator Chicks

Standard bred, true to type and hoganized. White, Buff and Brown Leghorn, Black Minorca, and White Rock. Colored Muscovy Ducks. Send for Booklet of Prices.

MAHAJO FARM

P. O. Box 597, Sacramento, Cal.

Poultry Breeder's Directory

if carried weekly for one year, 2½c per word.

Rate in this directory, 3c per word each issue; or

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

BLACK MINORCAS!—The hen that lays the big white eggs and lots of them. Baby chicks, January prices, 14c, from heavy-laying vigorous stock—the kind you want to keep. Write for circular and delivered prices on any quantity. Hatching Eggs, $6 per hundred. Roofden Poultry Ranch, Campbell, Calif.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

BUFF ORPINGTONS, Bourbon Turkeys, Buff Orpington Ducks. Firsts and records at Pasadena and Los Angeles. Hatching eggs, Baby Chicks, Baby Ducks, Baby Turks, Breeding Males, Mating List. Ferris Poultry Ranch, R. 2,—144D, Pomona, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 373 Meridian Rad, San Jose.

PETALUMA HATCHERY Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end Send for circular. L. W. Clark, Petaluma, Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Soquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns Wychoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

THOROUGHBRED Single-comb White Leghorn Eggs for hatching that will improve your flock, descendants of D. W. Young's strain. Hens 220 egg type. Jay Maxwell, Madera, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

WHITE ROCK BABY CHICKS.—Winnings at Modesto White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper Ceres, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today Eastern blended stock Prize winners. John G. Mee St. Helena, Cal

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

PIGEONS—Fancy and utility stock: Homers, Dragons, Dutchess, Owls, Archangels, Fantails. Guaranteed mated pairs. M. L. Dimmick, Orangevale, Sacramento Co., Cal.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3 Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336 C. Phone S. J. 1889.

WINTER LAYERS from Walter Hogan's White Leghorns, selected and bred by Hogan system. Eggs $6 per 100; chicks, $12. John H. Barber, Verde Farm, Livermore.

RHODE ISLAND REDS—Winners at leading California shows. Hatching eggs. Fine cockerels and pullets for sale. Wm. Larm,, 746 Lincoln Ave., Alameda, Cal.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS—Breeding and foundation stock eggs for hatching. Rancho Del Martino, Mrs. E. B. Martin, Downey, Cal.

HOGAN SYSTEM USED THREE YEARS.—Foundation stock from Hogan's own White Leghorns. Eggs, $6 per 100; chicks, $12. Verde Farm, Livermore, Cal.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale, Fleming Ave., San Jose, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

ORPINGTONS—Black, Buff, White; Rhode Island Reds; White Leghorns; Anconas, Prize winners. Hatching eggs and stock. Chas. Holman, Stockton, Cal.

BLUE RIBBON White Wyandottes. First prize winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

INCUBATOR CHICKS—White Rocks and White Leghorns. High-class stock. Send for booklet of prices. Mahajo Farm, Box 597, Sacramento, Calif.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W., Stawetski, San Jose, Cal., R. 2.

NO S. C. WHITE LEGHORN day-old Chicks or Hatching Eggs are too good for you. That is why you want them from J. H. Swann, R 3, Chico, Cal.

BARRED ROCKS—Cockerels Pullets Eggs. Winners of two specials, two firsts and one second Stockton show. O. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

CLOVER LEAF FARM White Leghorns. Few as good —none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

TOULOUSE AND EMDEN GEESE.—Direct imported strains. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enock Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden Ready for breeding pen Eggs in season T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

DAY-OLD CHICKS Regarding Egg Machines. We are booking orders for spring delivery. H. & F., Mortensen, Suisun, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View Cal

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

LANGSHANS Best on coast. Stock, settings booked now. Lohr, 689 Kansas St., San Francisco.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain Rosedale Ranch, Hayward, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

GIANT BRONZE TURKEY Toms from prize-winning stock. Mrs. Nellie Hart, Holtville, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

BARRED ROCK COCKERELS, nine months old. A. A. Trueblood, Sacramento, Cal

some will fail to see the connecting link between the loss in cold storage and the amount of money in their own purses, but I can assure you that it is the poultry producer that loses every penny of this waste.

When we get to the article dealing directly with the storage business I will endeavor to make this clear.

Just at this time it might be well to make another statement of a more or less explanatory nature: By those producers who are careless or prejudiced, I am, as an egg tester, considered the paid emissary of the "wicked" egg handlers and surprise has been expressed that I should publish these secrets and otherwise "give away" the inside workings of this branch of the business. As my former statements bearing on this matter may not have been full and clear, let me say that I agreed to contribute these articles without pay and at the request of the Federated Poultry Association of California, after the investigating committee of this association demonstrated to me that in order to reform the methods of handling and storing eggs the producer must first be converted; further, that the business of storing eggs was threatened along with the jobs now held down by members of my profession.

Mr. Poultryman, let me tell you frankly that the evils of which you most complain are chiefly the indirect, if not the direct, result of your own shortcomings.

Poultry for Profit

[Written for PACIFIC RURAL PRESS By Mrs. Susan Swaysgood, Pomona.]

Quiet and Efficient.—As an amateur's fowl the White Orpington is the one easy to breed, and if he takes his birds to a show he will find out in a few minutes where his birds are lacking. This is the only way to judge of the quality. As a farmer's fowl all varieties of Orpingtons and in fact any good sized bird with good laying qualities are the very best from a financial standpoint, and also from most other points. They are contented, if turned on range, with the owner's acreage, never trying to break into the neighbor's garden or orchard. They are not large eaters, as generally supposed; their quiet disposition, and general contentment does not drive the food through them before every particle has been digested, and here we have the whole secret of why it costs no more to keep a flock of large hens than small ones. The small wiry hen is a grist mill that must be kept grinding if we want eggs. The Orpington hen is like a contented old cow. She eats, then sits down and chews her cud, or in other words gets the good out of the food eaten and puts it to a good use instead of hunting for trouble.

They need, and must have exercise to do their best, but when a hen is laying she does not need to be on a race track all the time.

Make Them Scratch.—The best exercise is scratching; this form of exercise affects every organ in the hen's system and it is the best for heavy hens, as it prevents accumulating fat on the internal organs.

Furnish Orpingtons with some scratching exercise and you never need be afraid of them getting too fat and lazy.

If there is no scratching shed on the premises, scatter oats or barley in the ground, cover up and let the hens dig it out. Barley is a good ration for all the large breeds, but it should be soaked as that makes it easier to digest. If it stands in the ground a few days before the hens get it so much the better.

This winter we have fed a good deal of Gyp corn, as this is much cheaper than wheat, but we have offset the fat making element by making the hens dig in the ground after soaked barley and this they have done very cheerfully. The result has been just as good as though we had fed the more costly wheat. It does not always pay to feed the highest priced grain, if we can get a substitute. Barley is soaring almost as high as wheat and if it goes much higher we will have to find another substitute, for the price of eggs will not stand such very high priced food.

Lay for Three Years.—One other thing about the Orpingtons is that you can keep them at a profit for three years and that saves expense of raising chicks every year. And this is a great saving for the farmer both in time and feed. It is a mistake to think that pullets lay the most eggs. Any hen that is well fed and comes through the molt right will lay practically as many eggs as pullets, though they will not lay quite so early in the winter or spring unless they molted very early.

Fake Experts.—One of our subscribers writes: There is a man going around claiming be an expert at grading hens. Watching him operate. I noticed that he does not examine the formation of the hen at all, but just presses his hands in until he feels the eggs, if he does not feel any eggs he classes these hens as non-layers. Those he selects are layers all right, but at this time of year there are more hens in the non-laying class because they have not started up yet, Can anyone in Petaluma tell me if they know this man? "Subscriber." Anyone claiming to tell the laying hens by just pressing on one part of a hen's anatomy is a fake, because there is no system going that can tell so easily. Even the Hogan system, is not always correct at this time of year; the real test is made with all the hens laying, and the formation of the bones and thickness of same, width between and fineness are all factors to be reckoned with. Perhaps some Petaluma reader will kindly answer the latter part of query as we cannot be expected to know everybody.

SOCIAL POULTRY MEETING.

The Hayward Poultry Producers' Association held its quarterly meeting January 16th at Odd Fellows Hall, Hayward This association now has 216 members in good standing, fourteen of whom were admitted at this meeting; most of them recent settlers in that district. The report of the secretary showed a very satisfactory increase in business and sound condition of the affairs of the association generally.

The business meeting was followed with a lecture and social with refreshments. Nearly all members were present. They, with their invited friends, formed a gathering of over three hundred.

The lecturer of the evening was a very able young man from the University Farm at Davis. He followed his brief but instructive talk with the answering of many questions asked by the poultrymen in the audience.

Following the lecture, George H. Croley, president of the Federated Poultry Association, gave a brief talk concerning the necessity of prompt action on the part of all poultry organizations of the State in regard to amending the proposed Agricultural Bill now before the Legislature so as to include in the Bureau of Animal Industry the division to be devoted to Poultry. The matter was formally received and referred to the Board of Directors with instructions to obtain a copy of the bill from Sacramento and take such action as seems best to gain the desired end.

"Sold out" is the common expression among sheep breeders nowadays. The small farm of the future will most surely need more sheep and the purebred will be the most profitable.

It's the Chicks You Raise That Count."
THE VICTOR BROODER RAISES EVERYONE
Our Brooder is perfect; so is our Incubator. Send for free catalogue.
THE VICTOR INCUBATOR CO.,
Decoto Alameda Co., Cal.

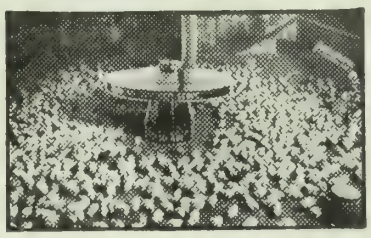
HOPLAND STOCK FARM, Hopland
Sanitary Conditions perfect. Largest Poultry Farm in California.
Hatching Eggs—S. C W Leghorns.....$ 5.00 per 100
Hatching Eggs—White Plymouth Rocks .....$15.00 per 100
Baby Chicks—S. C. W. Leghorns.....$10.50 per 100
Baby Chicks—White Plymouth Rocks.....$20.00 per 100
Incubator Capacity increased this year to 50,000.

BABY CHICKS
Standard Bred.
The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

Send for our booklet
"White Leghorn BABY CHICKS"
FROM HEALTHY HAPPY HENS
and that helpful pamphlet,
"FEEDING CHICKS"
Free on request.
Must Hatch Incubator Co., (Inc.)
419 Seventh St., Petaluma, Cal.

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., Sau Francisco.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY
Circulars containing 100 mechanical movements mailed free.



The Fresh Air Brooder Stove
Our 1915 model is now out with splendid improvements, and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it,. It's free to you.
J. E. KRESKY
PETALUMA, CAL.

GET THE BEST
For Your Baby Chicks.
Coulson's POULTRY FOODS
SPECIAL CHICK FOOD
Write for Particulars to
COULSON CO., Petaluma, Cal.

Leghorn Chick
White, Brown and Buff selected, thoroughbred stock. Book your order now. Scored stock for sale, $2 up. Write today.
JAMES D. YATES
Poultry Judge.
Modesto, Cal.

MORE EGGS
BETTER THAN THE BEST BEEF SCRAP
PACIFIC PIONEER
AVAILABLE PROTEIN FISH MEAT MEAL FOR POULTRY
SEND FOR SAMPLE AND PRICES WESTERN TALLOW CO 40 BEALE ST. SAN FRANCISCO CAL.
CHEAPER TO FEED NO FISHY FLAVOR

FREE BOOK
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
F. F. SMITH & CO.,
1006 J St., Sacramento.

The Home Circle

THE JOLLY OLD SPIDER.

[By C. Burnham Maddock.]

A jolly old architect is the fat spider,
His houses are many and quaint;
And he asks not a cent of his tenants for rent,
Nor worries at any complaint.

A lesson in thrift is the jolly old spider,
He works night and day, oftentimes
Builds cellars and walls, long parlors and halls,
And stairways that nobody climbs.

He is wise, very wise, the fat jolly spider,
For he tries to please every class,—
One room on top floor, or, if wanted, a score,
Some of which have walls wholly of glass!

Oh, this very old, wary old, chary old spider
Of Spidertown grim and gray!
Though we never may be so famous as he,
Let us copy his virtues each day.

TOMMIE TRUESDELL, WAGE-EARNER.

[By Mary Wells.]

Nine-year-old Tommie Truesdell came bursting into the pleasant room where his mother was sewing. Behind him apparently as excited as his master, raced Dandy Jim, his black ears up and his whole spaniel's body a-quiver.

"Mother!" cried Tommie, "listen! I'm going to earn a lot of money. Mr. Burchard just stopped by the common where we boys were playing ball, and he wants us to come up to his farm and pick strawberries. He's going to give us a cent and a half a quart. We're going up right after dinner, and tomorrow we'll take our lunches and stay all day. I'm going to buy Dandy Jim a dog-collar and get an extra lot of sky-rockets and Roman candles for the Fourth, and"—

Tommie paused to recover his breath and to survey with his mind's eye the vista of wealth opening before him. His mother, sewing on a blue and white blouse, destined for Tommie's own rotund person, smiled quietly. She was accustomed to her son's many varied enthusiasms.

"May I go, mother?" Tommie's tone was a little anxious. In the excitement of the moment he had forgotten that permission was a necessary preliminary to the affair in hand.

"You seem to have made all your plans," said his mother, with a little laugh, "but if your father is willing, I don't know that I have any objection."

Tommie uttered an exclamation of joy. The matter was practically settled. "Oh, father'll just say, 'Have you asked your mother?' I guess I'll run right down to the office and ask him now, because we want an early start. Come on, Dandy Jim," and Tommie's sturdy legs flew down the driveway, with Dandy Jim cavorting wildly in their rear.

The Burchard farm lay only a mile and a half west of the village. The afternoon was cool and pleasant. Tommie picked so rapidly that at the end of the day he had earned thirty-six cents and was an object of envy to his comrades.

"I bet you didn't fill the boxes full," said Bob Haynes, jealously.

"I did too, I rounded 'em way up," cried Tommie, indignantly. "Mr. Burchard said I was getting 'em too full. You needn't think everybody else is as slow as you are," he added witheringly. Bob had earned just twenty cents. "You've eaten more than you've put into the baskets," and with this parting sally Tommie joined himself to his crony, Len Meredith.

At six o'clock he appeared in the dining-room, berry-stained, but triumphant. He bore a box of strawberries, which he presented with all due impressiveness to his mother.

"Tomorrow we're going to stay all day," he announced later as he applied himself to his second bowl of bread and milk. Then he addressed his father. "I'll have to have a broad-brimmed hat. You can get 'em down at Roger's; and I ought to have a dinner pail," he added reflectively. "I'd like that kind that has a cup screwed on the coffee. They're twenty-five cents, though." Tommie's tone was rueful. "It'll take all my profits, I'm afraid."

"Nothing like being properly equipped for our work," said Dr. Truesdell, soberly. "Well, son, if you'll agree to keep Ellen's woodbox full for exactly two weeks, we'll go down town after supper and see what we can do."

"I will," cried Tommie, joyfully, "I truly will. I won't forget once."

Next morning the crowd of juvenile berry-pickers asembled at the creamery, whence they were to ride out to the Burchard farm with Si Goodrich on his return trip with the milk-cans. Tommie appeared in the full glory of his new possessions. If truth must be told, his gait had on this particular morning decidedly the nature of a strut. In his eyes the new hat had all the distinction of a Mexican sombrero, and the shining dinner-pail added the final touch of elegance. Dandy Jim seemed to have imbibed something of his master's spirit. He was distinctly perky.

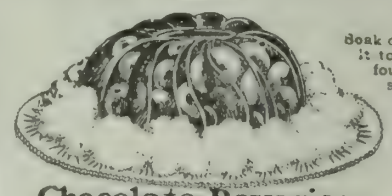
Bob Haynes, who was carrying his dinner in a paper sack, broke into a derisive shout. "Hi, fellows, get on to Tom Truesdell's hat! He looks for all the world like a mighty little toad under a mighty big toad-stool. And see the dinner-pail! Regular travelling tin-peddler."

The color rose in Tommie's face. "You just wait till you get out in that strawberry batch," he retorted, "you'll wish you had a straw hat. It's going to be awfully hot today, and I guess you'd be glad enough to have a cruller out of my pail!"

This was a telling shaft, and Bob hastened to retaliate. "Well, anyway, I'm going to sit by Si and drive."

Tommie's face fell. He had planned to have that thrilling experience himself, and here Bob Haynes had forestalled him. Thus came the first cloud on the day's horizon.

The lumber wagon, with its load of battered milk-cans and noisy small boys, rattled gayly up the shady street and out into the country, followed by Dandy Jim, the faithful. At half-past seven the boys had reached their destination. Jason's prediction that the day would be warm was speedily verified. Tom-



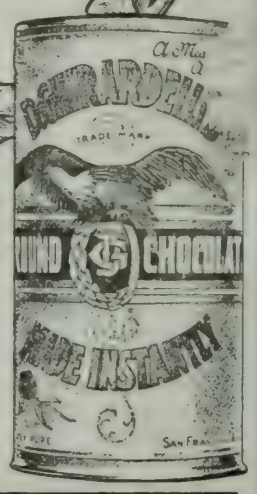
Chocolate Bavarian Cream

Soak one-half box gelatine in cold water until soft; add it to two cupfuls milk, which has been scalded, with four tablespoonfuls Ghirardelli's Ground Chocolate, stirring until dissolved. Remove from fire, add one-half cupful sugar, and one teaspoonful vanilla extract. Turn into granite basin, set in a pan of ice water, stirring until it begins to thicken; add two cupfuls of cream whipped to a stiff froth. Line a mould with peaches, turn in the mixture, set in a cold place until firm. Unmould and serve with whipped cream.

As a flavoring for cake, icing, cake filling, candy, ice cream and sauces,

Ghirardelli's Ground Chocolate

is unequalled in its purity, its economy, its flavor—It has enjoyed an unrivaled reputation for more than half a century.



As a daily beverage its health-promoting qualities as well as its low cost per cup recommend its use.

Sold by Grocers everywhere in hermetically sealed tins.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

Why You Should Buy STILETTO

STILETTO tools are keener and better tempered, STILETTO tools work better and longer, STILETTO garden and farm implements are longer lived, run easier and more satisfactorily, STILETTO paint goes farther and wears better and that word STILETTO spells quality and confidence, first, last and always.

If you do not know where STILETTO goods are sold write us and we will give you the name of the nearest STILETTO dealer.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

mie, perspiring freely, was glad to hang his jacket on the low-sweeping limb of the apple tree which stood on the edge of the strawberry patch. Later, a little breeze sprang up, which proved most grateful to the heated berry-pickers.

When the lunch bell rang from the cupola of the big farm-house, the boys dropped their work with alacrity and gathered in the shade of the apple-tree. Only Tommie at the farther end of a row, with several empty boxes before him, determined to keep on picking till these were filled. Thus it happened that, when he, too, finally threw himself down under the apple-tree, the others had practically finished their noonday repast.

Sam Eliot had lighted a fire and essayed to roast some potatoes which he had brought in his pocket; but the result had been unsatisfactory, and the potatoes had been hurled into the adjoining pasture.

"My, but I'm hungry!" said Tommie, mopping his brow. Then he picked up his pail of lunch. The others watched with interested eyes. mie, perspiring freely, was glad to There was no telling how many crullers might be therein, and Tommie was always generous.

He gave a gentle tug at the cover, but for some reason it did not come "Ellen stuck it on pretty tight, guess," he said, and again he tried. The cover did not budge. The third attempt was also a failure.

"Let me have a try at it," said Len Meredith, confidently; but, though he pulled till he was red in the face, he could make no impression on the obdurate cover.

One by one the others exerted their strength. Even Bob Haynes forgot his animosity in the interest of the attempt; but one and all were obliged to acknowledge themselves baffled.

"Ellen must have a patent on that cover," said Sam Eliot, after a masterly tug.

"It looks as if you weren't going to have any lunch, Tom," said Len Meredith, sympathetically. "I'm awfully sorry, but I gave my last cracker to Dandy Jim, and the others have eaten up everything too."

Bob Haynes was moved to eloquence. "It makes me think of the story Miss Minot told us the other about the fellow that had a bodies before him, and started to take a bite uld disappear. What dger's name, now?"

said Tommie, gloomid the word 'tantalize' his name. Then he made ave attempt at nonchalance. "I guess I can stand it without my lunch for once. I'll eat some berries. I am kind of sick of them though," he added truthfully.

As time wore on, the day grew hotter. The very breeze seemed to make the heat more intense. Meantime, Tommie Truesdell grew more and more hungry. "I feel terribly hollow," he murmured. "I could eat a horse!"

The boxes seemed to grow bigger and bigger and the rows stretched out interminably. Gradually, however, the afternoon wore away. Mr. Burchard had already departed on his afternoon trip with a load of strawberries when all of a sudden there was a shout.

Over by the apple-tree, Sam Eliot's fire, long since extinguished as all had supposed, had taken a new lease of life, and was spreading rapidly toward the rail fence. The boys dropped their boxes and ran. When Tommie Truesdell reached the scene of the disaster, he was just in time to behold Bob Haynes fishing from the ashes the remains of Tommie's own jacket. It had blown off the limb, and the flames had practically ruined it.

"Guess you won't wear that coat again," cried Bob.

"I say, Tom," said Len Meredith, soberly, "looks to me as if you were hoodooed this trip."

. . . . . .

"I wonder why Tommie doesn't come?" said Mrs. Truesdell anxiously. "It's nearly seven o'clock."

"Oh he's probably picking till the last minute, to swell his fund," said the doctor. "Don't worry, Anna. Come out and look at the roses."

Tommie's parents had just stepped on the porch, when Mrs. Truesdell stopped short, uttering an exclamation of astonishment. Toiling slowly up the driveway came a dejected figure, weariness in every line. It was Tommie! In one hand he carried the still unopened dinner-pail; from the other dangled the remnants of what had once been a jacket. But this was not all. Behind limped painfully a battered little spaniel, tail between his legs and one ear drooping forlornly. This was Dandy Jim! But how unfitting his gay name to his bearing from which all jauntiness had departed!

Tommie dropped wearily on the bottom step of the porch, and Dandy Jim threw himself exhausted at his feet. For a moment no one spoke. Under the broad hat Tommie's shoulders heaved suspiciously. Without a word his mother knelt by the forlorn figure of her son, and removed the big hat. She stroked the tousled head gently.

"What is it, son?" she said at last, "tell mother."

Bit by bit Tommie related the story of the day's happenings: the tragedy of the dinner-pail, the burning of the coat, and, worst of all—"On the way home, Dandy Jim and Bob Hayne's Sport got into a fight, and"—Tommie's voice broke—"and Dandy Jim got whipped!" At this climax Tommie laid his head on his mother's shoulder and wept aloud.

Dr. Truesdell picked up the dinner-pail and was examining it critically. He gave a slight pull at the cover. It came off easily, disclosing the untouched contents. Tommie lifted his tear-stained face in amazement.

"There seems to be a little catch in the cover," said the doctor, "and I imagine, too, that the heat expanded the tin a little." He sniffed at the milk in the top receptacle. His eyes twinkled. "Sour," he said, "but that's good for you. They say sour milk prolongs life."

Tommie looked up comically. "I'd rather have mine fresh."

"Strikes me," said the doctor, gravely, "that this earning money is a rather expensive proposition. Ready to give it up?" he queried.

Then and there did Tommie Truesdell show "the mettle of his pasture." He sat bolt-upright on the step, and he spoke with decision.

"I'm going out to that strawberry patch tomorrow morning. I'm going to earn a new jacket. I can get along without the Roman candles and sky-rockets," there was a quiver in his voice; "but Dandy Jim's going to have that collar. He's a fine dog, even if Sport Haynes did lick him. It was only because Dandy Jim was so hungry. Wasn't it, old fellow?"

On the walk below Dandy Jim thumped his tail feebly in acquiescence.

Mother bore off her tired, hungry son to the dining-room, while Dandy Jim trudged meekly after.

"I tell you this tastes good," said Tommie as he ate his third biscuit. "Somehow, strawberries aren't very filling."

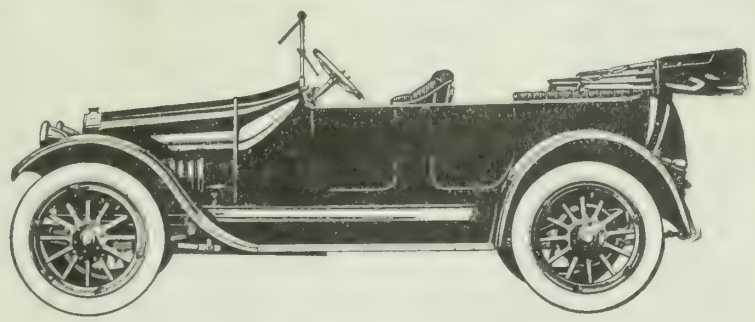
Later, when refreshed by his warm bath, he had climbed into bed and fallen speedily asleep, his mother sought out the doctor in the library and led him upstairs to Tommie's room. In the doorway, they paused. The boy lay in spread-eagle fashion, his curly head resting on one arm. By the side of the bed, stretched on his own particular rug, Dandy Jim slept the sleep of the weary.

The doctor looked down at his sleeping son, a strangely moved expression in his face, then he turned to his son's mother.

"Plucky little chap," he said. "He's no quitter. He's going back tomorrow."

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

Red Crown has lots of "pep" but burns clean.

RED CROWN

the Gasoline of Quality

is refinery gasoline—every drop. It's the best gasoline the Standard Oil Company can make. Dealers everywhere.

STANDARD OIL COMPANY (California)

THE ELECTRIC WAY

From San Francisco and Oakland to and through the Sacramento Valley.

Look Up the Rate On All Your Freight.

Train Schedules Designed For Busy Travelers.

Oakland, Antioch and Eastern Railway

Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.

TICKET OFFICES:

Key Route Ferry, In S. F., Sutter 2339 | Fortieth and Shafter Ave., In Oakland Piedmont 870 | Third and I Streets, In Sacramento Main 261

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Jan. 27, 1915.

WHEAT.

While the market in the east has continued to advance as far as futures are concerned, the situation here has continued stationary. The future depends on the war and its effect on the export demand.

Cal. Club, Ctl	$2.30@2.35
Forty-fold	2.40@2.45
Northern Bluestem	2.50@2.55
Northern Club	2.30@2.35
Northern Red	2.30@2.50

BARLEY.

In common with other grains barley is taking a breathing spell, with not so much activity as formerly and no change in prices. The export demand is expected to continue; but the local requirements for feed seem to be about satisfied. A sale of half a million pounds at $1.45 is reported from Hollister.

Brewing & Shipping	$1.55@1.60
Choice feed, per ctl	1.50@1.55

OATS.

The oat market continues firm at the advances of a week ago, the supply of quotable varieties being strictly limited.

Red feed	$1.55@1.60
Seed	1.80@1.90
White	1.80@1.85

CORN.

Egyptian corn is very firm at the new figures; but the expected advances in other grades of corn have not materialized.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

RYE.

Some small stocks of rye are now being offered at 2¼; but buyers are apparently afraid to take hold.

BEANS.

Beans are very active and continue to be marked up in price almost every day. Bayos, horse beans and red kidneys are the only items that have not been moved up since last report. Advices from Portland show that the market there is reflecting that of San Francisco; and mail reports from New York show that the high prices have not curtailed the demand in the East. Some factors claim that the high price of flour is having an effect on the demand for beans.

(On Wharf.)

Bayos, Cal., per ctl	$5.25@5.50
Blackeyes	5.00@5.50
Cranberry Beans	4.50@4.25
Horse Beans	4.00@4.50
Small Whites	5.25@5.50
Large Whites	5.00@5.25
Pink	4.25@4.75
Limas	5.35@5.40
Red Kidneys	5.50@6 00
Mexican Reds	5.00@5.50

SEEDS.

There is practically no demand for seeds at the present time; and the rather light stocks on hand here are being held for the future.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3½@ 4 c
Millet	2¾@ 3¼c
Timothy	7½@ 8 c

HAY.

Dealers here report a large increase in arrivals during the last week with a resulting accumulation of stocks and an easier market. Prices, however, do not seem to have sagged. A good deal of hay is being sent in on consignment; and this appears to be selling slower than formerly. Alfalfa hay is reported weaker here; but a southern California buyer is said to be offering to buy 1000 tons at $8.50 in Tehama county, and Oregon buyers are also said to be looking for alfalfa hay in the same region.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

Following in the wake of the whole grains, feedstuffs have stopped their advance for a time; but all of them are very firm, and are selling as freely as can be expected at the high figures. Prices are not apt to go lower for some time; and there may be advances at any time, especially on the cheaper sorts.

Alfalfa Meal, ton	$15.00@16.00
Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	40.00@41.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	34.00@35.00

VEGETABLES.

The frosty weather in southern California has made desirable stock rather scarce in a number of lines; and more advances are to be noted this week than for some time, though damaged lots will not bring even the lowest figure in most cases. String beans are practically out of the market and are no longer quoted. Tomatoes are now very scarce; and desirable lots are held as high as $2 per crate, with poor stock offering at varying prices. Eggplant is so scarce that few dealers are offering it. Rhubarb is now quoted at an advance of 25 cents.

Mushrooms, box	@$1.00
Peas, lb	15 @20 c
Peppers, Bell, lb	10 @15 c
Chili, lb	8 c
Carrots, per sack	50 c
Tomatoes, crate	$1.50@ 2.00
Beans:	
Lima	10 @12½c
Cream Squash, box	40 @50 c
Celery, doz	25 @40 c
do, crate	$1.00@ 2.00
Sprouts, lb	3 c
Lettuce, crate, So.	$1.00@ 1.25
Rhubarb, box	1.00@ 1.50
Hothouse cucumbers, bx.	$2.50@2.75

POTATOES AND ONIONS.

The potato market is a little depressed, partly owing to the importation into this State of stock from Idaho; but notwithstanding this there is an advance in River Burbanks, the delta stock having been about cleaned up. Onions seem to be in over-supply; and there has been a drop of ten cents in yellow. Potato shipments from Oregon are rather light; but with a dull market at Portland, increased shipments to California are a possibility.

Potatoes, Oregon, ctl	$1.50@1.75
Salinas, ctl	1.50@2.00
River Burbanks, ctl.	1.00@ 1.25
Sweet Potatoes, ctl	1.50@1.75
Onions, yellow, sack	80 @90 c
Garlic, per lb	19 @ 20c

POULTRY.

The market shows no very great change. Receipts for the week were about the same as last week: and the demand just about sufficient to clean up the market. After holding up well for several weeks, the demand for dressed turkeys has dropped off a little; and prices have been shaded to avoid accumulations.

Live Turkeys, lb	20 @21 c
do, dressed	20 @23 c
Broilers, small	23 @26 c
Fryers	19 @20 c
Hens, extra, per lb	17 @18 c
Small Hens, per lb	16 @17 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb.	9 @10 c

BUTTER

The butter market is lower both here and in Los Angeles; and further reductions are to be expected. The fact that some of the northern condensed milk factories are resuming operations and absorbing a good deal of cream that has lately been made into butter will have a tendency to hold prices a little firmer than they would otherwise be.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	30½	32	32	32	30	28
Prime	26	26	26	26	26	26
Firsts	24	24	24	25	25	24

The
California Almond Growers' Exchange
is a non-profit, co-operative, marketing agency.
The Growers composing the organization invite the co-operation and support of those not members.
For full information, address the main office,
SACRAMENTO, CALIFORNIA.

One-Man Power Sprayer
A Complete High-grade Outfit for the Small Grower
Supplies one line of hose. One man does all the spraying. One horse can haul it anywhere. Will spray from 2 to 3 acres a day at small cost. Light—strong—durable. This is the
BEAN EUREKA
Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.
BEAN SPRAY PUMP COMPANY
211 W. Julian St., San Jose, Cal.
Also Lansing, Mich.

EGGS.

The drop in eggs has not been as great as some had expected; but a more decided break is predicted for the near future. It is claimed that with the importations of Chinese eggs and the increasing supplies from domestic sources, a drop cannot long be held off.

	Thu.	Fri.	Sat	Mon	Tu.	Wed.
Extra	28½	31½	30	31	29½	27½
Sel. Pul.	27	27½	28	29	28	26½

CHEESE.

The demand for cheese has held up very well and supplies are pretty well cleaned. Fancy young Americas up half a cent as compared with last week.

Fancy California Flats, per lb	14½c
New Young America, fancy	13½c
Monterey Cheese	14@16c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	31	31	31	31	31	29
Eggs	30	28	28	28	28	28
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

The deciduous fruit market is quiet, though there is a fair volume of business in apples. Newtown pippins are a little stiffer; and pears are quoted a little higher.

Apples, Newtown Pippin	50@$1.00
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, bx.	1.25@1.50

DRIED FRUITS.

The little spurt in the demand which was noted a week or ten days ago seems to have been satisfied: and, though buyers here admit the likelihood of a revival a little later, they are not now anxious to buy except as concessions from the regular quotations. There appear to be considerable stocks of peaches left in the country: and efforts to place some of these here this week at quotations have met with the response that none were wanted. Prunes are also a little easier, and the low figure has been marked down a little. All other lines of dried fruits are unchanged as to prices. With all except apples, the demand is a little sluggish. Evaporated apples are very firm and in good demand. An increase in the distributing trade from New York and other centers is reported; but large handlers are not heavy buyers just now. The new York Journal of Commerce says:

Though less numerous, orders from the interior for immediate shipment California prunes out of spot stocks recently received here via the Panama Canal are coming in from the Middle West and Eastern distributing markets quite freely, using up a large part of the recent receipts. Shipments of carload lots out of the New York market are being made to Chicago, Pittsburg and other Middle West points, while quite a little business is being done on orders from New England points as far as Maine. Local jobbers are not placing many orders, though watching the situation closely. Demand from the consuming trade in this section is rather below the average for the season, according to current reports, owing to plentiful supplies of fresh fruits at comparatively low prices. The buying by interior distributors, in conjunction with the advancing tendency of Coast prices indicated by recent mail and wire advices, causes a strong feeling among holders of spot goods.

In peaches the upward trend of prices on forward shipments from the Coast continues, though it has not resulted in any further advance in f. o. b. Coast quotations. The market on the spot here still lacks action, as the best consuming season is still some distance off, but, in sympathy with reports coming from California, the tone of the spot market is firm. The demand for apricots is increasing, but no important business is to be reported, buying for the most part being on the hand-to-mouth basis.

Evap. Apples, 1914	4½@5½c
Apricots, 1914	6 @9 c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5c
Prunes, 4-size basis, '14	5½@6¼c
Peaches, new	3 @4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern citrus auctions remain about the same as last week, oranges bringing only a fair price and lemons being low. On the New York auction, Monday, Jan. 25, navel oranges averaged from $2.60 to $1.70 per box, while lemons brought $2.40 and $2. The Boston auction showed about the same prices that day as New York, while Philadelphia, Pittsburg and other auction points were lower.

A report from Florida states that about 13,000 cars of citrus fruit have already been marketed. Oranges are showing a good deal of decay owing to excessive rainy weather. Growers of grape fruit are receiving very low prices and are dubious about future markets for the balance of the crop which is estimated at 3,500,000 boxes.

Shipments from southern California are going east at the rate of about 140 cars of oranges and 10 or 12 cars of lemons daily. From Tulare and Butte counties only a few cars are being sent daily. At the Los Angeles auction, Monday, Jan 25, prices for navels averaged from $1.10 to $1.30 per box, f. o. b.

The citrus fruit situation at San Francisco shows little change from last week, though the situation as a whole is considered favorable. Stocks are still large but the demand continues good.

Oranges: Navel, box	$1.25@2.00
Tangerines, small box	1.10@1.50
Grapefruit, seedless, bx.	1.75@3.00
Lemons, box	1.50@2.50

NUTS.

The demand for almonds, which has been steady for some time, appears to have about cleaned up the stocks in growers' hands. Commission merchants here report no letters from growers with stocks for sale; and it is believed that any lots on hand in the country must be very small.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

The honey market is dead with prices more or less unsettled, owing to lack of transactions. Lots of honey is offering; but local commission houses report practically no demand. The old prices stand because nobody will buy even at lower figures.

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	6½ @ 7 c
Light Amber	5 @ 5½c
Dark	3½c

HOPS.

A fair amount of business is being done in 1914 hops; and some little contracting for 1915 crop and for future years. It is reported that owing to the continued low prices and unfavorable outlook a considerable acreage is being dug up.

1914 crop	9 @13 c

LIVE STOCK.

Hogs are the easiest thing in the market, quotations having dropped off a quarter of a cent this week. Sheep are strong and there seems to be a steady demand for beef cattle. The low price of feed is a factor in the live stock market just now. A good many ranchers are buying cattle for feeding up the oversupply of alfalfa and other feed; and some California cattle are being shipped to Arizona. Buyers for the San Francisco market are reported to be paying 6½ cents in Lassen county.

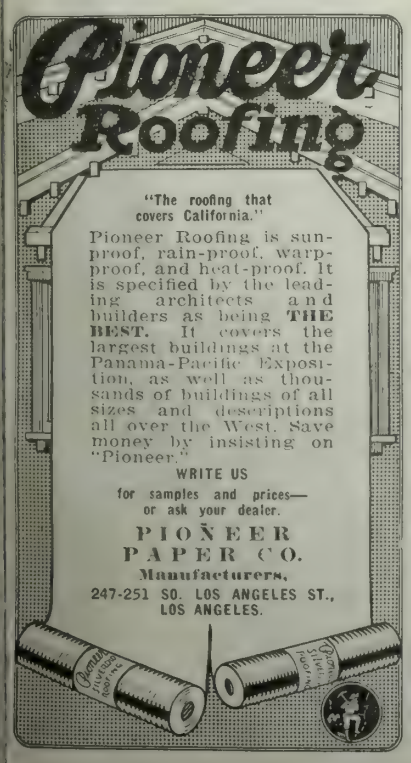
Steers: No. 1	7 @ 7¼c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½ @ 5¾c
Bulls and Stags	3 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs	6¾c
100 to 225	7¼c
Prime Wethers	6½ @ 6¾c
Ewes	5¼ @ 5¾c
Yearling Lambs	7½ @ 7¾c

DRESSED MEATS.

Steers	10¾ @11½c
Veal, large	13½ @14 c
Small	15 @15½c
Mutton, Wethers	11½ @12½c
Ewes	11 @11½c
Suckling Lambs	13½ @14 c
Dressed Hogs	11½ @12 c

HORSES.

The improved condition noted in the horse market recently has come to be accepted as a more or less permanent thing. Inquiry for desirable stock in the country is reported to be more active; and the local market is able to absorb about all arrivals. Prices continue about as before.



Publisher's Department

A subscriber from Chico in sending his renewal for a year, says: "Last issue is worth the price of subscription. Am going to graft almonds on six-year-old peach trees. Pacific Rural Press is a nonpareil."

Two hundred and fifty-three new subscribers at the regular subscription price of $1 each were added to our list during the past week. Our field men report the work of securing subscriptions to be easier now than at any time during the past two or three years. We account for this condition in two ways: first, the farmers anticipate a prosperous season ahead of them, and second, the Rural Press is meeting the demand for reliable, timely information.

To the office force the demand for two of our books, "One Thousand Questions in California Agriculture Answered" and "California Poultry Practice," is something wonderful these days. Our other books are also meeting with a goodly number of calls, but the first two seem to be the favorites. At the rate we are sending out the Thousand Question book, the edition of 5,000 copies will be exhausted by July.

Work on the new "California Garden Flowers" book is progressing. While there have been periods of waiting by those having the mechanical part of the book in charge, we can at this time promise the final completion of the book by February 15th, and possibly a few days earlier. Those who have sent in advance orders will receive the first copies coming from the bindery.

SMALL SEED POTATOES.

In selecting potato tubers for seed purposes, the grower should keep in mind the following well known principles:

1. Select seed true to variety and type.

2. Avoid abnormally elongated and tapering tubers as they are degenerated or run out and will produce only low yields.

3. As a general practice discard the small tubers for seed purposes, as they were obtained largely from poor hills. Small tubers produced by high yielding hills, however, are preferable to larger tubers from poorer hills.

4. If you are dependent upon bin selection, use tubers weighing at least five ounces for seed and you will find that this will eliminate a large percentage of the inferior strains.

5. Plant hills with one seed piece and during the summer mark the most vigorous hills with stakes and save the tubers that yield best and are truest to type for next season's seed plot.

6. If hill selection is carefully carried out, there will be little, if any, need for change of seed. There are records of several growers who have maintained their yield for long periods by careful selection.

7. If your seed stock has been run out by improper selection, purchase new seed true to variety and type from a reliable grower or seedsman.

8. Stick to the standard varieties that have been proved by trial successful in your locality and avoid or test only in a small way the new or little-known sorts. — Richard Wellington, Assistant Horticulturist, University Farm, St. Paul.

Classified Advertisements

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97, Salinas, Cal.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

COUNTY SECTIONAL MAPS—showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

WHOLESALE PRICES on merchandise of all kinds. Truly co-operative. Write for plan. Pacific Co-operative League, San Francisco.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AGRICULTURAL HYDRATED LIME — Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

NOW IS THE TIME to get a good Fox Terrier Pup. I have some for sale. C. R. Fontana, Box 464, Dixon, Cal.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., box 12, Nordhoff, Cal.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

SPECIAL SALE of thoroughbred Belgian Hares. Write for prices. Hurd Bros., Rabbit Yards, St. Helena, Cal.

TREES AND NURSERY STOCK

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand. For early orders, $40 per 1000. Wagner's $80 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Partlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

CALIFORNIA GROWN SOUDAN GRASS SEED—Absolutely free from Johnson Grass or other weed seeds. I have a limited amount of this seed. Until sold will fill orders less than ten pounds for $1 per pound; over 10 lbs., 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Horne, Box 461, Marysville.

BURBANK'S THORNLESS BLACKBERRY—A very limited supply of this new wonderful plant, a new creation, fast grower and heavy producer of fine berries, for sale at $1.50 each, or $1.00 each for 5 or more. J. I. Jewell, Santa Rosa, Cal.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Riviera, Cal.

CHOICE MANZANILLO OLIVE TREES.—Will be two years old this planting season. Cuttings taken from some of the heaviest bearing trees in California. Diameter, ⅝-inch and larger. F. F. Palmer, Box 235, Claremont, Cal.

NOT BIGGEST BERRIES BUT BIGGEST BEARERS and most Berry. No core or seeds noticeable when entirely ripe. Six tons per acre. Easily trained right. Easily picked. Plants direct from grower. Order early. R. E. Hodges, 315 Underwood Building, San Francisco.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

WALNUT TREES—Eureka and El Monte varieties a specialty; also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

BUY FRUIT TREES of the grower. Finest apricots and Pears, 12½c, 10c and 8c. Apples, 5c. Oranges, 25c. Let me quote you on everything you need. Julius Mayr, Tree Grower, Hemet, Cal.

VALENCIA AND NAVEL orange trees, ⅝ inch and and up, 50c each, delivered at depot. The buds come from the famous Chapman ranch. Call or address S. D. Winters, R. 2, Box 53, Anaheim, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

SECURE PRESENT PRICES by cash deposit now with Spring orders for Citrus Trees, and Spineless Cactus Robinson Citrus Nurseries, San Dimas, Cal. (Mention Rural Press.)

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

STRAWBERRY PLANTS—Gold dollar and Marshall at $3 per thousand. Head River and Magoon at $4 per thousand. N. A. Stimson, Denair, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

STRAWBERRY—Famous Ettersburg 80. Strong plants, 20 for 50c, $2.00 per hundred, postpaid. F. Ogden, 1940 82nd Ave., Oakland.

CALIFORNIA BLACKS, 1 and 2 year tops on 2 and 3 year roots. 6 to 10 feet, cheap. J. J. Byl, 430 So. 13th St., San Jose, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

STRAWBERRY—Famous Etterburg 80. Strong plants, price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

WANTED.

DAIRYMEN WANTED—March 1st, or before, an experienced, dependable, married man to take charge of grade Holstein herd of 30 head of young cows on shares. A good and permanent place for right man as herd will be bred up to be heavy producers, and will also probably start with a few first-class pure-bred cows. W. H. Donaldson, Biggs, Cal.

WANTED—Practical man that understands desert land culture, well boring and general farming. One to take charge and handle large acreage and accept nominal wages and percentage of crops for his labors. Must be practical worker, and come recommended. Apply to H. M. L., Room 612, 110 Sutter St., San Francisco, Cal.

YOUNG MAN, who is now foreman on large stock ranch, wishes to lease an improved property—on shares or for cash. Wishes to raise hogs and dairy cattle. Has a technical agricultural education and small capital. Address Box N, this office.

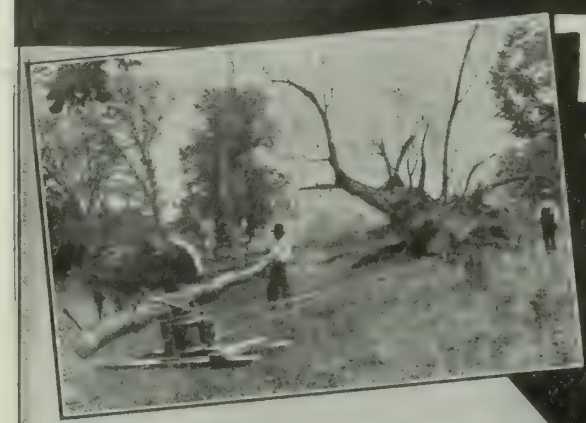
I WANT A CONTRACT grafting walnuts. All orders will be given prompt attention. Oliver C. Geyer, 214 S. Almanson St., Alhambra, Cal.

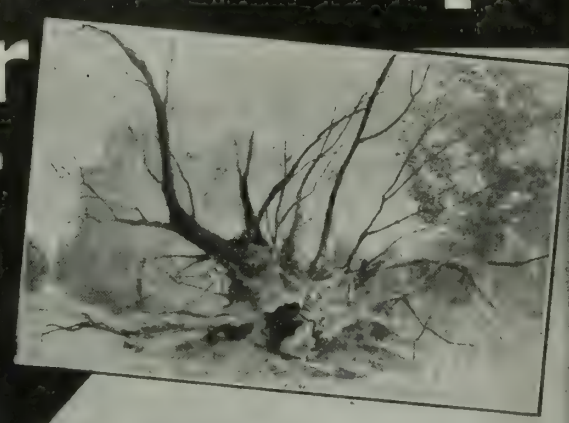
WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

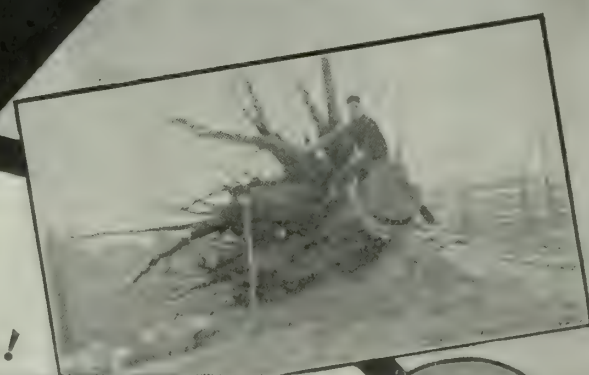
POSITION WANTED, as foreman, by practical up-to-date farmer. Married. Box P, Pacific Rural Press.

Pull Out Every Stump This Year

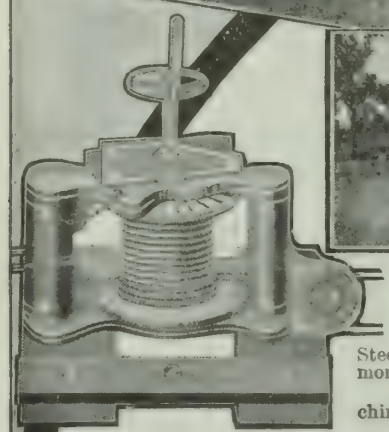
Write For My Great Book and Low Prices Now







Mail the Coupon!



Make this your banner profit year! Farm *all* your land. Pull out the stumps—plant on virgin soil and reap the reward of *increased land value and big crops that you won't get if you let the stumps stand!*

Get my new free book at once, explaining all the facts and figures about the Hercules All-Steel Triple Power Stump Puller—the machine that so many thousands of farmers are making big money with throughout the country.

Let me tell you how you can easily make $100.00 profit for every $1.00 invested in the Hercules machine, not only the first year, but for years and years to come.

HERCULES

All-Steel Triple Power Stump Puller

With a Hercules, you turn your loafer stump land into *money* land and harvest *money crops*. The work is easy, quick, safe and *sure*. The Hercules pulls out the *roots and all*—no grubbing or plowing into snags.

Pulls An Acre of Stumps A Day

Let me send you my free book that shows what *other* progressive farmers have done and are doing. Read where they pull the biggest stumps in five minutes, clearing an acre of stumps a day. See the actual photographic illustrations of scenes from many states. Read about Hercules.

Construction

The Hercules is the *one* all-steel triple power stump puller made. It will pull any stump, green tree or hedge without straining or breaking. It is 60% lighter, and 400% stronger than any "semi-steel" or cast iron puller made. Don't be fooled on names that sound like *genuine* steel. Get a Hercules and be *sure*. It's the only puller with double safety ratchets—has self-anchoring and stump-anchoring features and is built low to the ground.

My 3-Year Guarantee

If any casting of your Hercules All-Steel Triple Power Stump Puller breaks, any time within three years, Whether the Fault Is Yours or the Machine's, I will absolutely replace any such part free of all cost to you. There are no conditions to this guarantee whatever. Any casting will be replaced promptly, whether the machine breaks by accident or through any flaw in workmanship or material.

My New Low Prices Beat All

To the first buyer in each locality I am making a special price offer this year that is bound to gain the attention and get hundreds and hundreds of orders from farmers everywhere. I want you to get in on this bargain at once. The limited number of these machines won't last long at the price I am making. If you write me at once on the coupon below or on a postal I will reserve one of these machines until I hear from you whether or not you are going to buy. Understand, your request for my book is not an order. I simply want to get the book to you at once, so that you can read the remarkable facts about the Hercules All-Steel Triple Power Stump Puller and how it does such splendid work, making big profits for owners everywhere.

Mail Coupon

or a postal right now before you forget, or take down the name and address and write as soon as you get a minute's time. Address me personally.

Mr. B. A. FULLER, President, Hercules Manufacturing Co.
812 23rd St., Centerville, Iowa

Dear Sir: Please send me free book about the Hercules Triple Power All-Steel Stump Puller. Also your low price to first purchasers.

Name.....

Town.....

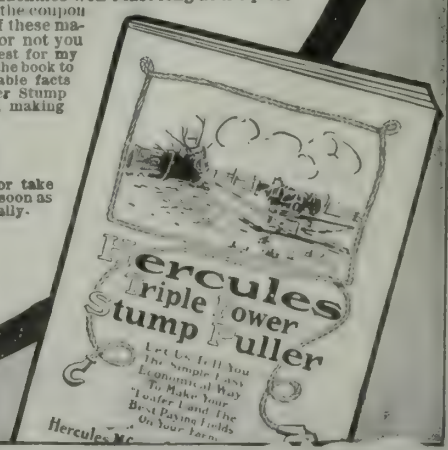
State.....

Route No.....

B. A. FULLER, President

HERCULES MFG. CO.

812 23rd St., Centerville, Iowa



Vol. LXXXIX—No. 6 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, February 6, 1915 LOS ANGELES

State Library 7-1-16

Thompson's Race Muscats.

[Written for PACIFIC RURAL PRESS.]

The Muscat vines of the Central San Joaquin valley have had almost a monopoly on the raisin production of the United States, and they know it. They know also that the Thompless Seedless are running them a stiff race for popular favor. They see indications of the handwriting, in the immense new acreage of Thompson's planned for 1915. They know that they are in the heavy-weight class, and they know, too, that they are handicapped by seedy insides. They know that even after the expense of squeezing the seeds out of them, they are still less valuable pound for pound than the little Thompson's, which go to market with whole skins and flavor unimpaired by even slight exposure to air.

It was a long time ago that the writer, then a light-weight High School boy, planning to get on the agricultural college foot-ball team next year, but fearing he was too small, was comforted by a letter from its coach saying that a fast light-weight sometimes beat out the heavy-weights, even in old-time foot-ball before they had the "forward pass" and the quartered games.

Well, the Muscats of California must have known that, for they have been humping themselves to keep ahead of the little Thompson's by yielding good measure per vine, and sometimes they have been distressingly successful.

Let Them Yield.—We are not worrying much about the distress part lately, for there isn't much of that distress now, and there promises to be even less in the future, even though the vines get busier than ever. Those who control the marketing of about 90 per cent. of all American raisins say that next year the prices are likely to be even higher than in this year of plentiful yield and price.

But we fear the Muscats are running a losing race. Even during the past year about half as many Thompson's and Sultanas combined, were marketed, as of Muscats. And look at the relative prices! That is why so many new Thompson's are going in this spring. The prices opened last fall at 7⅜ cents to the jobbers for Thompson Seedless in one-pound packages, an advance of ⅝ cent over the previous season, in which the total raisin crop was about 50,000,000 pounds less than it proved to be in 1914. This opening price was guaranteed till January 1. The Muscats opened their season a little later at 6⅞ cents for the fancy seeded, which means that the expense of seeding was included in the 6⅞ cents. This price was raised ⅛ cent a little later, to 7 cents. January 1 the prices were advanced to 7⅝ cents on Thompson's and 7¼ on Fancy Seeded Muscats. Sultanas at this time were priced to jobbers at 6¾ cents.

Thompson Seedless, Good Fresh, Better Dried than Other Commercial Varieties.

Meanwhile there had been another evidence of "to him that hath, shall be given," for a dividend of $350,000 to the growers was declared for the 1913 crop, according to the contracts which require the surplus profits over $5 a ton to be distributed to the growers. In this dividend, the Muscats were to share to the extent of $4.29 per ton, the Sultanas $5.65 per ton, and the Thompson's at $8.20 per ton.

On top of this, it was announced in October that about two-thirds of the 1914 crop had already been sold to jobbers. The significant part of that condition was that practically all of the Thompson's and Sultanas had been sold at their higher prices; while 50 per cent of the Muscats still remained on hand. There is no doubt that these are or will be sold, but the increasing demand seems to have been for the Seedless varieties. Come along, little heavy-weight Muscats! You aren't out of the race yet, by any means!

To the average housewife, all seedless raisins, whether Thompson's or Sultanas, are known as Sultanas. That is because Sultanas were here first. They were grown mostly in the Sacramento valley, where most of the California production yet remains. One of their advantages is the vines may be more mistreated than the Thompson's, but the fruit is more acid and sometimes seedy. It is much used for artiicially bleached raisins, but these have a tendency to be discountenanced by the government. However, we have retail quotations on our desk showing double prices for bleached over unbleached seedless raisins. So much for the tendency of people to buy with their eyes, for the bleaching adds practically nothing to their quality, and is likely to injure it, besides being an an expensive process.

They Started about Even.—Thompson's were first grown in the Sacramento valley, where their superior flavor and quality made them replace many Sultanas and gave them a running jump into the San Joaquin.

The Muscats were already there and being planted with fervor on hundreds of acres, due to the business yields of the few acres then bearing (in the early 80's). The Thompson's fell behind in the race, but they weren't quitters, and now, after thirty years, they are breathing on the flanks of their Muscat competitors.

Due to the climate of the central San Joaquin valley, that section quickly became the center of the industry, and for this reason, it was in Fresno that the successful incorporation of the overwhelming majority of growers, with enough capitalistic backing, was first launched.

The northern growers of the Sacramento valley held aloof for

(Continued on page 175.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., February 2, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	5.06	28.33	25.11	64°	48°
Red Bluff...	7.12	19.40	14.25	58	42
Sacramento.	2.14	8.80	11.05	58	46
S. Francisco.	4.45	14.94	12.90	60	48
San Jose....	3.54	11.78	9.27	66	48
Fresno.....	1.64	5.35	5.25	64	46
Indep'nd'nce	1.15	2.33	5.17	52	26
S. L. Obispo.	5.50	13.81	10.86	64	42
Los Angeles.	5.56	10.46	8.30	64	46
San Diego..	3.50	10.02	5.33	66	50

The Week.

With the rains putting more gold into California soil almost every day and with two great mines of statesmanship being worked incessantly at Washington and Sacramento (in spite of the bifurcation recess), is it not clear that California is getting richer all the time? Do you demand a measure of it? Remember, then, that California grew richer by $118,509,512 during the year 1914, according to the report of the State Board of Equalization for the year 1914. The total assessed value of all property in the State for 1914 was $3,232,646,152, as against $3,114,136,640 for 1913, an increase of 4 per cent—so there you are on that point. And is it not a significant omen that 4 per cent should loom up as exactly what the State gained last year? If the State gains 4 per cent increase on its permanent investment for the comfort of mankind, why should owners of parcels of that investment gain more? We admit that the argument will not stand logic, but considering how many there were who did not get 4 per cent upon their parcels of that investment during 1914, why should owners of other parcels of it get more than 4 per cent gain on theirs? With or without logic, the argument is as good as many others which are stalking around.

And then, do you wish to see where California stands in the United States in this item of getting richer all the time? Hon. Champ Clark, Speaker of the United States House of Representatives, at a banquet of the Chicago Dental Society last week, said this:

"In 113 years our total wealth multiplied 125 fold, and is now rated at the enormous sum of $140,000,000,000, which, if equally distributed, would give $1312 to every man, woman and child between the two oceans. But there is the rub, for, while a few are 'rich beyond the dreams of avarice,' many have not the wherewithal to feed and clothe themselves. I am fain to believe that the crowning glory of the philosophy, statecraft, humanitarianism and religion of the twentieth century will be to devise a scheme whereby every man, and every woman, too, shall enjoy the usufruct of his own labor and to prevent one greedy soul from monopolizing the toil and sweat and lives of thousands."

We surely do admire the insight of Mr. Clark in launching this great ship of prophesy at a Dental Society's banquet; he certainly did give them some hard nuts to crack. But then, is not that really the way we should be going?

In the Matter of Selling Food.

The ground is pretty wet everywhere in California to do much in the way of growing more food. The rain itself will be working at that job, so the grower can take a little time off to think about selling it. Assemblyman McPherson of Santa Cruz has sent us a copy of his bill to establish a "state market commission," to receive and dispose of farm and other food products, to establish a fund to finance the operation and to meet the expense thereof. Mr. McPherson says of his own bill: "It was prepared by me for the purpose of bringing to an end the exploitation of both the producer and consumer at the hands of the commission merchant. Under a proper system of marketing, controlled by the three Market Directors to be appointed by the Governor, the producer will receive much more and the consumer will pay much less for all farm products. The evils of the present system are too well known to require further comment. The plan is to make the market self-supporting; the commission charged on all products being the bare cost of handling. The Market Directors are to establish branch markets wherever conditions justify. A bureau of information will supply the producers with a knowledge of market conditions at each center."

This is surely a vital propisition. Whether it receives any attention from the Legislature, after the natural opponents of it get through pounding it, as they may be expected to do, depends entirely upon whether the farmers and other food producers approve it and let their voices be heard. The feature of the bill which makes it worth attention, it seems to us, is its provision for the operation of such a market. It is not establishing market-places, which have proven of no avail because, unless they have tradition behind them, there will be no extradition of produce in front of them. Established avenues of trade all lead away from them. But if there be a market established, and men and money provided to make it work, there seems to be some chance of its working—if, and only if, the producers take interest enough in the proposition to secure its realization. Therefore, it is up to the people.

What New York is Doing.

California is getting to be widely known for the establishment of State institutions and agencies which actually work for the people Of course, the irreverent keep saying that they are concerns to work the people—but who cares for that! In connection, then, with Mr. McPherson's market, which is fitted out to work with its own initiation and aggression, it is interesting to note that New York State is trying to meet the problem by providing, not for working, but for opportunities which others may work through. The news dispatches tell us that a "great market terminal, costing $1,000,000, the first of a dozen or more planned for receiving and distributing foodstuffs in New York City, and thereby reducing the cost of living," will be erected by the New York Central Railroad Company. The project seems to have been planned by John J. Dillon, commissioner of the new State Department of foods and markets. This and other similar market terminals will be leased by co-operative companies organized and conducted under rules laid down by Mr. Dillon's department. The profits of these companies will be limited to six per cent a year. Commissioner Dillon says that New York City spends for food between $600,000,000 and $700,000,000 a year, but that only 35 cents on each dollar spent for food finds its way to the farmer. He attributes much of the wastes to inadequate systems of handling, and predicts that under the market terminal plan the cost of foodstuffs would be cut more than ten per cent.

As it seems to us, the defeat in Mr. Dillon's plan is that it is left to work itself. It will apparently be of considerable advantage in handling at the city end in the way of reducing drayage, etc., and it may accomplish something in the line of more or less direct trade, but it has no aggressive quality or machinery, and we should expect it to fall into the hands of the same old parties, who are now taking 65 per cent of the price consumers pay. Mr. Dillon's plan seems to be that the grower's co-operative societies shall do the fighting which has to be done and defend themselves, if they have a chance, and shall arrange to get their own information, etc. Are the producers sufficiently organized to do this? Or are they to be consumers' co-operative companies? This undertaking will be interesting to watch. As Mr. Dillon has power to organize and make rules for such societies, whatever they are, he has several busy days ahead of him.

Will the Farmers Organize?

We are rather ashamed of a Californian, which is something new for us. If the telegraph does him justice, American farmers were blamed for the high cost of living by Frank B. Connolly of San Francisco, president of the National Association of Retail Grocers. Mr. Connolly is apparently away from home conducting a convention of his association in St. Louis, and on Saturday last he made an address, in which he said: "The Government should cease its investigation of grocers and turn such attention to farmers instead. Millers are offering $1.40 a bushel for wheat and are able to get very little of it, although the farmers' granaries and elevators are bulging with vast supplies. The farmer is the Government's pet. He was the first to be exempted from the new Clayton anti-trust bill, and it would be impossible to punish him under the anti-trust laws if it should be proved that there is an agreement to hold wheat."

It was a bright speech of its kind and in that way creditable to a Californian, and it no doubt provoked much appreciative chuckling among the retail cheese-slicers. They will all tell the "boys," when they get home, how a Californian dinged the farmers good, and be so happy over it that they will forget to keep an eye on the cracker-barrel. But the reason why

we are ashamed of Mr. Connolly is that his taking address is not true. The farmers of the country are not sufficiently organized to hold wheat nor to hold anything else—not even an indignation meeting. We wish they were, but that does not make it so for us, as it seems to do for Mr. Connolly.

Why Farmers Are Holding Wheat.

Farmers are holding wheat because they know that the 1915 crop of wheat, which is not yet all out of the ground, is already being sold for export. They know that the biggest rise in price on January 26 was for July wheat, the first delivery of the 1915 crop. July wheat in fact showed a jump of nearly 5c a bushel on that day, and on the same day May wheat overtopped previously highest war prices and reached 1.46⅞ per bushel. It does not need an organization to hold wheat when there is a future market like that and when the war-news is full of details of the way European governments are requisitioning all the wheat in sight under their flags. The farmer as an individual has a right to hold his wheat and to make what he can out of it and he does not need an organization to tell him that it is now the prettiest time to make money on wheat that ever was.

The reason why we are sorry that Mr. Connolly's claim that farmers are holding wheat by organization is not true, has therefore nothing to do with the present situation. Wheat is strong enough now to hold itself, but it will not always be so. Farmers' organizations are for the purpose of making sure that the farmer gets what properly belongs to him, and they can be made effective when other people stand in the way of that. If, as shown by the New York investigation, retailers and other handlers are getting 65 per cent of what the consumer pays for food, organization is indispensable to the very life and continuance of the farming industry. It is farmers' organizations which should come forward and speak the producer's voice on Mr. McPherson's proposed law, for instance. It is the farmer's voice which should be heard on rural credits bills, etc. And that is the reason why we are sorry that Mr. Connolly's statement at St. Louis is not true. If it were true we would even consent to his making a bad use of a truth.

The Equity by Parcel Post.

We note that discussion has arisen as to what, in equity, prices should be in direct trade between producers and consumers of food supplies via the parcel post route; that is, how they should compare with prices received and paid before this system of distribution was instituted. The Market Growers' Journal, an Eastern organ of truck growers, seems to state the case very fairly from both sides in these words: "The attitude of the consumer seems to be that the system was established for his exclusive benefit and that the farmer should charge no more for his products than he could get at wholesale. The producer seems to imagine that the system is for his exclusive benefit and that the consumer should pay city grocery prices. Both viewpoints are wrong." As a matter of equity, that is true. The present high retail prices are in part due to packages and delivery. If Uncle Sam undertakes delivery, the cost of packing and small handling belongs to the farmer. He, as a retailer, is entitled to a profit on the actual expediture for handling in a small way. He should not be expected to do this business without a fair reward. It is also more trouble to the consumer to get supplies by parcels post than to telephone for them, and to pay for them on delivery than on a monthly account. The consumer, for these and other reasons, perhaps, should also make something on the transaction. One experienced shipper by parcels post says: "We have found that 75 per cent of what the retailers charge gives us at least 30 per cent more for our goods than we could obtain at wholesale." This, then, would seem to divide about equally the saving by parcels post delivery over old-style retailers' delivery and some such sharing of advantages seems equitable. We are aware that ordering direct from producers is likely to be curtailed by over-pricing by them. We received, some time ago, a circular from a grower offering an article by parcels post, and were inclined to it until we found the cost would be greater than from our regular grocer by telephone order. This is a matter which will adjust itself easily, of course, but we mention it as a phase of a new marketing system.

About Buying It Now.

The exhortation which we recently gave (in sympathy with an eastern movement to that end) that those who contemplated a wise expenditure in the immediate future, should make it at once, seems to have met response from our readers. They tell us that they have done so in the case of farm machinery, and it has also added to our subscription list. In one case the legend was "You told us to do it now: here it is." In the broad field of the country the impulse to start trade at once by trading, seems to be quite general. Even President Wilson seems inclined to cure his "psychological depression" by this psychological remedy, for he says: "If you are going to buy it, buy it now. That is a perfectly safe maxim to act upon. It is just as safe to buy it now as it ever will be, and if you start to buying, there will be no end to it—and you will be a seller as well as a buyer."

Queries and Replies

Querists must give name and address.

Plums Dropping.

To the Editor: My Wickson plum trees are four years old. They are healthy, have heavy foliage, and are covered with blossoms yearly, but they do not hold fruit. Will you advise me as to the cause of the fruit dropping, whether it be the age of the trees or due to some pest.—M. A., Clovis.

The variety has a good reputation generally for bearing and complaints of considerable dropping have not come to us. The trees are young and may be growing too much wood. If they drop again this year we should summer prune in June and do no winter pruning this year, unless you have already cut them back.

"Shot-Hole" Fungus.

To the Editor: Last year our plum leaves looked like they had been shot up with a shotgun. Couldn't see any fungus. What should I do for it, and when?—J. P., Concord.

It was probably the "shot-hole" fungus, which does not show anything dusty or woolly or other mark which is popularly thought to be indicative of a fungus. It makes a spot and the tissue thereon shrinks and draws itself away from the healthy tissue and falls out, leaving such a hole as you describe. The remedy is the Bordeaux mixture: applied just before the leaves appear to kill the spores on the bark and again on the foliage, if the disease begins to appear.

Acids for Stumps.

To the Editor: I have read that equal parts of nitric and sulphuric acid, by boring a hole and placing in a stump, would cause it to soften in five weeks so it could be picked to pieces. I would be glad to know if there would be any injurious effects to the soil from the use of such strong acids.—S. L., Bangor.

It would injure neither the soil or the stump.

Little Leaf of Grape Vines.

To the Editor: Some vines are affected with "little leaf." Is it contagious? Is it a root disease or a leaf disease? If not a root disease and not contagious, would you graft Seedless?—W. C., Clovis.

Little leaf is a mysterious disease, neither cause nor cure being demonstrated, although Professor Bioletti is working hard on both. As for the graft you mention, it may be commended because if you graft as low as you can, Thompson will soon be on his own roots and that variety seems to be resistant to the trouble.

Fighting Linnets.

To the Editor: I am having trouble with the linnets eating buds in a French prune orchard. Last year they destroyed about one-half the crop, and this year they are making great headway in destroying the same in spite of the fact I am trying to keep them off by shooting. Do you know of any way to keep them from eating the buds?—A Subscriber, Gridley.

We know nothing better than free use of shot guns with bird shot. We have heard of spraying with commercial aloes, one pound to four gallons of water, to make the bark bitter, but we have never seen anyone who had profitably used it. Who can give a good way with linnets?

Famished Fruit Trees.

To the Editor: I have some peach trees that the branches wilted on this fall. I gave them the same amount of water as the others, but they seem dead now. I have about three peach and two apple, and they are about 75 feet apart.—R. T. M., Delano.

It is hard to diagnose this trouble without seeing the patient. Perhaps the trees are badly sunburned and full of borers; perhaps gophers have chewed off a good part of the roots; perhaps they are planted over gravel, so that they dried out in spite of the water you gave them. You do not say how old the trees are; if they were only planted last winter, they might have had poor roots and naturally let go of life, under conditions which enabled the other, stronger trees to pull through. This is, of course, all guesswork, for lack of enough knowledge.

Almond Pollination.

To the Editor: I am about to plant some 500 Nonpareil Almonds, and am receiving a variety of advice as to the quantity of other varieties which should be planted with them for pollinization purposes. One authority says 25 others will be plenty as the Nonpareil is a strong pollinizer itself. Others say I should have a much larger proportion. What is your opinion?—J. N. O., Berkeley.

This has never been exactly demonstrated and there is naturally a difference of opinion. From what we know at this moment we would plant every fourth row with Texas Prolific.

Acre Costs of Prune Growing.

[Written for PACIFIC RURAL PRESS.]

The relation between much expense on the prune orchard well spent and its returns, and a very much smaller cost of production per acre and its returns is strikingly illustrated in the two cases we wish to mention below. The difference may not be entirely in the acre cost of production, since climate and soil may have considerable to do with it; yet in the case of the least cost is included hauling and irrigation, while in the other no irrigation was practiced and hauling is paid for extra.

A Sonoma county prune grower, who has one of the biggest ranches near Healdsburg and probably the biggest drying outfit in this section, is S. L. Wattles. He, himself, does not personally superintend the ranch on account of his position in the bank. The cost could be considerably reduced, in his estimation, if he were on the ground directing the operations instead of having to do this indirectly at a distance of several miles.

Mr. Wattles has decided ideas in regard to pruning the old trees, as mentioned in the Pacific Rural Press recently, and he takes great pride in the condition of his orchard. Not every year is the expense of pruning anywhere near the same as in other years, since occasionally there is a rather heavy pruning of the tops in order to renew them. Such work requires high ladders and more work climbing the trees and is, of course, much more expensive than if only the outside twigs are cut off by men standing on low ladders.

His trees are 22 years old or less; but practically all have been in full bearing many years. Taking one year with another through the whole cycle of renewing the tops, as explained in the article mentioned, Mr. Wattles figures the cost of pruning at $10 per acre every year.

Fertilization.—About one-third of the orchard is fertilized with barnyard manure every year, adding other fertilizers and growing volunteer crops of filaree and bur clover. The green crops are turned under in the spring to keep up the humus. The cost of this fertilization, including the materials and labor, may be estimated at about $3.50 per acre.

Spraying.—As a rule, only one spraying in every three years is given, on general principles just to keep the trees healthy and free from moss. Should any pests appear to threaten serious damage, extra spraying is done on threatened trees; but not all over the orchard. The cost of the spraying is figured at $10 per acre annually.

Cultivation. — The spring plowing, on account of the cover crops and fertilizer, costs more than some people pay. Mr. Wattles estimates this at $4 per acre and the cultivation, which follows through the season, at about $10 per acre. This includes all that is necessary to keep a good dust mulch and break up the clods. The land is cultivated, harrowed, double disked, and rolled as there is need.

Harvesting. — The harvesting of the crops costs about $14.25 per cured ton, as Mr. Wattles estimates it. The picking is figured at $6.75 and the processing and drying at $7.50. Mr. Wattles ordinarily has a large number of workers camped on his place during the drying season and he has an exceptionally big drying yard and equipment of trays. His storage house has been mentioned in the Press as being a model for cleanliness and for the better keeping of the prunes.

The crop is sold on the place ordinarily and if Mr. Wattles hauls it to town, there is an extra payment for that. Since the average crop is said by Mr. Wattles to be about three tons per acre, the total cost of harvesting per acre is $42.75. Adding these costs, we find that the cost of production per acre in this orchard runs up to about $80 each year. The average crop is about three tons, making the cost per ton about $27.

Prunes in San Joaquin County.—In San Joaquin county is a widely respected prune grower, who has 38 acres of Robe de Sargent and 5 acres of Sugar and French prunes. He is J. H. Clancy, who, in partnership with his son, Cecil, has one of the pioneer orchards of his section.

The trees are about 20 years old, planted 22x26 feet apart and were originally budded in the nursery on peach and Myrobalan root. Mr. Clancy says that those budded on peach have a tendency to be going backward now, while those on Myrobalan are still increasing or holding their own. However, very few of his trees are showing a lack of vigor.

Several things conspire, as we see it, to keep Mr. Clancy's yield down to about an average of one ton per acre through a series of years. These are the facts that he has never applied any fertilizer to speak of, has grown no cover crops, and does very little pruning.

Pruning.—He estimates the yearly average cost of his pruning at about $1 per acre; but it seldom comes up to this cost; only every five or six years is the old wood cut off to furnish new fruit bearing twigs.

Spraying.— The only spraying that the trees get, and the only spraying that they seem to need, is whitewash, about forty pounds of lime and two or three pounds of salt per 200 gallons of water, applied with a power outfit once each year, simply to clean the trees and moss and give them greater vigor. A 200-gallon tank is used and this full sprays a little less than an acre. Two hoses are used at once; it requires two hours to spray a tankful of the whitewash. The cost of labor, teams, depreciation on the outfit, and the gas fuel is estimated at $8 per day; the men costing $2 per ten hours; man and team costing $4.

Cultivation and Irrigation. — The plowing in the spring is done seven inches deep with a two-horse, eight-inch, mold board plow for the first three rounds, throwing the dirt away from the trees. It usually takes thirteen or fourteen rounds to plow up the space on both sides of a row, making about six rounds per row. After the first three rounds, a 14 inch plow is used because the horses have a better chance to pull efficiently as they get away from the trees. This costs about $2.50 per acre.

The land is harrowed at once at cost of about 40c an acre since a man and team can harrow about ten acres per day. The land is harrowed after every rain until time for irrigation, which usually comes in June. Only in exceptional seasons is more than one irrigation given. In 1913 three applications were made. The water is pumped with about a 27-foot lift by a motor-driven pump, as mentioned in the previous article, at a cost of $2 per acre. The labor of checking and applying the water and giving disk harrow cultivation afterwards is estimated at $5.50.

Harvesting.—The fruit is picked up at an ordinary cost of 10c per 60-pound box fresh, although the last pick sometimes runs up to 50c because prunes are then pretty scarce.

The first pick is of inferior prunes, which drop early, and occupies about seven to ten days. This occurs about the first to the middle of August. As soon as the first drop is picked up, the trees are shaken slightly and a second picking is made. A little later the trees are shaken heavily by boys, who, as Mr. Clancy says, do not have strength enough to break the trees down as the Oriental workers used to. There is a large quantity to pick this time and it is slow work in going over an acre. The next picking is the clean up. The average cost for the whole crop of picking and hauling to the shed is estimated at $4 per green ton.

Processing, drying, and putting the prunes into the bin is estimated at $6 per dried ton. Considering the shrinkage in drying, the cost of harvesting per dried ton is $13.50 or $14. This is also the acreage cost on account of the one ton average crop per acre.

The prunes are hauled two and one-half miles to town on four-horse wagons, four tons per trip and three trips per day. Usually a car is filled at once so that two or three outfits have to be used at the same time. It costs $6 per day per outfit or about 50c per dried ton. There is no further expense since the buyers pay for the prunes f. o. b. the cars.

The average size has been 57 to 58 prunes per pound for the past three years, so that the prices will ordinarily average less than Mr. Wattles' French prunes, which, it will be remembered, average about 50.

Adding all these figures, it is found that Mr. Clancy's cost of production is about $28.50 per acre. This is considerably higher per ton cured than Mr. Wattles'. The prunes being smaller, sell at a lower price, so that there is considerably less net profit per ton.

In addition to this, if the investment per acre is considered and the depreciation and interest on boxes, dipping vat, trays, etc., are included, it will be seen that the same investment per acre for the two men pays less than one-third of the net profits to one than it does to the other.

Here is seen the direct relation between the liberal acre cost of production and the liberal returns on the investment.

Spray well while you are doing it. The cost of labor is about the same.

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the west.
WEISSBAUM PIPE WORKS,
160 Eleventh St., San Francisco

KIRKMAN'S
Reliable Trees
Make Horticulture Profitable
Our stock of fruit trees in several of the leading varieties will be entirely exhausted before February 1st. We hope to be able to supply at least all of our old customers with what they will need. Write us at once, please, letting us know what varieties you expect to plant. We want to supply you if we can.
KIRKMAN NURSERIES
2523 Tulare St.,
Fresno, Cal.

ALFALFA SEED
Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.
We are actually offering California's best product.
Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.
Samples, prices, etc., on application.
V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

Crown Gall Resistance.

[By C. O. Smith of So. Cal. Pathological Lab.]

The organism causing crown gall is almost omnivorous as to its choice of a host, but it is especially severe in the more important economic trees, such as the apple, almond, apricot, cherry, grape, peach, plum, prune, and walnut.

Avocados, olives, figs, and loquats are highly resistant.

The disease, when once seen, is easy to identify, as it is characterized by an enlargement or growth of soft, spongy tissue of a more or less spherical shape. These growths are usually situated just below the surface of the ground in the trunk or body of the tree, often extending downward some distance on the larger roots, and may be found on them at some distance from the trunk. The galls continue to increase in size from year to year. The tissue produced is abnormal and easily decays, making an especially favorable place for wood-destroying fungi to gain an entrance to the tree. While the galls are usually below the ground, occasionally aerial ones are formed on the trunk and large branches. These are hard and cause little or no serious effects on the tree, except when they may be numerous as on grapes of the Vinifera varieties.

Trees affected with the disease may not die for some years, indeed will not until the trunk is entirely girdled with diseased gall tissue. The affected trees usually do not make as rapid growth as healthy ones, but for a time produce a large amount of fruit. The cause of the abnormal number of fruit is the same as in twigs that have been ringed to make them produce. The root of the tree suffers most and soon ceases to make further growth because of the lack of elaborated food supplied it from the leaves. Severely diseased trees may show improperly developed trunks, in that they are flattened or have deep grooves directly above the galls. In our study of crown gall we have found these two characteristics a sure indication of the presence of crown gall.

Not all abnormal growths of trees are caused by crown gall. (1) Some of these other enlargements are caused by insect stings or by the placing of the eggs in the plant tissue. (2) Some of the galls in the roots are caused by small worms called nematode worms. These closely resemble small crown galls and are found on the roots of trees and vegetables. (3) Certain species of fungi are capable of causing galls. (4) Tubercles are found on many leguminous plants and trees. (5) A gall caused by a different species of bacteria from that of crown gall is found on sugar beets. (6) The knot or gall of the olive is caused by a distinct species of bacteria.

In addition to these there are other aerial galls on the twigs of several different kinds of trees the cause of which is not yet fully understood. Citrus trees occasionally have these aerial galls, also eucalyptus seedlings have small knots that never cause any serious injury. The galls of quince are not very well understood and do not seriously harm the affected trees. There are also natural galls on certain varieties of olives that should not be confused with crown gall. Locust trees sometimes have large galls on the trunk which probably are not the same as crown gall.

The cause of crown gall is a species of bacteria by the name of Bacterium tumefaciens, a tumor-forming organism. The germs are extremely small and probably live in the soil or organic matter as saprophytes, and from here enter the tissue of living plants through some injury in the bark. Artificial galls have been repeatedly made to develop by simply pricking the healthy bark with a steel needle previously touched to a pure culture of the causal organism. In the gall or tumor tissue comparatively few bacteria are present, and the microscope does not conclusively demonstrate the cause of the trouble under ordinary histological methods. The germs live inside the cells of the host and by the products of their own development cause new cells to be formed with unusual rapidity. The abnormal tissues thus formed show cells with very thin walls, at first soft and often with no well-defined bark or epidermis. The germs can often spread through the plant by the developing of a narrow portion of tissue into a tumor strand. This strand is invisible externally, but from it secondary tumors often develop.

Crown gall infection must start from soil containing the disease-producing organism. There can be little doubt that the soils of California are often naturally infected with crown gall. This is especially true of those that were formerly wooded or have previously grown stone fruits, especially if the trees grew on peach roots.

Any injury to the trunk or root in the nursery or in digging the trees would be a favorable point for infection. The organism is entirely a wound parasite and could gain entrance in any mechanical injury, animal or insect bite.

The Myrobalan plum is a very popular stock on the Pacific coast and is freer from gall than the peach or almond. There is no doubt that much of the disease among orchard trees has its origin in the nursery, from which it is distributed far and wide over a wide range of territory.

Apple trees are quite subject to crown gall, especially at the point where they have been bench-grafted. Here a gall often develops to considerable size in addition to the healing callus. Budded or field-grafted trees, although more expensive, are much superior for planting, as they are always more free from crown gall. The hard and soft form of gall in apple have a similar cause. The hard form is of slower growth and probably not so injurious. There is some difference of opinion as to the seriousness of crown gall on apple, some authorities claiming it does not injure the bearing properties, while others claim it makes a stunted and short-lived tree. Not much is known as to how common or serious the disease is in pears.

Cherry stock is somewhat more resistant than peach or roots of the other stone fruits, but the Mazzard and Mahaleb roots when tested can be infected.

Plums, peaches, almonds and apricots are often severely diseased. Different varieties of peaches, Muir, Salway and Lovell, have been artificially infected with gall, as well as the different varieties of almond that are used as root stocks. Much more resistance is shown among plums, especially those of the German prune and Damson, while the Myrobalan, which is a popular root stock, is more readily infected.

The English walnut is susceptible to the disease when on English roots, as much as 50 per cent of nursery trees being sometimes affected. Galls are not so often found on the black root, which is now used as a root stock for the grafted varieties of English walnut. The disease on the walnut first causes a gall formation which later decays and leaves the tree with the appearance of being eaten off at or below the surface of the ground.

Quinces as grown in California have an aerial form of the gall called black knot. This has been proven by Dr. Erwin F. Smith to be caused by a bacterial organism that is probably identical with that of crown gall as found on other trees. The disease in most cases does not seriously affect the tree, although hardly a quince tree in California is free from it.

Grapes are often diseased, the gall being found on cuttings at the cut end or in grafted vines at the place where scion and stock unite. The European varieties are more susceptible than the American species. It has been demonstrated that varieties of grape resistant to the phylloxera are also resistant to crown gall, and these varieties or other varieties grafted on this stock are in all ways to be preferred.

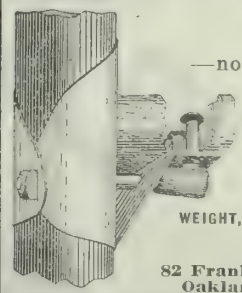
For the control of crown gall disease the following is suggested: (1) Grow the seedling in soil that is supposed to be free from the disease germs. (2) Grow, if possible, stock having some natural resistance to the disease. Certain varieties of apple such as Northern Spy, Ben Davis and Belleflower are very resistant.

(3) Carefully discard all diseased trees, even if some have to be sacrificed that have only small galls present. If the inspector does not throw out the diseased trees the grower should do so. The following spring the young trees should be carefully examined by digging away the earth about the crown down to the roots. If the trunk shows any evidence of gall formation the tree should be marked, either to be replanted or treated. A tree after the end of the first year is not so likely ever to contract gall, although it would be well to again inspect the trees at the end of the second season. When a tree is replanted where one has been diseased, care should be taken to use fresh earth in filling in around the tree.

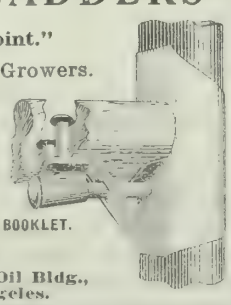
(4) If the galls are just beginning to develop, tree surgery may be employed. This consists in cutting out the affected tissue with a sharp knife and painting over with some disinfectant. The best preparation to use is a Bordeaux paste.

The treated tree should be marked and examined again, for often the first treatment is not entirely effective and the galls may again begin to appear at the treated margins. If such is the case, the tree should be again treated. The individual judgment of the operator must be used as to whether the small tree had best be replanted or treated. If one begins with the small orchard and is willing to give careful attention to this trouble there should be no difficulty in keeping the crown of the tree free from gall. The root one cannot expect to treat. It would be better not to take too much risk in treating badly galled trees of one year's growth in the orchard, as it is very questionable if such will ever become profitable commercial trees.

SECURITY ORCHARD LADDERS



"See the joint—that's the point."
—now used by 4000 California Growers.
—carried for you by dealers in 74 California towns.
—first awards at Watsonville Apple and National Orange shows.



WEIGHT, SPREAD AND PRICE IN ILLUSTRATED BOOKLET.
J. B. PATTERSON
82 Franklin St., Oakland. 517 Union Oil Bldg., Los Angeles.

Write for this Nursery Catalog

MISSION AND MANZANILLO OLIVES.
Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.
CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. . Claremont, Calif.

Second Hand PIPE Screw Casing
ALEXANDER PIPE COMPANY
254 No. Point Street, San Francisco, Cal.
501 Clarence St. Los Angeles, Cal.

GIANT WINTER RHUBARB
NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

Orange Color Standard.

[Written for PACIFIC RURAL PRESS.]

Still we hear the protest from Butte county against the government test applied to early oranges this year. The comparatively small quantity from that section has usually been about the first of the new crop on the market. Eastern eaters, accustomed to the ripeness allowed on the late Valencias, usually gobble these first oranges at high prices. The trouble is that they don't gobble them down. That makes but little difference to the Butte county folks who by that time have the money and no more to sell.

Now they are talking up there of meeting and taking concerted action in favor of a color test on the ground that "Nature marks the fruit when it is ripe." At the same time they object to the acid-ratio test because "there is no way by which fruit that will meet the test can be distinguished on the tree. The result is that all the fruit must be held until every portion of it is to standard, with the result that a good market is lost."

We have supposed that the acid test is a test of ripeness—if that is not so, the government is in egregious error. If it is so, then it ought to be easy to pick the ripe fruit whenever it ripens, because "Nature marks the fruit when it is ripe," by natural color. We still see no excuse for picking fruit that will not stand the test, nor for leaving it all on the tree till the greenest of it is ripe enough—basing our argument on their premises.

"Those who are contending for a color test assert that if the grower is simply forced to stop attempts at forcing color independent of maturity, there will be no demand from consumer or anyone else for a chemical test."

It is probably quite a while since chemical means of coloring immature oranges practically ceased, but to prevent "forcing color" by other means would be rather impracticable. There be those who have continued to hold their oranges in warehouses a little longer than commercially necessary, so they would get the extra coloring caused by the warm confinement. It is also said that car ventilators are kept closed sometimes on part of the journey for the sake of a little extra color. Some oranges might even be sent by the southern route for the benefit of the warm weather. But usually such oranges aren't sweet enough to help sell the rapidly increasing number of carloads of California oranges.

On the other hand, the "consumer" does not demand a chemical test. He demands sweet oranges. If the first few California brands aren't sweet enough he refuses the rest and takes the Florida oranges, which are naturally deficient in citric acid.

The demand for a government acid test came not from the consumers, nor ever would, but from those California growers who had suffered loss of markets for their sweet oranges because the earliest on the market had been sour.

HARDPAN KILLS ORANGES.

The experience of an over-confident citrus grower in Sacramento county four years ago this spring may still give warning to those who are about to plant in the neighborhood of hardpan subsoil.

This gentleman set out five acres after shooting the hardpan with dynamite, as he supposed, sufficiently. He had bored into the hardpan, but not through it; and shot about one stick of dynamite, which simply made a hole in the hardpan but not through it; and held both the winter rains and the summer irrigation, so that the effect of the shooting was the same as lack of drainage in any heavy orchard.

Last spring this five acres of oranges was a corn field with only twenty orange trees alive and they had made only about one year's growth.

UNIVERSITY EPITOMES.

Controlling Fruit Pests.

[By Prof C. W. Woodworth, University of California.]

Standard insecticides are best.

Secret remedies are usually fraudulent.

New remedies against insects are frequently humbugs.

Much of the money spent in treating insects is wasted.

Losses in insecticide work are chiefly due to unwise treatments.

Attempts to eradicate a pest always involve a money loss.

Time of treatment is important for peachworm, codling moth, and many minor insects.

High-pressure spraying is chiefly valuable because of the increased quantity applied.

Fumigation is much more efficient than spraying in dense foliage like that of the orange.

The question of the amount of chemicals to use per tree is more important in fumigation than in spraying.

Treatments are not made unprofitable by a neighbor's insects.

Most of the profit in treating insects is made in controlling half a dozen insects.

House flies and mosquitoes are not necessary evils; they can be suppressed.

A few hives of bees are profitable on nearly every ranch.

The use of frame hives always pays.

In no case should water be added to oil in making oil emulsions for spraying. Add the oil to the water or you won't get a perfect emulsion and free oil will appear on the surface.

TREES

Grown on Sandy Loam Soil

No Spike Roots.

Almonds on Almond & Peach Root.

All Varieties of Fruit Trees for sale.

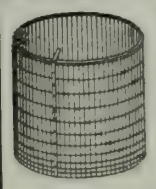
Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of Water.

RIPON NURSERY AND IMPROVEMENT CO.

J. F. STUART, MGR.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers.

Steel and Wood.

Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENTS PATENT AGENCY 911 Cooke Bldg.

Circular containing 100 mechanical movements mailed free.

THE MOST IDEAL PLANTING SEASON IN YEARS.

Fresno—Nursery Company

Growers of WILSON'S Quality Trees

THE FRESNO NURSERY CO. INC. TRADE MARK QUALITY QUALITY SERVICE FROM THE ROOTS UP

Established 1889

Be Sure and Let Us Figure on Your Tree Wants

Our Stock

Of All Commercial Varieties of Fruit Trees and Grape Vines is Complete.

Submit a list of your Exact Wants for Quotations:

If you want the best NURSERY STOCK that money will buy you want "WILSON'S QUALITY TREES." Our 52-page Catalog mailed free. We offer all varieties of APPLES, PEARS, CHERRIES, PLUMS, PRUNES, APRICOTS, FIGS, PEACHES, OLIVES, ALMONDS, GRAFTED WALNUTS. We also grow in quantities, English, Huntington and American White Elms, Date Palms, Fan Palms, Oleanders, Loquats, etc. Send for our catalog and submit a list of your requirements. Our Packing Methods are perfect, insuring safe arrival.

Address THE FRESNO NURSERY CO., INC.

Box X615 Fresno, California.

We've Been Pleasing Planters For 26 Years

Start Olives Right.

[By J. S. Armstrong, Ontario, Cal.]

Mr. Armstrong, one of the largest growers of olive nursery stock in the southwest, recently wrote us that a deluge of inquiries have come to him from his advertising of the past two months, 90 per cent of them coming from his ads in Pacific Rural Press. To save time answering so many, he printed a booklet, explaining many points of desirable information, some of which we make bold to extract for our readers.—Editors.]

After cutting the trees back to 20 or 24 inches in the nursery rows, they are dug up with a tree digger, and prepared for the purchaser, who should first get his land ready for their reception by deep plowing and leveling to established grade. The holes should be dug, and of such dimension as to allow the roots to lie in their natural position—this is important, as many make the mistake of digging them too small. Trees are usually shipped in damp moss and should not be allowed to dry out, but planted in moist soil at once, following quickly with an irrigation to settle the earth and exclude air from the roots. Olive trees are usually planted 30 to 35 feet apart, which gives 35 to 50 trees to the acre. The best time to plant is from February to May. Some people are of the opinion that olive trees do better if balled (like orange and lemon trees), but this is not necessary. If trees are properly handled there will be no loss nor retarded growth. Experienced planters prefer bare root trees, as a better root system is maintained.

It is advisable to avoid the use of fertilizers at the time of planting. Young trees are at times injured by coming in contact with strong commercial fertilizers or stable manure before becoming established and capable of assimilating the same. As the orchard becomes established, the growth and appearance of the trees will indicate whether plant food is demanded for their profitable development.

Cultivation Desirable.—The olive is quite as sensitive to good treatment as any other fruit tree, and thorough cultivation of the soil is indispensable to the best of success. Not only does cultivation put the soil in good physical condition, but it also tends to conserve moisture, and hence invigorates the tree and induces a robust growth. As to irrigation, that is an essential in all sections where the olive thrives, though more urgent in one section than another, it being a matter of degrees depending on the rainfall. In all portions of the semi-arid regions irrigation at some time must be practiced. A reasonable amount will suffice for young trees; after once established and until they reach bearing age experience will tell, much depending upon conditions of soil, the appearance of the trees and weather conditions. About one-half of the irrigation usually given an orange grove is deemed sufficient for an olive orchard.

Pruning.—We do not advise severe pruning for the first few years. Being a hard wooded tree, the olive is unlike the peach in this respect, hence it is important to induce a robust and prolific growth as quickly as possible. Heavy pruning retards this. Thin out the growth just enough to allow sunshine to penetrate all portions of the tree, starting with not more than five to six main branches. Careful pruning, however, is essential to the full bearing tree, the object being to preserve the flower bearing branchlets of the preceding year and at the same time keeping the head of the tree low, so as to allow easy harvesting of the fruit, and also to protect the trunk from the hot summer's sun.

Cross-Fertilizing Not Essential.—In our judgment it is not necessary to interplant with other varieties in order to secure fertile bloom. There are growers who practice planting alternate rows of Mission and Manzanillos, or other sorts. Many orchards planted solid to one sort yield regular and heavy crops. This is largely a matter of personal opinion. Two good varieties can do no harm, and often are quite as profitable as a grove of only one variety.

Bearing Age Five Years.—Under favorable conditions a young orchard will bear when five years old, a half ton to the acre; at seven years, one ton; at ten years, two tons; and from that period on an increase should be maintained even up to five tons per acre, everything depending on care, management, conditions of soil, etc.

Varieties.—At present the pickling varieties are the most profitable. As yet the market for pickled olives is undeveloped, but as the business becomes established an almost unlimited market for the product will be created. The two standards for pickled olives are the Manzanillo and the Mission.

Manzanillo. Two weeks earlier and somewhat larger than the Mission, and sweeter, but not so rich in flavor. When properly processed it is unsurpassed for pickling. In southern California this is the favorite with many growers.

Mission. Tree upright growth, hardy and vigorous. So well known it scarcely needs description. Fruit is later in ripening than the Manzanillo and is easily processed, making a rich and much desired pickled product.

Ascolana. Large, handsome fruit that requires careful handling, and is fine for bottled goods. Matures early.

Sevillano. Known as the "Queen Olive," the largest of all. Is used for green pickle; not desirable as a ripe olive because lacking in quality and flavor.

Don't put manure into the hole around the roots when planting trees. Some of it well mixed with dirt below the roots will repay the extra work.

Don't apply crude oil sprays after the buds loosen up to open. Distillate emulsion is safe till blooming if not too strong.

This picture shows a few of our perfectly formed, thrifty, vigorous apple trees in nursery row.

Apple Trees

OUR STOCK of apples this season is more complete in varieties than it has ever been and we do not hesitate to say, as far as the quality of the trees is concerned, that there is nothing grown that is superior to them. Our trees are far better than northern or eastern grown trees and are freshly dug, carefully handled, and placed in the hands of the planter in perfect condition, and at the time he wants them.

We can supply such leading varieties as Spitzenberg, Baldwin, Stayman Winesap, Rome Beauty, White Winter Pearmain, Yellow Belleflower, King David, etc.

We are offering special inducement on our apple trees, and it will certainly be worth your while to figure with us before you place your orders. Write us fully and let us know what your plans are.

WE GROW EVERYTHING THAT GROWS

There is practically nothing in the line of citrus and deciduous fruit and ornamental trees, vines, plants, etc., that we cannot supply you. This is the only nursery on the Pacific Coast that can supply practically everything you may wish and fill your orders complete. Send us your list for prices and suggestions.

Illustrated Price Catalog Free

Our 1915 illustrated price catalog is more complete than any that we have heretofore issued. It lists and prices all stock grown by us—something over 2,000 varieties. A copy will be sent free to any address upon request.

FANCHER CREEK NURSERIES, Inc.

Geo. C. Roeding, Pres. & Mgr.

BOX 18, FRESNO, CAL.

Paid up Capital $200,000.00

Asphalt for Peach Tree Borer.

[By Earl L. Morris, San Jose.]

The western peach tree borer (Sanninoidea pacifica) is an insect of much economic importance in the horticultural district about the southern arm of San Francisco bay.

The investigations upon which this paper is based were made in most part in the peach orchard of the J. H. Flickinger Company, Berryessa, California. They have extended over a period of four years. The results have not been verified for other districts.

The adult borers are slender, blue-black, day-flying moths, about one inch long. They are seldom seen and very rarely recognized by the orchardists. They issue more or less from February to September, but the mass of them appear about the middle of July. They place the eggs on the trunk of the tree from the ground up two feet, one to twenty-five eggs in a place. These are very small and generally escape notice. They hatch in a few days.

The newly hatched larvae, or "worms," which are difficult to find, usually enter the bark at or near the ground. The new burrow is marked at first by light brown bark dust, which in a few hours disappears, after which it is nearly impossible to find the opening. The larvae grow rapidly, work their way through the bark, and spend most of their life between the bark and wood, where they may do great damage by boring long distances, often completely girdling the trees. Gum flows as a result of this injury and is a fairly reliable indication of the presence of the large "worms." Unfortunately there is nothing to show the presence of the small "worms."

The full-grown larvae are about one inch long and the diameter of a slate pencil. They have white bodies and dark-brown heads. When ready to pupate, they seek places from which the moths can easily issue and construct about themselves cocoons from the chewed-up wood and bark. The cocoons are light brown capsule-shaped bodies, slightly larger than the "worms." They may be found under the bark, in the bark, or in the ground an inch or more from the tree.

The usual method of combating the peach borer is to dig out the "worms" during the winter season, but often the knife causes more damage than the borers, especially if the digging must be done consecutive years or by careless workmen. In the fall the soil is removed from the base of the tree to a depth of six or eight inches and the borers dug. In the spring they are dug again and the soil replaced. The second digging is necessary because in the fall many of the "worms" are too small to be found.

Many preparations are being used on the trunks of trees; some to keep the moths from depositing eggs, some to prevent the "worms" from entering, some to kill the "worms" after they have entered. None of these have been wholly satisfactory. Experiments along these lines by the writer led to the use of hard asphaltum, grades "C" and "D," with good results. This was applied early in the spring to badly infested trees from which the borers had not been dug. It was found that a thick heavy coating prevented both the issuance and the entrance of about 95 per cent to 98 per cent of the insects, the degree of efficiency depending upon the thoroughness of the application. Asphaltum does not penetrate, crack, deteriorate, or bind the tree, since it yields to the slightest pressure. Four years of experimenting have not shown the least injury.

The material is applied warm with a brush from five inches below to five inches above the ground. It is easier to apply two or more coatings than to try to put on more at one time than will adhere firmly. The first coating will harden very quickly and the second can be applied without loss of time. Two coatings are generally sufficient unless the bark is very rough. But in any case a thick, uniform covering is absolutely necessary for the best results.

Borers are seldom uniformly distributed over an orchard. Small blocks of trees here and there may be badly infested and the most of the orchard comparatively free from the pest. In such cases it is not necessary to treat all of the trees with asphaltum; but it is necessary to examine them carefully, for in no other way can the true conditions be known.

GOOD OUTLOOK FOR SMYRNAS.

[By G. P. Rixford, U. S. Dept. Agr.]

The outlook for the Smyrna fig industry is promising and I know of no branch of fruit culture that can be engaged in with less risk. Plantings during the past two or three years have been extensive, chiefly in the Sacramento and north central portions of the San Joaquin valley. Improvements are being made in methods of curing and packing and the California product is rapidly approaching in quality the best product of Asia Minor. I have taken pains to ascertain the production of dried figs and reached the conclusion that the total was not far from five thousand tons, about one-third of which were Smyrna. The production of Smyrna figs as yet is scarcely equal to the local demand. One concern in Ohio uses over 600 tons of California dried figs for the manufacture of their pastry products. The American Biscuit Co. is a large user. I know of one shipment of eight carloads to their factory. These establishments use mostly small figs and the refuse from the packing houses. The purchasing agent in San Francisco for the Harvey eating houses and the news boys' trade on the Santa Fe Railway system two years ago purchased from a leading packer in Fresno 80,000 half-pound packages of Smyrna figs, in 1913 100,000 packages and last summer closed a contract for 120,000 packages for the season just past. This party handles no other figs than California grown Smyrna, until the sypply is exhausted.

Last season was great for grape mildew. A San Joaquin county newspaper of last July bemoans the fact that local dealers are having a hard time to keep enough sulphur on hand to meet the demands of the growers.—Moral: Stock up now.

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

Fruit Trees

ELMER BROS. NURSERY

AT SAN JOSE, CALIF.
The nursery that helped to make Santa Clara Valley famous.
QUALITY IS OUR MOTTO.
We propagate all kinds of fruit trees; also grow the best strain of the Franquette Walnut. We make the prices right. Send for our advance price list.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN CALIFORNIA

Economy and Expensive Fertilizers.

are inconsistent terms. Give your pocketbook as well as your soil a square deal. Proper soil care is the safest investment you can make.

Finely Ground, High Grade
Shield Brand.

Phosphate Rock

The Phosphate of Lime,
is the key to an ideal system of economical and permanent soil fertility.

UNITED STATES PHOSPHATE CO.
405 MARSH-STRONG BLDG., LOS ANGELES.

Martinez Nursery

Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

Citrus Trees With Pedigrees

Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
These are unusually high-class trees. We want to close them out. Write for Special Prices.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.
TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street. San Francisco, Cal.

Help Knock Out Fruit Pests.

There is some tendency among farmers to consider the horticultural inspection a nuisance. When it is so considered, there is likely to be an attempt to slip one over on the inspector in all cases of doubt. In such cases, the farmer is likely to be saving a 50 cent tree now and introducing a pest that will cost him and his neighbors $50 per acre every year in the future. To avoid this future loss, prompt and sympathetic co-operation with the inspectors is to be commended. We quote on this subject from the Yolo Farm Bureau Monthly:

"The arrival of nursery stock not only from nurseries located in California but also from outside districts, particularly from Oregon and the middle west, indicates a busy planting season for the spring of 1915. With the coming of trees and vines the proper inspection for insect pests and plant diseases becomes of much economic interest to the fruit grower, for the introduction of the peach root borer, aphis, or scale, or the planting of diseased trees affected with crown gall or fungus troubles may not only hurt the success of a young orchard or vineyard, but may cause neighboring plantations to be infested, necessitating in the course of time much outlay of money and energy to control the infestation.

"Let us take for instance the citrus growing localities near Winters, Esparto, and Rumsey. So far, no signs of the serious red, yellow and purple scale can be discovered, though we know that the yellow scale is found at Knight's Landing and is flourishing in the Capitol Park at Sacramento, only a short distance from the commercial citrus groves of Yolo county. If we remember that the control of scale pests (for their eradication, where once established, is out of the question), costs an annual tribute that, with the growing size of the trees, may reach $25 or even $50 per acre, we will understand why it is better to keep these scale insects out by proper inspection of young nursery stock that may have been grown in infested districts.

"Almond trees, with crown gall and root knot, pear trees with woolly aphis on the root system, grape vines with phylloxera, if planted would surely end in failure, and hence it is suggested that the intending purchaser co-operate with the Horticultural Commissioner and inspectors of Yolo county, to have a thorough inspection made at the depot or express office. The inspectors will permit larger shipments to be taken to the field, where the nursery stock is to be planted, in order to permit thorough inspection and provide protection for it, which at times cannot be given at the depots. The state law compels the railroad and express companies to inform the horticultural inspectors of the respective districts of the arrival of nursery stock and the holding of such for a reasonable time to permit inspection.

"Not only is the inspection of nursery stock from all parts of California and other states advisable for the purpose of detecting insect and fungus pests, but it has also the important advantage of cautioning unscrupulous nurserymen from unloading all sorts of imperfectly grown and poor stock on the often unsuspecting or ignorant planter. Hence careful inspection is of the greatest economic importance to a county, and the work of the horticultural inspectors should be encouraged by the growers."

Failure to keep control of fungus diseases probably means that you haven't treated them in time.

PLANT OLIVE TREES

For Profit

Write me:

Write or wire me for prices on Mission and Manzanillo olive trees, stating number and size of trees wanted. Have all sizes ⅜ to one-inch caliper.

My stock of olive trees is the finest in California, none excepted; trees are scientifically propagated from choice, selected cuttings, obtained from bearing trees of highest quality, and by following my instructions for planting, I will guarantee them to live, and grow, and give you highly satisfactory results.

Don't take chances on planting olive trees of unknown origin.

Read this:

If interested in Olive culture, you ought to have a copy of my recent "Booklet" on the Olive and its culture; it contains a brief summary of "Facts," on which all intending planters should be informed.

Write for a free copy today. Also ask for my 64-page complete Catalog and Price List of general nursery stock.

Armstrong Nurseries
ESTABLISHED 1889

John S. Armstrong
Proprietor

406 Euclid Avenue Ontario, California

Don't Transport Wormy Apples.

Home orchards, planted by the stockman during the early development of Arizona, produced clean fruit. Since wormy fruit, so familiar to all consumers of apples, was unknown, the natural conclusion was drawn that conditions were adverse to the codling moth and therefore there was no danger of its becoming established in this section. With the development of more serviceable means of transportation, fruit has been shipped into the state. Much of this fruit was infested with codling moth. The development of new orchards has made it possible for the codling moth to perpetuate itself where heretofore all introduced individuals perished, due to the absence of a food plant, writes Prof. W. H. Lawrence of the University of Arizona. The use of boxes and other packages, burlap, excelsior, and other packing materials, used in transporting fruit or that have been stored near wormy fruit, is responsible for the introduction of the pest into many of the home orchards. A more common and perhaps as effective means of spreading the codling moth is the practice of allowing the neighbor or transient to gather wormy fruit and move it from place to place. During transportation or storage the worms leave the fruit and search for a protected place in which to pass the pupal stage. It is easily seen how a sack of wormy fruit carted through a section free from the codling moth might introduce the pest into several orchards or how a single box of wormy fruit purchased in the market and stored in the cellar might be the means of ruining the crop in the home orchard in a single season. It is evident that the natural conditions favoring the production of the apple are not adverse to the existence of the codling moth. Knowing the habits of the insect and the conditions under which it will survive we may safely conclude that introduction into a clean orchard means perpetual existence, and with a good supply of food and an uninterrupted existence a high per cent of loss of the fruit crop each year.

It is illegal to transport wormy fruit, hence the infested crop must be fed to farm animals, consumed as fresh fruit, canned or worked up into by-products. At the close of the growing season of the past year there were immense quantities of apples lying on the ground where they fell during the season. An inspection of the fruit showed serious infestation by the codling moth which was responsible for the premature ripening and dropping of many of the immature specimens and a yet greater fall of the more mature ones. This loss will increase during the following season. A lack of equipment and time to do the work, and a vague conception of the methods of handling, prevents the use of so much damaged fruit that a large proportion will be a total loss to the grower. Fortunately, however, the farmer may prevent the loss by giving the trees proper care through cleaning up the orchard, pruning and spraying the trees, and thinning the fruit.

SCRAPE OFF CODLING BARK.

Codling moth has gotten such a foothold in some sections, and conditions are so favorable for its multiplication, that every means must be taken to keep it under control. Spraying alone is not doing the work in some of the worst sections. In a survey of the codling moth conditions of one county in Colorado, we found that the per cent of damaged fruit, including wormy and stung, averaged from 3.5 per cent to 65 per cent, with the average between 30 and 40 per cent. Yet a close estimate shows that this county alone has spent in spraying during the past season $135,000. We do not want to minimize the necessity of thorough spraying, but rather to impress upon the growers having badly infested orchards, the importance of other control methods.

The most important of these are the scraping and banding of trees. As all fruit growers know, the larvae of this insect winter over very largely under the rough bark of the tree trunks. A thorough scraping of these at this time of the year will destroy a large per cent of the larvae. The summer brood of larvae go under the same rough bark to pupate, so if the trees are scraped now and cloth bands placed about the tree before the summer larvae begin to pupate, the larvae will go under the bands and can be destroyed.

Much can be done toward keeping this pest in check by this work. This was pretty conclusively brought out in our codling moth survey work the past fall. A summary of our counts on banded and unbanded orchards is decidedly in favor of the banded orchards—enough to make it well worth the extra work and expense. In one of our experimental orchards, one plot with five sprays and bands gave 10 per cent cleaner fruit than another plot with seven sprays and no bands. Does it pay?

Col. Agr. Col. GEO. M. LIST.

EMPERORS SHED LEAVES.

To the Editor: I have some Emperors which do not make much growth and I have been advised to use hydrated lime as a fertilizer. Is it a fertilizer or will it have only the same effect as gypsum? The soil is rather sandy in these spots and the vines shed their leaves and the grapes sunburn. What would be the best fertilizer and how much per vine?—A. R. P., Dinuba.

[Hydrated lime is not applied as a fertilizer because there is practically always enough of it in every soil for plant food purposes. In many ways lime has the same effect as gypsum. Sandy soil seldom needs lime. Your trouble is probably lack of water. The soil needs humus which can best be applied now in the form of rotted manure. Don't apply strawy stuff on sand. The nitrogen in the fertilizer will add to the leaf-holding ability of the vines.—Editors.]

Wash out the spray outfit with warm water on the completion of each spraying.

200,000 FEET CHEAP WATER PIPE

Just received several car loads of new and 2nd hand Water Pipe, Oil Well and Water Casing. In ½, ¾, 1, 1¼, 1½, 2, 3 inch and many other sizes. O. D. Casing 2, 3, 3½, 4 in. Riveted and surface irrigation pipe. Big Stock. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS.
2030 Bay Street,
Los Angeles, Cal.
Phones Brdy. 1264—F1917
(Under entirely new mngmt.)

HIGH COST OF LIVING

It can be reduced by raising bigger crops and having more to sell. Also your labor and outlay can be made to pay much better by raising bigger crops and having more to sell.

Fertilizer is necessary, just as is the rain and sunshine. The sunshine warms the ground and starts the growth. The rain furnishes the moisture necessary to plant development. The fertilizer releases the life in the soil and makes it fertile.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

Fertilizer of animal origin produces the most life, by returning to the soil that which was taken from it. GOLD BEAR fertilizer is animal fertilizer, made at our meat packing plant.

There is an interesting booklet on fertilizer, which we shall be glad to mail upon request.

Western Meat Company
704 Townsend, St.
San Francisco

SEVENTH EDITION—FULLY REVISED
California Fruits and How to Grow Them
BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION
June, 1914
Bound in Blue Cloth Vellum with Gilt Lettering
Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

NOW IS THE TIME TO
FERTILIZE FRUIT TREES
Use the specially prepared MOCOCO Deciduous Fruit Fertilizer and increase the quantity and improve the quality of your fruit.
Mountain Copper Company
332 Pine Street, San Francisco.

MAXWELL'S NURSERIES, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

ARMSTRONG DISTILLATE ENGINES ARE FURNISHED WITH MAGNETO & GUARANTEED 5 YRS.
AN ENGINE OR PUMP SHOULD BE BOUGHT JUST THE SAME AS A HORSE OR COW THE POOR ONES COST LESS DO LESS - DIE SOONER - BUY WITH YOUR EYES OPEN WRITE FOR OUR HANDSOME CATALOG - DON'T WAIT UNTIL YOUR CROP IS DEAD.
MILLER PUMPS ARE UNEQUALED
PUMPS FOR ALL HEADS AND DUTY.
1½ 2 4 6 8 10 15 20 HP SIZES
A PUMP OR ENGINE BOUGHT OF US IS GUARANTEED
NORMAN B. MILLER CO. SAN FRANCISCO
503 MARKET STREET

Australian Fruit Competition.

Australia intends to ship fresh fruit to the world markets. That they are alive to the need of up-to-date methods of handling, and that California may soon reckon on another competitor, is evidenced by the round-the-world trip of W. J. Allen for the government, to gather all information possible on fruit growing, irrigation, varieties, the growing and packing of lemons, etc. The following recommendations, embodied in a Farmers' Bulletin of New South Wales, may be suggestive to Californians:

1. Unless we control the various fruit pests or continuously endeavor to do so by adopting the most up-to-date and approved methods of treatment, the oversea markets will be closed to our products, as nothing but the best is wanted by foreign markets. Hence we must not cease the fight to keep all markets open for our produce.

2. We must see that every detail in connection with grading and packing is given particular attention, due regard being always given to quality and color.

3. Careful handling is necessary from the time the fruit is picked until it is placed on the market, and we must each do our share in endeavoring to bring this about.

4. Whilst our fruit-case is well thought of in London and on the Confinent, there is no reason why we should not endeavor to improve on it; nevertheless we should not abandon it without having proof that we have a better one which not only suits ourselves, but the European and American trades.

5. The methods adopted by our up-to-date growers of fighting pests, pruning, and care of our orchards, will compare favorably with those practiced in America and other countries.

6. All other countries are vying with us in an endeavor to produce and place on the foreign markets something a little better and put together in a more attractive manner.

7. Our growers are more backward in adopting any system of co-operation than those of any country.

8. We have a lot to learn about the treatment of our soils in order to keep them in a highly productive condition.

9. Our irrigation schemes are in line with those in other parts of the world, but our settlers have not had the centuries of practical experience in the tilling of the soil and growing of crops as those of Italy and Egypt have had. Until our settlers gain more experience in agriculture and irrigation they will not realize the advantages they have on the Morrumbidgee Irrigation Areas.

10. We should not lose any time in trying to induce at least a few of the most up-to-date dairymen, fruit and vegetable growers to come out here and demonstrate whether they can do as well under our conditions as in their own country. Of course, we must expect that it will take some little time for them to become acquainted with our conditions.

A large golden sign "Australia" has already for many months been suggesting the wanderlust to all who pass the Australian government's office established on Market street in San Francisco, to attract settlers to their land.

ROCK-PILE TREES SLOW.

To the Editor: Lest a misapprehension may be gained by your subscribers in reading the articles which have appeared in your paper concerning rock pile orchards and their possibilities for fruit culture, I take the liberty of directing this communication to you.

The most remarkable fact concerning fruit production on these leveled rock piles is that the trees even live at all. These trees show the extraordinary condition under which they exist by making only as much growth in six or seven years as an ordinary tree, planted in good soil, would make in three years.

Had the dredgers used an efficient sand-pump, or such other appliance as would have put the soil on top and left the rocks below, the land would scarcely have suffered by dredging. In fact it doubtless would have greatly benefitted by the deep stirring thus received.

Unfortunately sand-pumps were used in rather an indifferent manner; this, coupled with no attempt being made to level the ground behind the dredgers, has resulted in many miles of unsightly rock piles along the Feather river. These are not only unsuited to fruit-production in their present condition, but even if leveled off would scarcely be worth the cost of the work, which is stated to be about $300 per acre.

EARLE MILLS.
Horticultural Comm'r Butte Co.

[We note that Mr. Leggett is just now cutting for telephone poles, eucalyptus trees planted among the rocks without leveling, nine years ago. Though it might easily not pay to level the rock piles for fruit, at least it would seem that voracious feeders like the eucalyptus would make a good living for themselves and their owners. It is a pity to see the miles of this barren dredger waste, if, as Mr. Leggett's experiments seem to indicate, they could be made green with timber. Similar wastes may be seen in Sacramento county.—Editors.]

BURNING GRASS KILLS HUMUS.

It is stated that grass lands in the Philippines are commonly cleared by burning, but experiments of the U. S. Dept. Agr. show that this practice results in a large loss of nitrogen and humus in the surface soil. A study of the bacterial life of the soil showed that burning not only greatly reduced the number of organisms in it, but profoundly modified their character. The work did not go far enough to show whether this was an advantage or disadvantage.

Don't spray while the trees are wet. The material will collect in spots and leave others bare.

If your apple or pear tree looks unaccountably sick, dig for woolly aphis on the roots. You will know them by their woolly covering and by the big knots on the roots.

Don't Plant CITRUS TREES

until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

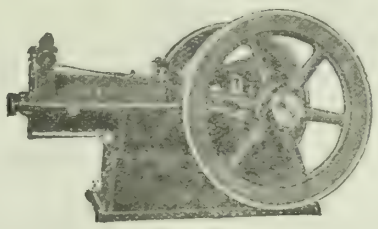
We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively San Dimas, Cal.

Drought Insurance



Self-Contained, Closed-Jacket-Type Alpha Engine.

A PUMPING PLANT equipped with an **ALPHA ENGINE**, fitted to burn gasoline or low-grade distillate, is the best insurance against drought.

ALPHA ENGINES.
Low in fuel consumption.
High in efficiency.

ALPHA ENGINES ARE DEPENDABLE and will deliver the power 24 hours a day, 365 days in the year, if necessary.

No Batteries—No Coils—No Cranking—No Troubles

Write for Engine Catalog 28.
IDEAL GREEN FEED SILOS. JAMES BARN EQUIPMENT.

DE LAVAL DAIRY SUPPLY COMPANY
SAN FRANCISCO, SEATTLE.
Everything for the Dairy.

FRUIT TREES

STRONG—HARDY—HEALTHY PEDIGREED STOCK

For sure crops and big profits plant our re-selected strains of fruit trees. Strong-rooted, free from disease, and sure to produce heavily of the largest and finest land.

FRANQUETTE WALNUTS—The genuine imported French strain. Buy from us and make sure of getting the best.

We grow an immense stock of Fruit, Nut and Ornamental Trees.

Write for our low prices.

A fine stock of budded roses to offer cheap.

Elmer Bros. Nursery
The Nursery That Helped to Make Santa Clara Valley Famous.
SAN JOSE, CALIFORNIA.

Fruit Trees! Fruit Trees!

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. Cor. First and Cedar Sts., Chico, Cal.

Shingle Paint and Nails.

To the Editor: Do you know of some substance such as asphaltum or a crude oil product that could be appled to preserve shingles? Is there any commercial manufacture of such substance?—A. E. A., Wallace.

[The Paraffine Paint Co. of this city has a special paint for this purpose, made in two colors. In 5 gallon cans, the black costs 70 cents per gallon; the red, 80 cents. A gallon will cover about 150 square feet of shingles. The Pacific Building Materials Co. has a Grapholatum paint for this purpose. In this connection we print extracts from a bulletin on shingles sent out by J. R. Moorehead, Secretary of the Southwestern Lumbermen's Association.—Editor.]

It is not stretching the truth to say that the loss incurred in the use of an inferior shingle nail is at least 33 to 50 per cent of the life and lasting qualities of a shingle roof. The wood shingle is the most universally used, the most economical, and the best appearing roof covering that has ever been in general use by the American home builder and home owner. Every interest as above indicated is, and should be vitally interested in promoting whatever will bring about a longer life and better lasting qualities of this almost universal roof covering. The wood shingle is particularly the roof for the farmer, and is more universally used by him than any other, and we believe we are doing a service to them in calling attention to this waste that is continually going on.

The sawed shingle of the present day is largely made from red cedar of the Pacific Coast, cypress from the South, and still some white pine in the North. In the manufacture of shingles at the present time, oftener than not, the entire tree is consumed therein. There has never been therefore, since sawed shingles came into use, a better shingle made, either in quality, durability, or even the prevailing price at which they are now sold, for shingles are no higher in price today than they were twenty, twenty-five and thirty years ago, and it should be to our advantage and our duty as well, to direct the attention of the consumers of shingles not only to the "wilful waste" going on, but to suggest anything in the way of an improvement that will add to the life and lasting quality thereof.

Shingles Outlast Nails.—It is not to be denied that the ordinary steel wire nail, the steel cut nail, and we even believe, owing to a lack of time to make a proper test, that the galvanized wire nail will not hold a shingle in place anywhere near the life of a good shingle. It is also true that the best grade of shingles now in use will not rot on the roof, but will wear out by continuous wearing of the surface produced by rain, storm, and weather. If, therefore, a first grade shingle should be put on with a nail equal to its lasting qualities it would last for a generation, for, as indicated, they do wear out but do not rot. Ample proof of this statement is apparent in every community.

There is not a community in the country where it has not been the experience of the home owner, tearing off perfectly sound shingles on account of lack of a nail of sufficient lasting quality to keep them in place during their natural lives. If this waste can be avoided and remedied we believe we are contributing in a practical way, and practically a real conservation in forest products. If the life of an average shingle roof can be increased from 66 to 100 per cent we are saving just that much timber which is being cut into shingles today, and is an economic waste altogether. The superior quality of a shingle roof, properly nailed, would soon increase the demand for shingles, thereby off-setting the loss occasioned by the increase of the life of the roof. We believe this condition can be remedied, and this loss avoided, and this great saving to the consumer brought about by the use of the pure zinc, or even the zinc clad nail. The pure zinc nail is a comparatively recent production, it is rust proof and indestructible as far as the elements may affect it. The zinc clad nail can be purchased at a much less price than the pure zinc nail and its superiority over the ordinary galvanized nail is in that it is actually dipped into a molten mass of zinc instead of going through an electrolysis bath, as in the case of the ordinary galvanizing process.

Experiments with Zinc Clad Nails.—Professor R. R. Chaffee of the Pennsylvania College of Forestry, State College, Penn., has recently made some experiments in the matter of testing the zinc clad nail. From his experiments he is convinced that the zinc clad nail is far superior to the ordinary galvanized nail, for the reason above given. The manufacturers of the zinc clad nail also make this claim, which I have no question is well founded. Professor Chaffee is making other experiments along this line. When his attention was first called to the fact that the zinc clad and the pure zinc nail were to be obtained he immediately began to make a practical test, which of course will take some time, by putting on 20,000 red cedar shingles, using in this one roof five kinds of shingle nails, viz., pure copper, pure zinc, zinc clad, blue cut, and the ordinary wire nail. Of course it will take time to determine the relative lasting quality of these five kinds of nails, but there will be constant observations as to the effect of the elements upon them, and from time to time he promises to make report. It will not require a very great length of time to, in this way, ascertain which of these nails are of least value.

There is no question but that the pure copper nail is indestructible as far as the effect of the elements upon it, but the cost may be considered as prohibitive. The same can be said of the pure zinc nail (which cost less than one-half of the copper) from what chemical tests disclose to us of the lasting qualities of this metal, but we believe that the zinc clad nail, which is much cheaper in price than the pure zinc nail, is far superior to any galvanized nail, or even the old iron cut nail as it is now made. It is a question as to whether the iron cut nail now on the market, if there be such, is as lasting and useful as it was in the day when it was made from superior quality of metal to that which is now supposedly used. We feel safe in recommending the medium priced pure zinc nail, as being the surest in meeting the requirements.

These nails can be purchased in large or small quantities at very small cost above the ordinary nail and certainly merit a trial in the interests indicated. I shall be glad to give any further information in my possession to anyone into whose hands this Bulletin may fall, and in reply shall be more than pleased to have copies of any circular matter which the forestry or agricultural schools may distribute to the farming communities after full investigation, and copies of any farm papers which may contain any reference to the subject here discussed. Professor Chaffee advises that he is going to distribute this information to farmers and others interested in the State of Pennsylvania.

Your co-operation and assistance is solicited, and correspondence invited to this most important matter.

J. R. MOOREHEAD, Secretary.
Southwestern Lumbermen's Ass'n.

San Jose scale and European pear scale produce toxins which poison the twigs they infect.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED
FARMS

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Prune Trees

A few hundred IMPERIAL and SUGAR on Myrobolan and Almond roots, first class trees. Also IMPERIAL, SUGAR and FRENCH PRUNES on same roots, in the smaller sizes at BARGAIN PRICES.

CHERRIES, BARTLETT PEARS,
APPLES, CITRUS TREES,
APRICOTS, ORNAMENTALS.

ROSES, GLADIOLI and DAHLIAS a specialty.
Write for new Price Catalog.

Santa Clara Valley Nurseries

Max J. Crow, Prop. Gilroy, Cal.

Don't Drown Good Soil Bacteria.

[By Prof. C. B. Lipman, University of California.]

Many of our soils slope so that they seem well drained; but are not, because they are so tenacious that natural drainage is impossible. Under such circumstances, artificial drainage would improve conditions for trees and plants by opening a larger surface for their root development, giving the roots better air and food supply, and enhancing activities of soil bacteria at greater depths, thus allowing the formation of soluble plant foods, especially of the nitrogen kind, and the addition of more nitrogen from the air. On still other soils, which are of good texture for root development, we have poor drainage owing to flatness. On such soils many of our deciduous fruits are grown and they must be improved through systematic drainage, not only for the production of larger crops in the immediate years, but to prolong the life of the tree and its continued productivity.

These remarks result from a consideration of the subject in the large, and are not in any way affected by productivity of the soil for short periods. They have reference to permanent systems of soil management which will insure the improvement rather than the depletion of the soil's producing power through long cultivation. They apply to the future as much, and perhaps more, than to the past and the present. Where deep tillage is impossible now in many groves whose root systems have, through improper fertilization, irrigation, and tillage methods, been brought to the surface, it is possible, feasible, and the only proper thing to do in the case of new groves, the nature of whose root systems we can control. The very small quantity of humus and nitrogen in our soils is an added reason for the adoption of perfect tillage, of deep tillage, frequent cultivation, and good drainage methods. These may be necessary in order to encourage the activities of bacteria which gain nitrogen for us from the atmosphere in the deeper layers of the soil, and in order to make possible the more rapid and economical transformation of what organic nitrogen does exist in the soil to soluble forms so that the plants may take them up.

Bacteria Must Have Moisture.—Like all other living things the simplest forms of life with which we are acquainted depend upon a proper supply of moisture for their best development and for their production of substances which may be bad or good for our own welfare. Soil bacteria are no exception to this rule. Since most forms of these produce materials which are essential to our economic plants, it behooves us, if we would maintain the highest productivity of the soil, to supply the moisture conditions which are congenial, not only to the development of plants, but to the activities of soil bacteria. My investigations have shown that the highest activity of various forms of soil bacteria is reached in soils with a moisture content which is four to eight per cent higher than what we call the optimum moisture content, from the point of view of the air conditions in the soil, the texture of the soil, and the root development. This would seem to indicate, therefore, that the least we can do, in order to enrich the soil in nitrogen, is to keep it at that moisture content as nearly as possible which is optimum for the development of the root system of the plant. While soil bacteria are very resistant to drying and will live in that soil for a long time in that air dry condition, they will not be active nor yield the products which are of importance to practical agriculture, unless such proper moisture conditions are maintained. On the other hand, too great a supply of moisture, such as may exist in the heavy, ill-drained soils, or through a natural flooding of the soil, or perchance through over-irrigation, is not only bad for the beneficial bacteria in soils, but is good for the development and activities of organisms which destroy soluble nitrates and which produce poisonous materials through putrefaction, which are bound to affect, not only the plant itself, but the other forms of bacteria which we desire to use. The practical lessons, therefore, which these facts teach, are, that in soils of a loose texture, the water conditions must be watched very closely in order to have them at all times as nearly as possible optimum for the development of the soil bacteria. In other words, the irrigations must be frequent and yet not so frequent, nor so large, as to shut out most of the air and therefore encourage the activities of the wrong forms of bacteria. For such soils, with small rainfall and the hot sun for several months, frequent irrigation must be recommended with moderate quantities of water, so as never for any length of time to have the soil water-logged. In the case of our heavy soils again we find the necessity, as already above indicated, for drainage so far as natural water conditions are concerned, and further for the exercise of great care in irrigation, since such soils are very easily water-logged and robbed of their proper air supply, with the dangers accruing which have been above noted.

AVOCADOS IN NORTH.

To the Editor: Your article on avocado growing is more than interesting to me. The avocado is a native pear of Jamaica, West Indies. I used to live there and I fed them to my pigs. After they were gone, bananas were the next cheapest food. Would the avocado thrive in this section of the Sacramento valley? Would it not be too hot and dry through the summer months?—J. T. B., Dixon, Yolo county.

[The avocado roots will have to be protected from the sun either by mulch or through shade during the hot months, and water supplied. They are likely to do very well, though they have not been proven out yet in northern California, and only a few trees should be planted at first in untried sections. However, the Bangor Development Co. of Butte county has several acres growing, and Schnabel Bros. in Placer county are trying them out. We hope to have notes on their success a little later.—Editors.]

Moss on a tree harbors scales and other insects. Lime sulfur in winter takes it off and kills the scales. Coarse, heavy spray is desirable for tree trunks covered with moss or rough bark.

Garden Encyclopedia--Free

Your Copy is now Ready

Prof. E. J. Wickson of the Agricultural Department of the University of California writes us as follows:
"I could not run my advisory and educational business without your catalogue at my elbow".

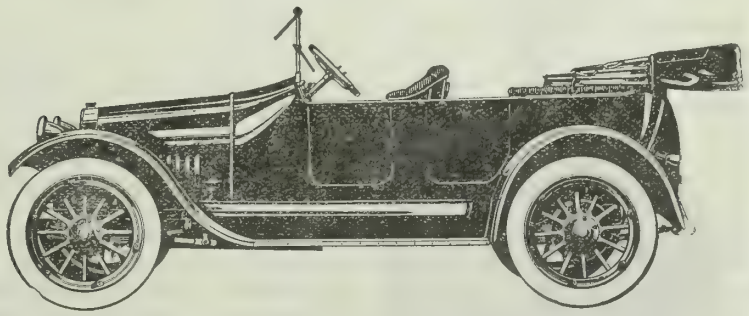
CITRUS, DECIDUOUS, ORNAMENTAL TREES
FLOWER, VEGETABLE, FIELD SEEDS
FERTILIZERS, INSECTICIDES, FUNGICIDES

For Prompt Service Address Dept. R

Germain Established 1871
SEED & PLANT CO.
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

Kirstin One-Man Stump Puller

Special $2.50 discount on the first 100.

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.
W. E. MORRISON.
821 Riverside, Dept. 1., Spokane, Wash.

Olives Olives Olives

Strong, Vigorous Trees for Spring Planting at reasonable prices. All well rooted cuttings from selected trees. For information write
TETLEY, MERRIMAN & GERNERT, Riverside, Cal.

California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

Price $2.00 Postpaid Anywhere.

Pacific Rural Press

Publishers.

525 Market St., San Francisco

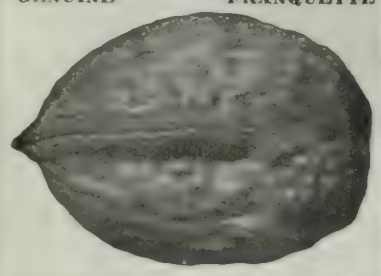
Hardie Sprayers

The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Write for Catalog.

THEO. POINDEXTER,
State Agent,
320 Market St., San Francisco

GENUINE FRANQUETTE



The best commercial Walnut; also San Jose Mayette All trees grafted on California Black Walnut root.

Sizes from 3 to 10 feet.
Prices reasonable.

SUNSET NURSERY,
525 San Carlos St., San Jose, Calif.

San Joaquin Nursery Co.

for all varieties of Home Grown

PEACH, APRICOT, GRAPE VINES.

Special Price on Royal Apricot.
1sts, $120 per thousand.
2nds, $80 per thousand.

Our Stock is The Best.

HANFORD YARDS,
Cor. Seventh and Reddington Sts.
STAND AT ARMONA.
K. YAMAMOTO, Prop. HARRY W. EBY, Mgr.
Hanford, Cal.

Lime Vs. Gypsum.

[Written for PACIFIC RURAL PRESS.]

So many people are asking us in regard to the use of lime and gypsum on alkali spots and on alfalfa that we wish to make the following summary, stating just what each is good for. This is adapted from Prof. C. B. Lipman's University Bulletin.

Both lime and gypsum are good to make heavy soils work better. They do this by being brought into contact with the slick, sticky soil and contracting it into a crumbly condition. The gypsum should be used at the rate of one-half to one ton per acre, depending on the stiffness of the soil.

There are several forms of lime, two of which are known as quick lime and hydrated lime. The former is calcium oxide; the latter is calcium hydrate. These forms may be applied at the rate of one to two tons per acre; but this should be done before plowing in order to get the lime in close contact with the soil it is to loosen. Air-slacked lime or ground lime or ground limestone are calcium corbonate and should be applied in about double the quantity of other forms of lime. They are much slower in action and are the right ones to use on light loamy soils or sand.

Both lime and gypsum are good to promote activity of legumes and and their bacteria, largely on account of their loosening effect on the soil, which gives the bacteria air and warmth.

Both lime and gypsum provide the element calcium, which is one of the ten absolutely necessary elements for plant growth and bacterial growth. There is, however, very little need to worry about the supply of calcium in most soils, though it might be lacking in some.

Only lime is able to promote the growth of the bacteria which decay vegetable matter readily into humus. These are different bacteria from those which help legumes to grow.

Only lime is able to change acid soils into the slightly alkaline condition necessary for the growth of legumes and a very large percentage of other farm crops.

Only gypsum is able to neutralize black alkali. It does this simply by overcoming the sticky nature of the soil affected by black alkali and chemically changing the alkali into the commoner and less harmful form of white alkali. White alkali then may be washed out by irrigation followed by adequate drainage in order to get rid of it. The amount to use depends on the quantity of alkali available for neutralization.

ALFALFA ON CLAY.

To the Editor: Have just finished plowing and putting into shape an acre of virgin red adobe land, which I want to plant to alfalfa when the soil has been thrashed into the proper condition for so doing. I intend to put in barley now and in the fall sow alfalfa and wheat. Could you tell me where I can procure "Inoculated Alfalfa Seed," and whether such a process is practical.

The piece I plowed slopes gently towards the south and receives the full benefit of the sun's rays the year around. About two feet from the surface there is a stratum of white clay which is very fine grained and I imagine is impervious to water. Would this tend to have an injurious effect on alfalfa root growth, and if so, of what nature?

I have always heard that alfalfa will not do as well on a clay soil as it will on a sandy soil, but we will try seed inoculation which may solve the problem for all kinds of soil.—A. H. T., Colfax.

[Neither seed nor soil inoculation will solve your drainage problem. See the articles on dynamite which have appeared in recent issues—especially Jan. 23. Drain pipes set in lines close to each other would help. Heavy applications of lime or gypsum would make your clay more granular so it would drain better, but would be a long time fixing that subsoil unless you loosen it. Inoculation of the seed or the ground would probably be very valuable in your case in order to get the bacteria to help the alfalfa plants grow. If the soil is wet, cold, or sour, the bacteria will die and so will the alfalfa. See our advertisers, and please mention Pacific Rural Press to them.—Editors.]

BLACK POTATOES.

To the Editor: I wish to plant some potatoes this spring just for home use. I planted some last year, but they were small and some of them were black in the center; looked all right on the outside. What is the best kind to plant?—E. L., Winton.

[We fear this may be fusarium wilt. If so, some that are less affected will show only a dark brown circle a little way from the skin when the seed end is cut off. If this is the trouble, don't plant any potatoes close to the place you had them last year, till several seasons have starved the fungus. Early Rose and Burbanks brought from disease-free sections are the standard. If black circles on insides show in the seed potatoes, don't plant them, for they will infect the soil. Strands of the fungus close the water tubes of the plant and cause premature wilting. Never plant small potatoes—that's what makes them "run out" after a season or two.—Editors.]

A TIGHT SOIL.

To the Editor: If I bore fifteen feet and strike water which rises to within five feet of the surface, is my water table five or fifteen feet? I cover an acre of land with water and I find that it goes into the ground at the rate of ⅛ inch a day. Under the above conditions, do I stand a fair show of washing alkali out of the soil? The salts are mostly below 18 inches and evidently quite heavy judging from the way the soil is streaked as I have noticed in boring post holes. Almost everything grows now, but as I irrigate I am thinking of the future.—M. W., Dixon.

[Your water table is practically at five feet unless you have broken an impervious hardpan in boring—which if not broken might hold down water below it. Under the conditions you describe the water-movement is too slow to wash out alkali. You will have to dig deep, open drains or lay tile to move away the water faster. The one-eighth inch of which you speak is partly lost by evaporation.]

Losses by insects and disease are in most cases a direct benefit to the up-to-date grower who saves his crops by spraying.

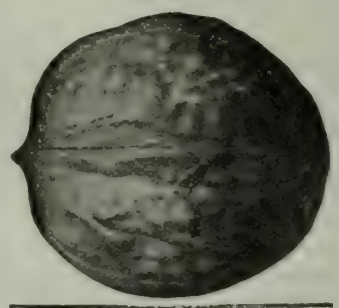
ALWAYS
Money Makers

IMPERIAL PRUNES, BLENHEIM and ROYAL APRICOTS, WALNUTS.

We have also on hand French prunes, almonds, cherries, peaches, and assorted fruit tree stock.

IMMENSE STOCK ORNAMENTALS.

Landscape Gardening a Specialty.



LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

Seed Combine

Yes, there is one, deny it as they may. The profits on most of their seeds are too large. They will tell you that we can't sell the best seeds at our prices but our seeds ARE the VERY BEST and we pay as much for them as they do which our invoices will prove. Don't you pay their big profits. Our slogan: Seeds at LOW PRICE and NO PRICE can buy better. Try us. Send for Price List.

WEST COAST
The Cut Rate
Seed House
116-18 East 7th St.
LOS ANGELES, CAL.

Avocado Trees

Nursery stock grown under the most favorable conditions possible. Not the ordinary alligator pear trees raised under lath or in pots, but—

Every One Guaranteed To Be Vigorous Field Grown

I have made a special study of this new and promising fruit industry. Let me acquaint you with the wonderful possibilities.
Trees from 4 ft. to 7 ft. high, $2—$3.
Budwood—all standard varieties at reasonable prices.

W. A. SPINKS,
DUARTE, CAL.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 5¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, containing the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Digging Well by Hand.

To the Editor: Please give me some pointers on digging a well by hand. A couple of government water supply papers procured from Washington give lots of information about machine and boring and drilling, but mention very little about hand dug wells. The soil is a deep sandy loam over layers of gravel and clay more or less mixed, with a sprinkling of niggerheads. First water is generally struck in this district about 75 to 80 feet below surface. Would it be safe to dig a 3½ foot circular hole without using any planking but taking along a 12 foot cylinder for protection against a cave-in when a water-bearing stratum is reached? Would giving the sides a cement wash or spray add materially to the safety? If a square well is dug, what size is the best and what size timbering is required? Should I use redwood or pine? It is intended to dig the well in spare time, and eventually, when deep enough, to put in a concrete cylinder.—G. T. B., San Francisco.

[We have dug enough holes to know that when dirt caves in on you, you can't wiggle even in your skin, and we have a wholesome fear of unrestrained perpendicular dirt above our head. Deep wells have been dug by hand, but we have no desire to face you in the last great day and have you tell us your family was widowed by our advice. A cement wash wouldn't help at all—the only real safety would be to sink your cement cylinder as you dig. We used to do this in steel cylinders for bridge piers. If the hole caves in you won't sink your casing any farther and will have to use a smaller diameter from there down. Anyhow that is better than to have your friends dig you out. If you curb with timber, redwood is cheapest because it won't have to be renewed till you can afford a bored well, while pine rots quickly. We would prefer to advise you to get a regular well boring outfit and work out by the day to pay for it. The Flickinger Canning Co. in Santa Clara county curbed their 60-foot hand dug pits with two-inch pine — the best they could buy. It rotted from behind, seeming solid on the inside. The danger was discovered in time, and they got some more pine, sawed it to the right lengths, soaked it 10 minutes in a tank of coal tar and crude oil heated by a steam coil; and that seems to resist decay pretty well.—Editors.]

TREATING POTATO SCAB.

To the Editor: What should I use for scab on potatoes, and would it be profitable to plant on the same ground that I raised on last year?—W. H. S., Fullerton.

Three very serious potato diseases which are assuming greater importance every year are fusarium wilt, rhizoctonia or stem rot, and scab.

All of these diseases live over winter in or on the tubers and in the soil. Hence if diseased tubers are used for seed or planted in diseased soil, the resulting yield will be considerably smaller than if clean soil and clean seed were used. The disease will also accumulate in the soil. Proper methods of rotation, seed selection, and seed treatment, will keep the amount of these diseases down to a minimum.

The only way to prevent scab on potatoes is to disinfect the tubers and plant them in clean soil. Formaldehyde and corrosive sublimate are about equally effective in treating potatoes for scab.

If corrosive sublimate is used, four ounces should be dissolved in four or five gallons of hot water and allowed to stand for a time. Then enough water should be added to bring the total to thirty gallons. Tubers should be soaked for an hour and a half, when they may be cut and planted. It must be remembered that the corrosive sublimate is a poison, and proper disposition should be made of any treated "seed which may remain so that there is no danger that it will be eaten by any farm animals. Thirty gallons of the solution will usually be sufficient to treat forty or fifty bushels of potatoes.

The same treatment will be very likely to kill rhizoctonia, which is somewhat similar to the scab and may be mistaken for it. There are small, round, rather corky spots on the outside of the potato. The rhizoctonia does not eat into it in the same manner as the scab; but when diseased potatoes are planted, the fungus in these corky spots grows and attacks the vines and root stocks underground. It reduces their vigor, preventing the formation or maturing of the crop.

We recommend the corrosive sublimate treatment because it kills the fungi which causes both diseases, whereas the formalin treatment is not so sure except for scab. The corrosive sublimate is deadly poison if the treated potatoes are eaten; but does not seriously affect the hands if spattered on them.—Editors.]

THOMPSON'S RACE MUSCATS.

(Continued from page 161.)

the time. It was only a few weeks ago that an enthusiastic meeting of Yuba-Sutter growers paved the way for the immediate signing of half a hundred contracts there, enrolling those growers in the big organization. A systematic canvass is being made to include all outside growers, for "united we stand, divided we fall."

THE OAKLAND REVOLVING BOWL SCRAPER.
A Fresno Scraper that loads and dumps almost automatically. It is also a first-class leveler; is made in four sizes—five, six, seven and eight feet. When used tandem they will level from 10 to 16 feet wide at one operation. Write us and we will tell you all about it.
GRAVES SPEARS ROAD MACHINERY CO., Oakland, Cal.
Sales Agents for all kinds of land levelers, scrapers, plows, farm tools, concrete mixers, etc.
ASK FOR CATALOGS.

This Spray Hose Stands the Wear.
Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is
Bean High Pressure Spray Hose
Made to withstand high pressure and constructed especially to withstand the action of spray materials and to give long service. Costs no more than ordinary spray hose—but lasts twice as long. Order from your dealer—or direct from us.
BEAN SPRAY PUMP CO.
211 West Julian St., San Jose, Cal.

OUR SERVICES ARE FREE
We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.
We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.
OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.
Write for Booklet.
CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco.

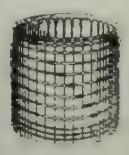
SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

LIME FOR LAND
HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

Absolute Protection Against
FROST DAMAGE
BOLTON ORCHARD HEATERS
One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.
Write for our new booklet R. P.
The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

California Native Plants
Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.
THEODORE PAYNE,
345 Main St., Los Angeles, Cal.



Redwood Tanks
I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. Wilson, Stockton, Calif.

Irrigation Machinery
Pumps-- Motors--Engines
Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION." Expert Engineers.
Three Stores to Serve You.
California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco.
31 S. Briar St., Lindsay.
AMERICAN PUMP CO.,
129 No. Los Angeles St., Los Angeles.

Mechanical Power on the Farm.

USE HILL WATER FOR POWER.

[Written for PACIFIC RURAL PRESS.]

Over in Sonoma county a farmer drained his field and flumed the water under the railroad to the steep bank of a creek. On the other side of the creek is a vegetable farm needing irrigation. The drainage water wasn't much when irrigation was needed, but the creek didn't go dry.

The vegetable farmer piped and flumed the drainage water with just a slight slope on trestles so that it would fall directly into the creek. Then he patched up an irregular wheel out of old boards and a buggy wheel. A lot of tin cans were fastened to the outside rim of the wheel and a bar fastened tightly in its center. A sort of cam wheel was fastened out on the end of this and the plunger of a little force pump fastened to it by a jointed rod. The pump was fixed to a frame pretty close to the hole dug among the rocks in the creek bed. A pipe from the pump carried the water to a tank whence it can be distributed to the garden.

The whole outfit is remarkable for its ricketyness, leakiness, and looseness of joints, but it doesn't cost much and it does supply a certain amount of water.

Now why couldn't that drainage water be handled in a workmanlike manner, losing none of it and using all of it on a waterwheel of larger diameter to give it leverage? It could be connected in efficient ways to other machinery besides pumps. One of our subscribers recently asked for information as to how he could light his house from a waterwheel.

There are thousands of our readers who live near the hills where they could build a little dam high up and run the water down by pipe to a convenient place where they could use it as a very cheap source of power. If the most efficient waterwheels are desired, they would have to be bought—simpler ones can be made at home.

In buying a waterwheel, it is well to get the manufacturer's recommendations as to size, both of wheel and pipe. You will have to supply them information to base their recommendations on. This will include:

Head or Pressure.—State the vertical distance in feet between the level of the water at proposed inlet of pipe line (ditch, flume or forebay) and the floor level where water wheel will be placed. This measurement is termed the static, or gross head.

Water Quantity. — State the amount of water available in cubic feet per minute, per second, or gallons per minute. If the quantity is given in miner's inches, state the head, in inches, to the center of the opening of the measuring box; otherwise, an exact understanding of the amount cannot be obtained owing to the different interpretations as to quantity placed on the miner's inch in various localities. For example, in some localities one inch is reckoned as equivalent to 1.5 cubic feet per minute, or 1-40 of a second foot; in others, one inch is equivalent to 1.2 cubic feet per minute, or 1-50 of a second foot.

State maximum, minimum, and average water quantity available and over what period of time is the stream flow at its lowest. Do not state the quantity as being sufficient to fill a pipe of any given diameter, as such information is unreliable. A successful method of measuring water by a weir was described in the Pacific Rural Press of Mar. 21, 1914.

Storage.—Can the water be impounded by a dam or a reservoir? If so, state the storage capacity in cubic feet.

Pipe Line.—What length of pipe line is necessary? Measurement should be made along the slope of the ground where pipe will ultimately be laid. If the pipe line is already installed, state the length of each diameter and whether wood stave, riveted, or lap-welded steel. Where a pipe line is already conveying water for other purposes, as to existing wheels, state the total water quantity that is being so used.

Driven Machinery.—The speed of, and power required, for operating the driven machinery should be specified. State if an electric generator, compressor, mill, etc., is to be driven. Where the Pelton wheel is to drive the machinery by belting, state the diameter, face, and speed of driven pulley.

Power Fluctuations. — How often does the load fluctuate and what amount of power is constantly thrown on or off?

ECONOMY OF FULL LOADS.

[Written for PACIFIC RURAL PRESS.]

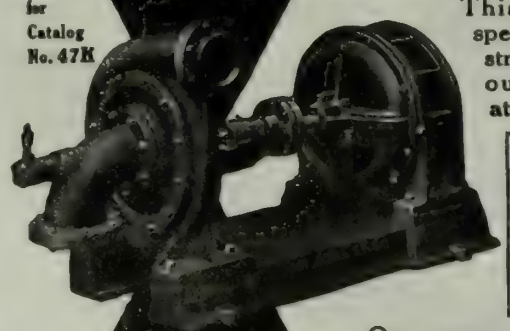
A series of gas engine tests conducted at the Wisconsin Experiment Station with engines of 3 to 6 h.p. seemed to show that the larger engines carrying a small load burned no more fuel than the small ones carrying the same load. Prof. G. E. P. Smith of the Arizona Experiment Station showed that for fuel economy, an engine should work close up to its rated load. A 10 h.p. engine should use only a pint of gasoline per brake horsepower hour actually exerted running at full load. Running at half load it uses a third more fuel proportionately to the work done. Prof. Smith's tests show that a larger proportional amount per brake horsepower hour is used on smaller engines. These tests measured not only the amount of fuel used but also the power actually exerted regardless of the manufacturers' rated h.p. The amount named indicates what a 10 h.p. engine should use. It may use a different amount if the actual h.p. does not equal the rated h.p. It will use more if the operator permits too rich a mixture, compression leaking past the piston rings, retarded ignition, unnecessary friction in any of the bearings, leaks in piping or valves, or as mentioned above, an under load.

So, for most economical use of a gas engine it would be well before buying it to decide the actual horsepower required to do your work.

To help strange autoists find their way in Fresno county during the Fairs, the supervisors have voted $1,000 to help the State Automobile Ass'n put up guide-post signs.

"Jackson MADE"

Write for Catalog No. 47K



A "Jackson Made" pump raises more water at less cost per gallon than any other pump and by its freedom from costly repairs actually pays back its first cost in a very few months. This is no figure of speech—it is demonstrated every day by our pumps actually at work.

No matter what your pumping needs may be—there is a "Jackson Made" pump ready to work for you at a lower cost than any other make.

Our expert engineers are gladly placed at your disposal for free consultation.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

INSTALL THE K-T IRRIGATION SYSTEM
SAVES WATER, LAND AND LABOR

Every rancher is continually on the lookout for the most efficient and economical means of carrying on his work. In the Southwest the most important matter to contend with is irrigation. Your irrigation system should be

Permanent--Efficient--Economical

In no system are these three essentials emphasized more than in the K-T System. The conduits are underground, completely out of the way—always clean and free, always delivering the maximum flow, conserving every drop of water. One man can do the work of many with this system. Don't experiment—the best is the cheapest in the long run.

Write for our Brown Book on Irrigation, which describes the K-T System in detail

KELLAR-THOMASON CO.
"Originators of the Valve System of Irrigating."
1234 EAST 28th ST., LOS ANGELES.

(Ask your Dealer or Contractor.)

KT KT

"Best on the Surface of the Earth"

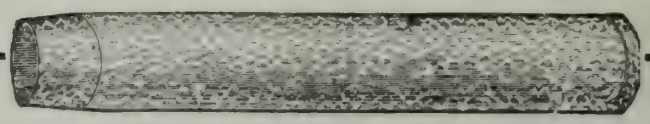
"American" Surface Irrigation Pipe

The pipe with the original double-locked turned seam—stronger—more durable—more convenient—more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character.

In lengths 10 feet 6 inches.

Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.

American Steel Pipe & Tank Co.
354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CAL.
Branch: 1228 H St., Fresno.



Biggest Stumps Pulled For 4c Each—In 5 Minutes!

Free Book

E. C. Culbreath, Johnston, S. C., does it. Thousands of others doing it. Why not you? Pull an acre of stumps a day. Double the land value—grow *big crops* on virgin soil! Get a

HERCULES

—the only all steel, triple power stump puller made. More power than a locomotive. 6 times lighter; 400% stronger than cast iron puller. 30 days' free trial. 3 year guarantee to replace, free, castings that break from any cause. Double safety ratchets. Free book shows photos and letters from owners. Special price will interest you. Write now. Address

Hercules Mfg. Co., 112 23d St. Centerville, Iowa

GRINDING GRAIN FOR STOCK.

Much interest is being shown through Arizona in the grinding of grains for livestock. As grains are the most expensive stock food in Arizona stockmen wish to obtain the maximum results from feeding them. It has been proved that grinding corn increases its feeding value about 6 per cent. This increase is not sufficient, however, to warrant a farmer's sacking the grain and hauling it to town or to a neighboring farm to be ground, states Dr. R. H. Williams, of the University of Arizona. On the other hand, where one already has a good grinding outfit of his own and can perform the work at home without extra labor, grinding may be desirable for the hard grains such as corn, millet, kafir corn, milo maize, wheat, and barley.

The principle involved in grinding grains is to pulverize the food materials so that the digestive juices may act more completely and also to save the animal the work and energy required to digest and eliminate it. Thus, grinding grains enables an animal to consume more roughage or bulky foods. Where maximum results are desired without regard to the cost, grinding grains may assist one in reaching this end. If one wishes to force dairy cows for a high record of milk and butter fat or obtain maximum gains with grow cattle or hogs, ground grains, although expensive, may be used. Old animals, dairy cows and hogs, and horses that are being worked hard sometimes make grinding profitable, but the extra cost of preparing the food for sheep, beef cattle and idle horses will not pay for grinding the ordinary grains. It is well to remember that better returns will be made from feeding a balanced ration to live stock than any other method of feed preparation, such as shelling corn, grinding, soaking and cooking grains or chaffing hay.

CARPET CLEANER ON AUTO.

[Written for PACIFIC RURAL PRESS.]

An automobile, a gas engine, and a carpet vacuum cleaner keep J. B. Maxwell of Butte county tolerably busy through the winter season after the first rains lay the dust so that housewives are ready to clean up.

He has put a little platform on the back of his Ford machine, mounted a 3 h.p. gasoline engine on that beside an air pump connected to a vacuum cleaner by means of a hose some fifty feet long. The hose is made of rubber, re-enforced by a spiral flat steel and may be extended by means of extra joints. The pump will produce what Mr. Maxwell calls a 20-inch vacuum. This is altogether too strong for use on carpets so he regulates the vacuum by the speed of the engine; he shuts off part of the mixture so that only 10 or 12 inches of vacuum are used on heavy Brussels carpets and only 5 on ordinary old carpets.

He had all kinds of trouble at first because old pieces of carpet persisted in parting company and going along with the dust into the tin tank, which is provided for the dust, on the automobile beside the pump.

During the summer, he drives out to the wells on his ranch, hitches the engine to a 2½ inch centrifugal pump, and irrigates his place.

The gasoline used is estimated at three gallons per eight hours.

SHORT LIFT CENTRIFUGAL.

To the Editor: What size of centrifugal pump will a 2 h.p. gas engine run economically with a lift of only 1½ feet?—Subscriber, Hanford.

[Answered by Robt. Schuman of Byron-Jackson Iron Works.]

[The low lift against which you propose to operate your centrifugal pump necessitates running it at a low speed, say about 600 revolutions per minute, and therefore, to get the most efficient plant you should use a larger pump than if the lift were greater and the pump could be run at a greater speed. We should recommend the use of a 4-inch Byron Jackson, Fig. 50, Horizontal, Centrifugal Pump, which will give you about 400 revolutions per minute without overloading your 2 h.p. engine. We are estimating that although your static lift is only 1½ feet your total lift, including friction and velocity head losses, will be between 4 and 5 feet.]

HOISTING BARREL OF OIL.

[Written for PACIFIC RURAL PRESS.]

To hoist a barrel of oil or molasses or cider on its side, high enough to draw its contents conveniently through a faucet in its end, is always a tax on back muscles. Anyhow it's inconvenient by ordinary methods. To make it easy enough for any one to do and to locate the barrel back in a corner out of the way, a firm back East has designed a simple contrivance. A bar suspended from the cross of an X-shaped stand, has a tip on its lower end to shove under the edge of the standing barrel. The barrel is then tipped over onto the X and a little foot pressure on the upper end of the bar brings the barrel over to a horizontal position resting at convenient height. The X legs and what was the upper end of the bar, rest on the floor. The X legs are provided with casters so the barrel of oil may be moved easily.

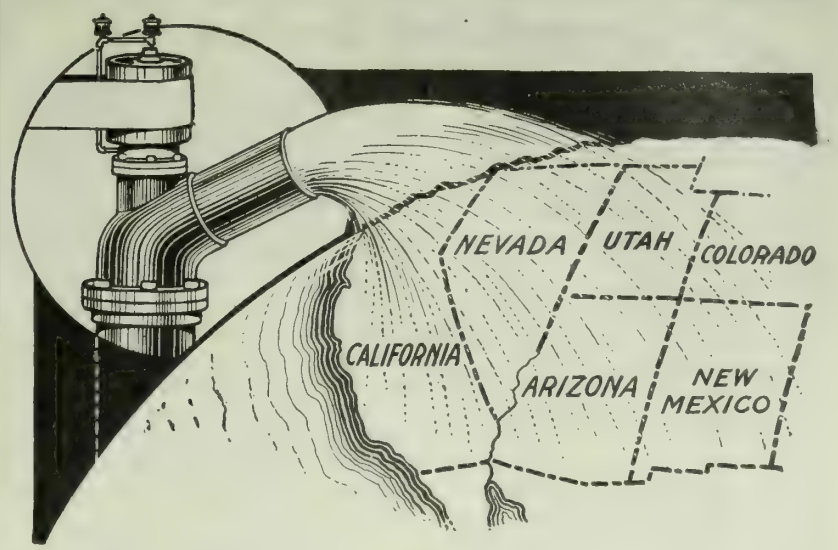
NOTES.

Fertilizers may be used to advantage:

Troubles in figuring auto horsepower are to be ended by the Legislature if the Governor's wish is carried out. Those who have schemes are invited to submit them to Gov. Johnson or to the motor vehicle department at Sacramento.

The horseless age must be a coming fact when a quadruped colt mistakes a gas wagon for his mother. Yet this is said to have happened in Oroville where the colt deserted his mother to follow the auto, and would not be comforted till he was led back to her after following the auto about town.

Cross-State highways are planned both in the north and in central California. Representatives of Lassen, Modoc, Siskiyou, Shasta, and Trinity counties have urged the State Highway Commission to build a good road 322 miles from Alturas to Eureka. It would be a great scenic road and would open a great country to settlement which would naturally market its products through Sacramento valley. To connect the State Highways at Gilroy, Santa Clara county, and at Califa in Madera county, an appropriation of $150,000 is asked in a bill now before the legislature.



"The Layne & Bowler Pump Waters the West"

Mr. Rancher: How About Your Irrigation Problem?

Don't make the mistake so many make and let your irrigation problem drag along until you find you're losing money. You'll never save anything by waiting. Right now is the time every thoughtful rancher is preparing for the irrigation season. Our water engineers are ready to assist you in solving your irrigation problem for all time. Write us your needs—also ask for Booklet No. 25 on pumps and irrigation. It's free.

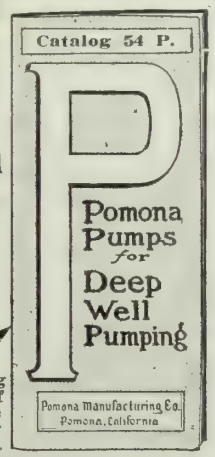
Layne & Bowler Corporation

900-910 Santa Fe Avenue, Los Angeles, California

Irrigators

Who are Interested in Lifting Water from Deep Wells Should WRITE for This BOOK

When writing state the depth of your well and be sure to ask for Catalog No. 54 P.



Pomona Deep Well Pumps

have been built and sold in California for over 12 years. Hundreds of buyers will tell you they are always reliable and economical—delivering the maximum volume of water with the least trouble and expense.

We also make a full line of irrigation valves and gates for cement pipe irrigation. Ask for special valve booklet.

Pomona Mfg. Co.

POMONA, CAL.

LOS ANGELES OFFICE: 930 Investment Bldg., Cor. 8th and Broadway.

Luitwieler Pump

With Heart-Shaped Cams of Everchanging Radius—Giving a Steady, Even Pressure to the Water Delivery.

In ordinary pumps the plunger varies in speed, causing jar, vibration and strain, which greatly lowers the efficiency and lessens the life of the pump. But with the **Luitwieler Pump** there are none of these troubles. The cam has an even changing radius, resulting in a perfectly even application. Less power is required, and the efficiency is greater. We have yet to hear of a "worn out Luitwieler." Write for Catalog No. 12.

Luitwieler Pumping Engine Company

713 North Main St. Los Angeles, Cal.

San Francisco Agents: Simons Machinery Co., 117 New Montgomery St.

Agricultural Review

CITRUS FRUITS.

A seedless lemon tree is growing at Fair Oaks. It is also thornless.

The orange picking in the Fair Oaks section in Sacramento county is about completed. Most of the gorwers there believe in the new Government standard of maturity.

Shipment of frozen oranges will be restricted to those which show less than 20 per cent frost damage unless the boxes are labeled "Frosted," if the bill in the Legislature passes.

Tulare county, which last season fumigated a great many orange orchards for the new gray citrus scale, is now having to collect the costs from some of the owners by lawsuit.

Owing to the shipment of green, immature oranges, the demand for Fair Oaks' oranges in the East this season is said to be lessened. The growers are receiving less than a fair price on the good fruit that remains.

The lemons, which have been growing on the Capitol grounds, are being preserved in boxes of sawdust in the Capitol basement. Those picked last September are still in good shape.

The eight to one test, which began operation for the maturity of oranges shipped out of the State this season in Tulare county, is the basis of a bill presented to the Legislature to make it legally applicable to all interstate and intrastate shipments. The law proposed in the Legislature compels oranges to show 50 per cent of orange color before they may be shipped. Sweating to bring out the color is forbidden.

OLIVES AND NUTS.

Forty acres of Mission olives are to be planted by J. C. Martin near Palermo this spring.

About 500 acres of Shasta county have been cleared for olive planting this season.

Near Pennington, one man is setting out 6000 almond trees. This makes a total of over 700 acres in this vicinity.

Olives grown by a farmer in Shasta county on eight trees were pickled by himself and he estimates the value in that shape at $15 per tree.

Dr. Leon D. Batchelder of the University of Utah is to take charge of the walnut investigations at the new School of Tropical Agriculture at Riverside.

The Moorpark Farm Bureau Center of Ventura county recently started the organization of the Simi Valley Walnut Association to affiliate with the State organization.

Despite the large importations of foreign walnuts, California walnuts are all but one-sixth sold and there is no doubt but the rest will go in a few weeks. Eastern buyers held back expecting the foreign nuts; but when they came their inferiority opened the market for California.

The Ehman Olive Co. is setting a good example in the Happy Valley, Shasta County, by using fertilizer on its olive orchards there. They used 95 tons of powdered lime last year, bought at the lime works in Kennett. The orchardists in Happy Valley are learning to use more and more commercial fertilizer.

DECIDUOUS FRUITS.

About 10,000 trees have been imported from outside the State and Japan into Sacramento county.

In Sutter county prunes, peaches, and walnuts are taking the lead in the order named for planting.

Apricots comprised about half of the 50,000 trees received by the Hollister valley orchardists for planting this season.

About 3,000 pear trees have been ordered to be grubbed out by the Horticultural Commissioner of Sacramento county on account of pear blight, which the owners have not taken sufficient steps to remove.

The "Cannery Day" held by the Grass Valley people last week in order to dispose of the large stocks of canned fruits and vegetables in the hands of the retailers there had admirable support by the people, who nearly cleaned up the shelves, especially of canned vegetables. The merchants propose to make this an annual event.

Horticultural Commissioner Stabler of Sutter county estimates that over 1500 acres of deciduous trees will be planted there this season.

More deciduous fruit trees have been received in Tulare county for planting this season than Horticultural Commissioner Collins ever knew before. A large percentage of these are prunes.

While a number of farmers of Live Oak were at the depot to receive trees bought from nurseries away from home, a large number of heavy bales from the local nurseries were waiting shipment to outside parties. This looks like either poor salesmanship or an imitation of the old saying, "A prophet is without honor in his own country."

Large deciduous plantings are reported in Sacramento county; peaches, pears, prunes, and almonds being the most important in the order named. One orchard is to have 1,000 Bartlett pears, 1,200 Tuscan peaches, 400 Phillips clings; another will have 8000 Tuscans and Phillips and 2,000 pears; another will have 11,000 peaches (one-half Tuscan and one-half Phillips), 3,600 French prunes, and 2,000 almonds; another will have 1,200 almonds; another will have 1,000 plums; another, 2,000 Phillips, 2,000 Tuscans, and 1,000 Bartletts; 1,000 pears and 800 Phillips will be set on another, and 1,000 Tuscans and 800 Bartletts on another.

SEMI-TROPICAL FRUITS.

March 20, has been selected as California Orange Day by representatives of southern California civic organizations, and it is planned to make this day an annual event in California.

It is anticipated that there will be an output of 43,000 cars of oranges and 6000 cars of lemons from California this season. The crop now coming on the market is the finest fruit ever seen at this time of the year.

A resolution was introduced in the House last week by Assemblyman Avey, extending the thanks of the State to Frank Chase for his work in behalf of the citrus industry. He is the inventor of a device to separate sound and unsound citrus fruits.

GRAPES AND BERRIES.

Fresno county is reported to have produced about three-fifths of the entire raisin crop of California. The Fresno share amounts to about 54,000 tons.

Muscat raisins for California this year amounted to about 60,000 tons; Thompson seedless, 18,000 tons, and Sultanas, about 9,000 tons.

A raisin growers' meeting was recently held in Dinuba for the purpose of increasing the number of contracts

PROFESSIONAL DIRECTORY

SYMMES, MEANS AND CHANDLER
AGRICULTURAL ENGINEERS
Agricultural Investigations, Drainage, Legal Engineering and Water Right Reports, Alkali and Marsh Land Reclamation, Appraisal of Irrigation Systems, Management and Development of Lands, Ranches and Irrigation Projects, Soil Surveys.
58 Sutter St., San Francisco, Cal.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco
Irrigation and Drainage, Land Examinations, Agricultural Developments, Farm Improvements and Management and Soil Surveys
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determinations and corrections. Determination of crop adaptability. Management and development of agricultural lands. Small farms planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO.

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Macabee Gopher Trap

Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by
Z. A. MACABEE, Los Gatos, Cal.

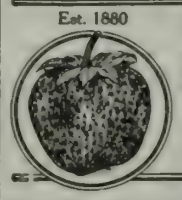
Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.
OUR FRANQUETTE and SAN JOSE MAYETTE TREES
Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.
Ruehl-Wheeler Nursery
163 South Market St., San Jose, Cal.
Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco.
CALIFORNIA SEED CO., 151 Market St., San Francisco.
SUNSET NURSERY CO., 92 41st St., Oakland.
VALLANCE BROS., 31 Glen Ave., Oakland.

Beautify Your Home
FLORA FERTILIZER

spread on the lawn and around the flowers. For your spring planting of berries and vegetables — just the thing.
A 5-lb. can enough to cover a lawn of 200 square feet. At your seed store or florist's — 50c, or sent direct by parcels post, to any address in California—60c. Send money order, check or coin.
Write us for our prices on complete fertilizers. Nitrate of Soda, Bone Meal, Potash Salts, Superphosphate, etc.
Pac. Bone, Coal & Fertilizing Co.
203 Clunie Bldg., San Francisco.

STUMP PULLERS
CALIFORNIA STUMP PULLER COMPANY
704 Bryant St., San Francisco

Est. 1880

STRAWBERRY PLANTS
true and tried variety only--large, jucy fruit, good sellers, demand always great--35 years of reliability
New Catalogue Free
J. A. BAUER, 7 Judsonia, Ark.
Strawberry Specialist

AGRICULTURAL LIME
HIGH GRADE MANURE
H. S. Matthews, 1623 La Loma Ave., Bkly, Cal.

Morse's
Garden Guide for 1915 is just off the press. It's a book every one should have.
Mailed Free.

C.C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Morse's Seeds
both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

igned with the Associated Raisin Co.

The Sebastopol Berry Growers recently held a stockholders' meeting, at which a report was made that over $300,000 of business was done the past year, an increase over the previous year of about $100,000.

Two raisin packing companies of Fresno have recently sold their brands, equipments, and everything to the Associated Raisin Company, making a total of five which have already done so. This is a great step toward concentrating the industry.

The varieties of berries handled by the Sebastopol Berry Growers last season were valued as follows: Lawtons, $77,000; Logans, $37,000; Mammoths, $28,000; raspberries, $6,500; and strawberries, $5,000. This includes about 3,700,000 lbs. of berries. This Ass'n is expecting to put up a cannery in connection with their shipping warehouses.

GRAIN AND FIELD CROPS.

Estimates of next year's rice crop are in the neighborhood of one and one-half million sacks.

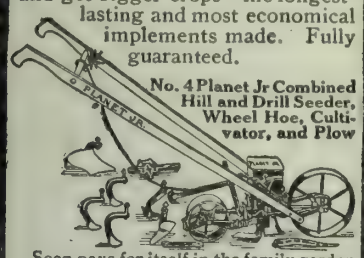
Millers in Sutter county recently paid $2.50 per hundred for a choice lot of local wheat.

Despite the high wheat seed prices, Colusa county is expecting a larger acreage to be planted than for several years.

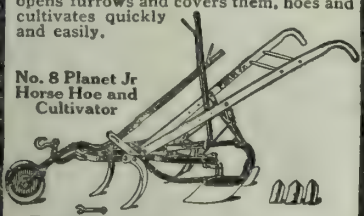
A bean growers' association is being pushed in Sutter county owing to the large increase in acreage last season.

Planet Jr. Seeder-Cultivators

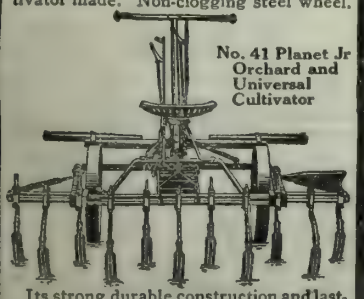
The farm and garden tools that save your time, lighten your labor, and get bigger crops—the longest-lasting and most economical implements made. Fully guaranteed.



Soon pays for itself in the family garden as well as in the larger acreage. Sows all garden seeds (in drills or in hills), plows, opens furrows and covers them, hoes and cultivates quickly and easily.



Stronger, better-made, and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel.



Its strong durable construction and lasting service make it the most economical cultivator for orchard, hopyard or vineyard. Works deep or shallow, and cultivates from 4 to 6½ feet wide.

72-page Catalog (168 illustrations) free

Describes in detail over 55 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Send postal for it now.

S L ALLEN & CO
BOX 1203F PHILADELPHIA PA
We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast Cities.

Since the war began, San Francisco has seen the export of $9,000,000 worth of barley; about $2,000,000 worth went out last month.

About $635,000 worth of sugar beet seed has been recently bought in Germany for Colorado growers through the co-operation of the United States Government.

Thirty sacks of adobe and some fancy rice seed has been shipped by the Biggs Chamber of Commerce for a miniature rice field to be set up at San Diego.

The Italian Government recently ordered 20,000 sacks of pink beans from a Los Angeles company. Ventura bean growers expect to have a large hand in filling this.

A standard hundred-pound sack of beans has been promulgated by the bean buyers for the entire state. The common 80-pound sack will be discontinued.

A number of the growers warehoused their grain and Egyptian corn last fall on the advice of the local bank at Riverdale and are now receiving the benefit of the high prices.

The Terra Bella Fruit Growers' Association has found that its estimated cost for canning fruits and vegetables of 70 cents per dozen had been actually reduced to 65c. The difference goes into the pockets of the growers.

Canadians are inquiring of the Kerman Stock Food Co. in regard to their prices on alfalfa meal.

The largest rice ranch in the State is being plowed and seeded by J. M. Sward in Kern county. It consists of about 1,280 acres. He has traction engines and teams at work and recently received the first rice harvester to be sold south of San Francisco.

MISCELLANEOUS.

The Ventura County Fair is to be repeated next year. They have a balance of $1900.

The Chico Business Men's Ass'n. is planning a paved road to the Sacramento river and the building of a wharf there.

According to the Census Statistics, the percentage of illiteracy in certain European countries is higher than in the United States, while in others it is considerably lower.

A new division of the State engineering department to supervise the construction of county highways throughout the State and give whatever advice is desired, is proposed in a bill in the Legislature.

Although the production of Burbanks in Salinas was below normal last season, the growers netted $100,000. The Martin Bros. near Castroville had the greatest yield, raising 20,000 sacks of Burbanks.

Acting upon authority granted by the Legislature, the Board of Prison Directors at Folsom met and reduced the price of jute bags manufactured by the prisoners in San Quentin from 8½ to 6c.

The installation of one of the largest working exhibits at the Exposition was completed last week when the various types of machinery and farm implements being exhibited by the International Harvester Company of Chicago were set in motion.

Ten tractor outfits are working night and day seeding 800 acres per day for Natomas Consolidated. The total planting will be 25,000 acres.

From George Washington to Grover Cleveland

PURE IRON COFFIN NAILS
UNHARMED BY RUST AFTER A HUNDRED YEARS

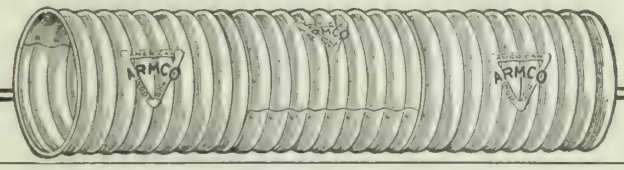
On the 6th of November, 1792, when George Washington had been elected President for his second term, one of the veterans of the Revolutionary Army was buried in the Cemetery at Fort St. Clair, Ohio. One hundred years later, within a day or two of the election of Grover Cleveland, this grave was opened. The nails which had been used in making the box were found to be as good as new. Chemical analysis showed that they had not rusted out because they were made of iron that was 99.83 *per cent pure*,—containing hardly more than a trace of Manganese, Sulphur and Copper.

ARMCO AMERICAN INGOT IRON CULVERTS

are made of iron even purer than these nails, every sheet or plate being guaranteed to be at least 99.84 per cent. Pure Iron, and the average actual purity being over 99.87 per cent. It contains altogether not more than 12 to 16 one-hundredths of one per cent. of Manganese, Sulphur, Copper and all the other impurities which cause steel and ordinary iron to rust in a short time to complete failure. Properly installed, these culverts give service for an immensely long period, and this without any repairs or attention.

It is because of their Lasting Quality, their strength and toughness and their adaptability to the requirements of highway construction and maintenance that road builders and engineers everywhere are now specifying Armco Culverts with the triangle trade-mark on every section. *Look for this brand on the culverts that go into your highways.*

There is a manufacturer in your vicinity. Write him.



Little Stories of Success

No. 2

The real record of records goes to Hansen Bros., of Rio Vista, Cal. We quote their letter verbatim:

"The 75-horsepower, 30-inch track Caterpillar No. 2108 we purchased from you May 15th, 1914, ran 45 days in harvest, pulling a 26-foot cut Holt Harvester that we had used 40 horses on, previous to purchasing the Caterpillar.

"We harvested over hills that had from 10 per cent to 48 per cent grades. The Caterpillar works up or down hill or around the hill just as well on account of the two-speed gears.

"In spite of the terrific strain when working on the hillsides, the track never gave us any trouble—no wear on the truck wheels and they never once left the track. The tracks never slipped, even on the steepest grades.

"We averaged over 40 acres per day using 45 gallons distillate and one gallon oil per day.

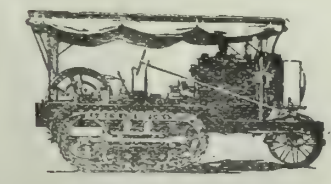
"Our engine is in A No. 1 condition and ready to go ahead with the fall plowing without a cent of repairs."

Ten years have brought the Caterpillar to the point where it will stand a whole lot of hard knocks without going to pieces.

THE HOLT MFG. CO.
(Incorporated)
Stockton San Francisco Los Angeles
Both Expositions San Francisco and San Diego

CATERPILLAR
Reg. U.S. Pat. Off.

Don't say Caterpillar unless you mean Holt!



ALFALFA NITROGEN AVAILABLE.

Experiments in availability of organic manures have shown that in the case of the more active fertilizers the nitrogen was promptly ammonified and passed readily into the form of nitrates. Taking the sum of the ammonia and nitrate nitrogen to represent available nitrogen, it was found that four-fifths of the nitrogen of blood and bone was converted into available form within four months under suitable conditions of moisture and temperature. About 50 per cent of the nitrogen of alfalfa was also made available in four months. Only 1.36 per cent of the nitrogen of leather became available in that time, and this occurred only under the more moist conditions of soil. There was an actual loss of available nitrogen in the case of oat straw.

Fungicides are more preventive than curative.

Giving the Hog a Chance.

[Written for PACIFIC RURAL PRESS.]

Give a hog a chance and he will make you money is the principle that has won success for John Daggs of Stanislaus county and incidentally gained him satisfactory financial returns on a 30-acre ranch.

When the Daggs family moved to Modesto 10 years ago they bought the local race track and the land adjoining, 100 acres in all. The rents for the stalls and other charges paid by horse owners for training privileges was to be their chief source of income, with a few hogs along as a side line.

The result of this plan was that many of the horsemen forgot to pay their bills and the hogs more than paid theirs, so after two years of such experience it was good-bye, Mr. Race Horse, and welcome, Mr. Pig.

There was too much land for hog purposes alone, however, so a part of it was sold for farming purposes to others. One advantageous part of the old track was the horse stalls, and a goodly part of these were loacted on the land reserved.

Some Pigs Taking a Chance.

The first venture on a commercial scale into the hog business was feeding stock hogs. This came about chiefly on account of a contract that was made with the local creamery for a large supply of buttermilk, at one time the amount running up to 800 gallons daily. That with alfalfa and a little grain for finishing made up the ration and the hogs were bought from anybody who wanted to sell.

While some money was made in this venture, the owners were not satisfied that they were getting all there was in the business, so they experimented in buying sows and selling them after farrowing time.

That, according to Mr. Daggs, was far more profitable, the practice being to buy young sows all over the country and breed them to purebred Duroc Jersey boars which were kept on the ranch. The sows were held till after farrowing time, at which time they and the pigs were sold at exceptionally good prices, as pork reached the high water mark of 11 cents that year, and to quote Mr. Daggs, "The buyers sat around the fences like a bunch of blackbirds waiting for the sows to farrow and offering us a price far in advance of what their keep had cost us."

These were all farmer buyers who would rather have a live pig at a good price than several still unborn at a cheap price. That principle still holds true in Stanislaus county, and it is Mr. Daggs' opinion that any man with thirty sows and a good boar could make a handsome income by selling the pigs at two or three weeks old, or in other words, of running a farm piggery where other farmers could secure fairly well-bred pigs at from two to three dollars apiece at weaning time.

Seeing the demand for pigs, and especially those which had been sired by the purebred Durocs, decided Mr. Daggs on a new branch of the industry—that of breeding purebred hogs for breeding purposes. The start in this line was made by the purchase of three sows and a boar from a farmer who had just recently imported the stock from Indiana, at which place they had made good winnings in the show ring.

Gradually a trade for this latter stock began to be built up through advertising and showing at the State Fair, and as conditions warranted it, the herd was added to by purchases of gilts from other breeders and careful selection of the sow pigs raised on the ranch. With the establishing of this business the difference in returns over those received with the grade stock was so enlightening that Mr. "Common Pig" gave way entirely to the aristocratically bred animal, for what was the use of furnishing feed to a scrub pig when a good one ate no more but returned about twice the profits?

While the kind of hog being raised changed, the feeding ration remained about the same as at the start, the buttermilk proving highly satisfactory, together with alfalfa and a little rolled or ground barley, and even yet a trip is made every other day to the creamery at Modesto where a tank of 200 gallons of buttermilk is secured. This is fed in troughs at the buildings, which, by the way, are the only evidences of the old race track left, together with the grain ration and alfalfa pasture which is available at all times.

The average number of brood sows now kept is about 12 head, but the young stock on the ranch brings the total number always on hand up to from 60 to 120 head.

Brood sows are never bred before nine months of age and this is where Daggs first starts to give the "hog a chance." He doesn't believe in breeding immature sows nor in using boars at too early an age. He does believe in caring for the sow after she is bred and particularly just before farrowing time, for big litters are his hobby and every precaution is taken to give the unborn pig a chance.

Two weeks before farrowing the sow is taken from the field and put in one of the stalls of the former horse sheds. The roofed space in front of these stalls, after being enclosed with a panel fence, allows each sow plenty of room for exercise as well as protection from the weather. These sows are fed a ration of skim milk with a gallon measure of barley twice daily. This ration develops a good milk supply in the sow and is continued till the pigs are weaned, as any change in the ration while suckling is apt to start scours or other complications with the pigs.

While the sow is farrowing her pigs, as well as for the first week after, especially with heavy sows, attention is given them almost day and night, for it is then that the heavy losses through squeezing, etc., occur. After that the ordinary pig will take pretty good care of himself, and that the care given pays well is shown by the fact that the average number of pigs grown to a selling age last year was 18 head to the sow. Naturally the prolificacy of the Duroc breed had something to do with this average, but care was a big factor. Two litters a year is the rule, one in March and one in September, those times being best in the San Joaquin valley on account of the weather and feed conditions.

As soon as the pigs are past the danger mark of overcrowding an opening is left in their pen which allows them access to the big hog feeding lot, where they learn to eat pie melons, pumpkins and alfalfa pasture. During this time they are also allowed to eat of the buttermilk and barley out of their mother's trough and by the time they are weaned at three months of age they are well able to take care of themselves and go right ahead gaining weight and bone.

Heretofore a hit or miss system of cropping the land has been practiced, alfalfa being the main feed crop grown, that part of the crop which was not pastured off by hogs being sold as hay, but with the cheap hay prices prevailing the last year, it has been decided to use a rotation system which will allow of growing the major portion of the grain as well as the forage crop.

Part of the alfalfa has been pastured for two years and is now in poor condition for yielding heavy crops, due to continual rooting of the hogs. This will be plowed up and seeded to either barley or the new sorghum feterita, the latter having been successfully grown the past season and also having proved a valuable feed for hogs.

These crops will be either harvested or hogged down as the occasion may demand, and after continuing this cropping for two years the land will be again seeded to alfalfa and another field plowed up for the grain crops.

With this system of raising the feed and the above described manner of "giving the hog a chance," Mr. Daggs believes he will be able to make more actual money out of the hog business than he could in any other line of farming, and his success in the past would seem to warrant intending breeders following closely in his path.

Do you buy creamery butter and wonder what makes it taste different than the kind you make at home? Either you or your neighbors are responsible to a large degree for that difference. Dirty cream and good butter don't come from the same churn.

When hay is cheap as it is now, the time is most opportune to plow up that old stand of alfalfa and do a little rotating. It will aid your soil and put money in your pocket.

GRANDSONS OF TILLY ALCARTRA

At Prices Within Reach of Every Breeder and Dairyman.

A GRANDSON OF TILLY ALCARTRA.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year.. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

2-YR. OLD SHIRE STALLION FOR SALE

SEVERN DONALD 13957 by Severn Pilot 11587
DAM RIO VISTA BELLE 13100 by Stuntney Fen Duke 6399

This young horse weighs 1700 lbs. Stands over 16 hands. He will make a horse weighing a ton or more. His sire weighs 2100 and his dam 1900. This colt and his sire won the California Stallion Registration Board's Special Prize at 1914 State Fair.

For further particulars write

J. McCORMACK, Rio Vista, California

Keeping Mud Out of the Milkhouse

[Written for PACIFIC RURAL PRESS.]

Winter rains and heavy soils usually mean mud in abundance around the milk house and dairy barns, and to keep this condition from arising oftentimes requires a good deal of ingenuity on the part of the dairyman.

Finding that the heavy soil prevailing on their ranch near Los Angeles was a serious factor in the above respect, Johnson brothers have built a milk house at small expense which insures sanitation in the worst kind of muddy weather as well as in the milder weather.

This was accomplished by raising the floor of the building about two feet above the ground level with a foundation built partly of concrete and partly of loose dirt and coarse gravel.

In making the foundation a cribbing 20 feet long and 13 feet wide was erected two feet high, two 12-inch boards serving this purpose admirably. The first 18 inches of the foundation was made of the coarse gravel and dirt, being well tamped down when shoveled from the wagon. On top of this was laid six inches of concrete, the top of which was finished smooth.

The board cribbing is still in place around the foundation, holding the loose gravel intact, but this will be replaced with a four-inch concrete wall, making the entire structure more permanent.

On top of the smooth concrete surface the milk house proper was erected, being eight feet wide and 10 feet long. This was placed at the extreme edge of one side of the foundation and a space five feet wide left on the two ends and the other side of the house. This space makes a platform around three sides of the house where cans may be set. It allows easy access to an outside doorway of the building as well as to a short flight of stairs on the outside of the building where the milker carries the milk from the stable and pours it into a galvanized funnel which carries the milk through the wall and into the milk vat over the separator.

The house itself has a window on each side, screened to prevent fly trouble in the summer time, also a screened door. The separator is at one end, whence a pipe line has been laid to the edge of the concrete foundation, for conveying the skim milk into a tank cart by gravity. This is a considerable saving of time and would not be possible in the ordinary milk house built closer to the ground.

Water for cleaning purposes has been piped into the milk house and washing trays installed with which to keep utensils as well as building in a thoroughly sanitary condition.

With the aid of the high foundation and the outside platform, it is a comparatively easy matter to keep the mud out of the milk room; and when it does accumulate on the platform, a little work with either the hose or a shovel puts everything in a tidy condition.

MOLDY SILAGE DANGEROUS.

Avoid feeding decayed or moldy silage to livestock.

In some instances the feeding of such silage has caused the death of horses and severe cases of scouring in cattle.

In most cases the method of filling the silo has had much to do with the spoiling of the silage; hence, little can now be done to pevent the damage to the feed.

Experienced feeders of silage throughout the state are urging their neighbors to avoid feeding moldy or decayed silage to any class of live stock.

Where without the presence of mold, the silage is in an abnormally heated condition the adding of water may help to check decomposition. Farmers experiencing any difficulty in the feeding of silage to their stock are invited to communicate with the officers of the University Farm, where special consideration has been given to the making and feeding of silage to livestock during the past year.

SAVED HERD BY TESTING.

[Written for PACIFIC RURAL PRESS.]

While some dairymen who furnish milk to our babies object to the tuberculin test, because they think their condemned cows are healthy, it is refreshing to find men like G. W. Dimmick of Sonoma county. Though not running a certified dairy, and though he feared loss of valuable Jersey cows, Mr. Dimmick voluntarily had his seventeen cows tested, because he does not want to be responsible for disease among patrons of the milk dealer to whom he sells, and because he didn't want tuberculosis in his Jerseys.

The testing probably saved his herd, for a recently purchased cow was the only one that reacted. She was immediately corralled and returned to the former owner, who refunded the purchase price. Had she remained in the healthy herd a few months, there is every chance that the others would have become tuberculous.

Mr. Dimmick expects to test every head of his cattle at least once a year.

SNUFFLES INCURABLE.

To the Editor: What is the cause and cure for snuffles in rabbits?—Mrs. G. H. H., Patterson.

[Answered by Mrs. B. H. Gilkey, Santa Rosa.]

[So many people ask about snuffles in rabbits. Experimentally I know nothing about the malady, but from all I have learned I fear very little can be done for the trouble. Indeed some people regard it as almost like tuberculosis — incurable. My judgment is: remove the cause. Take better care of your stock so as to avoid colds, and if one should display symptoms of catarrhal trouble, use the same remedy which would apply in the human family. Yerba Santa is always safe—make a tea of the leaves and mix with bread and milk or bran mash. But I don't encourage experiments with snuffles as I have never known any one to succeed in curing the trouble.]

A production of at least two hundred and fifty pounds of butter fat or six thousand pounds of milk per cow per year should be the aim in dairy farming.

First Annual Consignment Sale

OF REGISTERED

Percheron-Shire-Belgian Horses

To Be Held at the

UNIVERSITY FARM, DAVIS, CAL.

Feb. 24, 1915

SALE COMMENCES AT 1 P. M.

This sale has been inaugurated by the Draft Horse Breeders' Association, and is the first step towards the development of a better market for pure-bred draft horses in California. It will be an exceptional sale in many respects, but particularly in the effort which is being made to protect the buyer.

Free Examination by Veterinarian

In the first place, the rules laid down by the Association bar all unsound horses from the sale, and every breeding animal is accompanied by a signed statement from the consignor, showing clearly the horse's breeding ability. There will also be in attendance at the sale a member of the University of California's Veterinary Staff, who will examine any horse upon request.

From Breeder to Buyer Direct

These precautions will make the sale a perfectly safe place to buy a horse, even for the inexperienced, and by bringing to a centrally located place, a large selection of stallions and mares of the three-mentioned breeds, the buyer is given an opportunity for comparison and choice, which is not often available and it will certainly be a good chance to buy either a stallion or a mare at breeder's prices.

Watch next week's advertisement for full particulars as to entries. Catalogs sent on application to

J. L. THOMPSON, Sec'y Draft Horse Breeders Assn.

UNIVERSITY FARM, DAVIS, CAL.

With the Live Stock Men

DAIRYING.

T. J. Gilkerson has brought home three purebred Holsteins bought at auctions in the East.

A. J. Arfstein and A. J. Peterson, Sonoma county dairymen, have traded for a 160 acre dairy ranch near Modesto.

Manipulation of butter and milk markets is to be prevented, by State law, if possible.

The most modern city milk handling equipment possible is being installed in Santa Barbara.

E. E. Johnson of Turlock has sold a Guernsey bull to W. A. Brown of that city.

The new $15,000 Churchill, Nev., creamery is about complete. It is claimed to be the most up-to-date plant in Nevada. Two 400-gallon cream pasteurizers will be used.

The Dairyville Cheese Factory, recently tentatively sold by the Dairy Ass'n, is to be started in operation next week to put out 500 pounds per day.

James Riles of Tulare recently sold 10 high-grade Holsteins at $150 per head to Dr. F. M. Pottenger of Monrovia to supply the latter's sanitarium.

The new dairy house at Napa State Hospital has been completed with a capacity of 200 cows. The Sharples Vacuum Milking Machine Co. has offered to install electric milking machines on 60-days trial to milk 40 cows per hour. Two men will attend the machines if they are installed.

Six grade cows are to be chosen from each of the following California counties — Stanislaus, Sonoma, Kings, Yolo and San Mateo—to be working exhibits at the Panama-Pacific. They will be milked at the same time, fed at the same time, watered at the same time, and the butter will be churned with regularity. There is to be no competition, but the record of each cow will be kept in every detail of feed and product.

The College of Agriculture of the California University is in charge, and expects to demonstrate:

That in California feed may be obtained at half the cost of the East;

That the care of the animal is cheaper because of the climate;

That the produce brings from 20 to 40 cents a hundred more here than in the East; and

That 20 per cent of the cows the dairyman keeps do not pay interest on their investment.

HORSES.

The Altamont Horse Co. sold the imported Percheron stallion Calino at public auction to Max Berlin of Livermore.

Henry Wheatley has consigned to the University Farm auction sale the grand champion Shire of the 1914 State Fair.

Mr. Pike, manager of the Whitehall Estate, informs us that he has consigned three purebred yearling Percheron colts to the horse auction sale to be held Feb. 24, at University Farm.

SWINE.

J. P. Daggs of Modesto reports the sale of 12 purebred Durocs the past week and 2800 pounds of seed feterita, a grain which he admires as hog feed.

Shipments from the East being cut off on account of foot and mouth disease, have made a brisk demand for homebred breeding stock.

The Grapewild Farm of Mayhews recently sold nine Berkshire sows and a boar for $1350 to J. C. Anderson of Los Angeles.

The Woodland High School Agricultural Club boys are to enter another contest raising pigs for the State Fair. All hogs entered will be registered purebreds.

E. E. Johnson reports the following purebred Duroc sales: Three bred gilts to H. P. Taylor, Porterville; one Duroc male to A. S. Johnson, Oroville; one Duroc male to Richvale Land Co., Richvale.

It took two days to vaccinate the 600 hogs E. C. Haney is fitting near Hanford for the Alaska Packers' Assn. The hogs were thrown in a V-shaped trough for the injections. Part of them will be shipped north in March.

Chester White of Lakeport reports the loss of two hogs from cholera. The rest were immediately vaccinated and moved to another pen. This is the first outbreak in Lake county and it is to be hoped that it will not spread.

SHEEP.

Peterson Bros. of Los Banos were recently driving a band of sheep to Los Banos when the animals ate some wild tobacco along the road and 700 died.

Arrangements have been made with the National Wool Growers' Association for the services of Mr. Ritch, wool expert of Australia, for a series of lectures and demonstrations at the University Farm several days during the second week in February. The Australian system of marketing wool goes farther than the mere classification of fleeces, involving what is known as "skirting" of the fleece, that is, a separation into its finer and coarser parts, wool of similar grade being baled together for market. A recent demonstration at the Wyoming Agricultural College, which was attended largely by Wyoming sheepmen, has been characterized by those attending the meetings as the most successful thing of its kind ever given in that region. As a result of this work, several of the big sheepmen are now erecting shearing sheds after the Australian plan and will grade their wool for market this season after the plan advocated by Mr. Ritch. A most cordial invitation is extended to the wool growers of the State to take advantage of this opportunity to learn what Mr. Ritch has to teach of Australian methods of marketing wool. A statement of program with definite dates will be announced later.

MISCELLANEOUS.

Chicago has lately shipped another carload of cattle infected with foot and mouth disease to Philadelphia.

To reimburse farmers for animals slaughtered to stop foot and mouth disease, the U. S. Senate has adopted a bill appropriating $2,500,000.

"Every kind of meat is going higher," says C. O. Robinson of Clay, Robinson and Co., the biggest firm of livestock commission men in the Chicago Union Stock Yards, at Los Angeles the other day.

Receipts at Portland Union Stock Yards, week ending Jan. 28, were 1523 cattle, 3725 hogs, 4181 sheep. Prime steers sold at $8. Hogs on Monday raised the Saturday market by a jump of 15 cents to $6.80 and maintained that level, though other American markets were weak. Lambs sold $7.80, a rise, and ewes $5.75.

The spreading of rabies by infected coyotes among cattle grazing in the national forests has assumed a grave aspect, according to a report received by the forest service from the district forester in charge of the forests in Washington and Oregon. Numerous townships in eastern Oregon, it is reported, have ordered that all dogs be muzzled lest those that have been bitten by rabid coyotes develop hydrophobia and attack humans or domestic animals.

Efforts are being made by the State authorities of Oregon to stop the spread of hydrophobia by this means and officers of the forest service are co-operating in attempts to kill off the coyotes. In one county alone a loss of three hundred head of cattle is charged to rabid coyotes.

The U. S. Dept. of Agr. reports show 5,975,000 head of stock in Cal. Jan. 1. Of these, 503,000 were horses; 74,000 mules; 541,000 milk cows; 1,480,000 other cattle; 877,000 swine, and 2,500,000 sheep.

The number of exhibit packages already landed at the docks of the Panama-Pacific International Exposition by Australia has reached 2,000. All these exhibits are being installed inside the Australian pavilion. The exhibits from New Zealand are almost as numerous, but these are being placed in the eleven exhibit palaces of the exposition. This country is much like California.

BLACK LEG

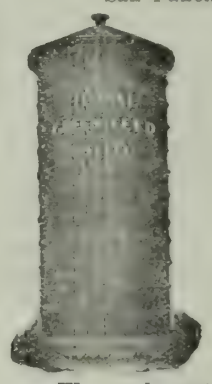
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.

What Those Who Know Say About

Ideal Green Feed Silos

San Luis Obispo, Jan. 28, 1915.

DE LAVAL DAIRY SUPPLY CO.,
San Fancisco, Cal.



Gentlemen:-

We are anxious to tell you of the good results we are having since erecting an Ideal Green Feed Silo. The corn we put in is coming out perfect silage, no waste and good to the very edges.

This amount of feed, for as you know we erected a silo of two hundred tons capacity, is going to practically double the income of our dairy.

We raise a great amount of feed in the shape of corn on a comparatively small acreage for the silo, giving the extra land to raise grain, thus cutting the expense of mill feeds to a minimum.

We can honestly recommend this Ideal Green Feed Silo to any dairyman and firmly believe a silo will prove very beneficial and remunerative to our coast dairymen. It is an insurance policy that makes its own payments and pays the amount of the policy in a short time besides.

Sincerely,
SINSHEIMER BROS.

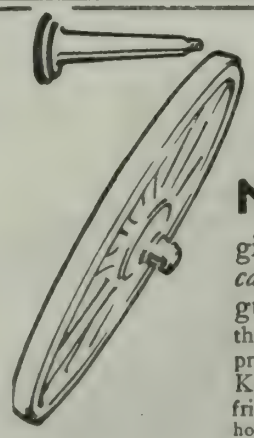
AN IDEAL GREEN FEED SILO WILL DO AS MUCH FOR YOU.

Write for special Circular B.

De Laval Dairy Supply Co.

SAN FRANCISCO, SEATTLE.

Everything for the Dairy.



MICA AXLE GREASE

gives *better* lubrication. Spindles *can't* get dry or hot—grease *can't* gum or cake. The grease itself is the best that skill, equipment and money can produce, and then—there's the ground mica. Keeps the spindles friction free. No hot boxes. Dealers everywhere.

Standard Oil Company (California)

Silage for Horses and Mules.

[By E. A. Trowbridge, University of Missouri.]

The satisfactory results which have been secured from the use of silage as a part ration for dairy cows, breeding beef cattle and fattening steers have suggested possibilities as to its value for horses and mules. It has been fed to these classes of live stock to a greater or less extent, on many farms.

During the winter of 1910-11 the Missouri Agricultural Experiment Station fed corn silage to yearling mules. The object of the test was to secure information as to how much silage yearling mules would eat and the value of silage in the ration. Ten head of yearling mules averaging 652.2 pounds at the beginning of the trial were fed ninety days on an average daily ration of 6.5 pounds of ear corn, 8.6 pounds of mixed hay and 4 pounds of corn silage. The corn was of good quality and the silage and hay were of a medium grade. The mules made a gain of only 4 5-6 pounds during the period. No ill results were seen from the use of the silage but the mules did not consume large quantities of it. This may have been due to the fact that the silage was made from rather immature corn.

At the Pennsylvania Exp. Sta. Cochel fed draft weanlings for a winter period of 168 days. During the first 75 days of this period the daily ration was 5 pounds of grain mixture, 8.2 pounds of silage and 7.4 pounds of hay. After that time the grain was increased to 7.5 pounds and the hay to 13.1 pounds. The silage was discontinued. The weanlings made a satisfactory gain and came through the winter in good condition.

In a test at the N. C. Exp. Sta. extending five weeks, 30 pounds of corn silage was substituted in a balanced ration for 15 pounds of oat hay and fed to 1250 to 1300-pound horses. Both rations produced slight gains. Later the oat hay was replaced by an equal amount of clover hay for a period of four weeks. The silage still served as a satisfactory substitute for the hay. Corn silage was compared with various other roughnesses for horses and mules at farm work. The data presented shows that two pounds of silage was substituted for one pound of hay. As much as thirty pounds of corn silage per head was fed daily. When fed as a part of the balanced ration the results were very satisfactory.

At the Penn. Exp. Sta. fattening horses, averaging 1500 pounds in weight, were fed a ration of approximately 17 pounds of corn silage, 14 pounds of grain and 10.5 pounds of hay for 84 days. They made slightly less gains but ate less grain and made their gain at less cost than did horses which received no silage. The silage-fed horses had better coats than did the horses which received no silage.

There is little question but that corn silage can be used more extensively as a part of the ration for horses and mules. Horses have much smaller stomachs, proportionately, than have cattle, consequently they are not so well adapted to the consumption of large quantities of roughness but must have their food in somewhat more concentrated form.

Silage is a succulent feed and serves a valuable purpose in supplying this variety to a ration for animals on dry feed, especially during the winter months.

Horses on a full feed of grain, either fattening or performing hard labor, cannot be expected to eat large quantities of silage. As much as seventeen pounds of silage has been fed to fattening horses with satisfactory results. Horses at hard work need a concentrated ration and should not be expected to eat large quanties of silage. Idle horses and mules, with ample time for eating and energy for digestion, can make use of much larger quanties of silage. Successful horsemen report that good leguminous hay and corn silage is a satisfactory for mature in-foal mares and that they produce strong lusty foals when fed on this ration.

A part of the roughness fed to growing horses and mules may consist of corn silage. If satisfactory gains and growth are to be secured however, grain and hay should be fed once a day. Growth and development is the best index as to the quantity of feed necessary. Corn silage which is rotten, moldy or in any way spoiled is unsafe as a feed for horses. It may cause indigestion followed by the usual serious results. Care should be taken that none but good silage is fed to horses and mules.

They should be started on silage in small quantities and with other feeds. The silage should be gradually increased and the other feeds decreased until the desired balance of food stuffs has been reached. This should be judged by the condition of the animals.

UNIVERSITY EPITOMES.

Livestock Principles.

[By Prof. G. H. True, University Farm.]

Livestock farming maintains the fertility of the soil.

Farm animals convert raw materials grown on the farm into valuable finished products.

The improvement of farm livestock is dependent upon the use of pure-bred sires.

Good breeding and individuality should be combined.

Mature breeding-stock gives best results.

Too early breeding results in under-developed stock.

Where possible, proven sires should be used.

A mother in good condition at parturition raises her offspring best.

Over-feeding often results in impairment of breeding functions.

Inbreeding is dangerous.

Different breeds of livestock are adapted to different natural conditions.

Form in animals indicates function.

It is a mistake to attempt to combine diverse uses in the same animal.

The cheapest growth is made by young animals.

Young animals should be kept growing from birth to maturity.

Exercise is important for the young stock and pregnant females.

In feeding young animals their ultimate use should be kept in mind.

Regularity in care and feeding make for best results.

Animal comfort promotes profit.

Ruminants are especially adapted to the economical use of rough feed.

Sheep keep down weeds on the farm.

Sheep are well adapted to rough grazing lands.

Good butter fat prices will not return till a better grade of butter is being manufactured. If you are selling rotten cream to the creamery don't expect better prices, and above all don't blame the importer who is really handling a first-class product.

Milo maize is immune to the head smut which gets the other sorghums in some localities. The smut spores are spread by the wind.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

REGISTERED BELGIAN STALLION for sale. Weight 2150 lbs. Apply F. Stenzel, San Lorenzo, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Hereford. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. K. W. Abbott, Milpitas, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Elverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Con, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland. Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal

REGISTERED HOLSTEINS—Auctioneer and Breeder T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle Los Banos, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J. Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Breed Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

IMPERIAL STOCK FARM BERKSHIRES.—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in state. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

COL. JACK—Thoroughly trained in sales work on registered cattle and hogs. A fast worker in the ring; an able judge, and well fitted to be your auctioneer. Has an extensive acquaintanceship on the Pacific Coast; gets face value on your animal; works on the usual terms; cries any farm sale, and can be found at 513 Exchange Building, Los Angeles, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

FOR SALE or exchange for heifer, pure-bred Chester White gilt, about 10 months old. R. Box 540, Mill Valley.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

Veterinary Queries.

[Answered By Dr. H. B. Wintringham, Graduate San Francisco Veterinary College.]

COW GRINDS TEETH.

To the Editor: I have a Jersey cow that dribbles and froths at the mouth and grinds her teeth a good deal. Her coat is in good condition, but she does not attempt to eat any grass, though she is always ready for her hay and eats it well.—A. R. P., Dinuba.

[Call in a graduate veterinarian and have him examine her mouth. There is probably a foreign body present or a bad tooth. Ulceration of the mouth will also cause this.]

IMPACTION OF PAUNCH.

To the Editor: I wish to ask if there is such a thing as a cow losing her cud, and if so, what can be done in such a case? I had a young heifer fall sick and she died, and after death we opened her and her paunch was full of hay not chewed. The lining of the stomach seemed to be eaten off. We never saw her chew her cud after she sickened.—Mrs. E. A. S., Swanton.

[Cows do not "lose their cuds." Chewing the cud is an act of remastication before food is delivered to the fourth stomach for true digestion. Your cow had impaction of the paunch. In such cases give 2 pounds Epsom salts well diluted and 2 ounces Aromatic Spirits of Ammonia every three hours until improvement is shown by the appearance of appetite and ruminature, or "chewing the cud."]

COUGHS, BUT FAT.

To the Editor: I have a cow I bought Dec. 15 and ever since the day I got her she has coughed more or less in the day time. It is a bad cough; sounds like she would cough in a tube. She eats well and has fattened up since I got her. She chews her cud as the rest of them do. She is to have her fifth or sixth calf within three months. During the last three years two parties had her and they claim she coughed ever since they got her, and that when summer or warmer weather comes she hardly coughs at all. I inquired of the Turlock veterinarian and he gave me cough syrup. He thought it possibly was bronchitis, but can that have a long standing and be cured? Would it not be liable to turn into something? The parties who had her before said that they thought it was caused from the stomach. Now I have two months to pay on her. Do you know if I am bound to keep her when she is not what she was to be?—A. Y., Turlock.

[Have your veterinarian test this cow for tuberculosis. I would advise him using the intradermal method in this case. If the cow is not as represented when you bought her, you have the right to return her and get your money back.]

SWELLING ALONG MILK VEIN

To the Editor: I have a very fine Holstein heifer 2 years old, which came fresh two weeks ago and is giving about 7½ gallons of milk per day. Just before calving she developed what at the time seemed to me to be a rupture of the navel, but a veterinarian whom I called in said it was not a rupture. Since calving the swelling spread lengthwise of the body and now extends from her fore legs to her udder along the milk vein. At the navel it forms a sac, which seems to be filled with a liquid, and the whole vein is much enlarged. The udder seems to be normal and of beautiful form. Can you advise me what to do for this condition? I have the heifer milked three times per day; but milking does not seem to relieve the vein. Do you think massaging the vein toward the udder and placing a wide bandage around the body would be of any help? She is a valuable animal.—Mrs. S. J. J., Modesto.

[Your heifer has been infected through a wound, probably a scratch. Have a graduate veterinarian lance the sac immediately to provide drainage and then syringe the cut with an antiseptic. This treatment should stop all spread of the infection. While he is doing this it would be a good plan to test the heifer for tuberculosis by the intradermal method.]

CHANGE TO HAY DRIES COW.

To the Editor: Will tame oat hay dry up a cow? The cow which I am now milking has not been giving half as much milk as she did when she was fed on alfalfa. She is getting a little dryer all the time. Now she is having the scours, which I think has some effect. She has calved three times and had her last calf in July. When first came in she gave a good lot of milk, continuing until she was fed oat hay. Please suggest cure for same.—I. D. F., Escalon.

[Oat hay will tend to dry up a cow if a sudden change is made from alfalfa to hay? In your case the oat hay is not agreeing with the animal. Discontinue same and substitute alfalfa.]

A LOT ABOUT GOATS.

To the Editor: I would like information on the rearing of milch goats. What is their period of lactation? What is the average quantity of milk given daily? Is there a market for their milk in Los Angeles and what price obtainable? Can you give me names and addresses of people having such goats for sale? What price must one pay per head? —E. C. T., Arlington.

[Answered by Geo. Langlois, Sebastopol.]

[The period of lactation with milch goats, as with cows, depends so much upon individuality, breed, feed and general care that it is not possible to give any definite period. There is no doubt that certain ones give much more milk and for a longer period if cared for by some people than by others. It is a fair to good goat that will average two quarts a day for seven or eight months, although some do for 12 or more months. The former goat would probably give two and a half to three and a half quarts per day at three weeks after kidding. One that will give more is especially desirable. The aim of all breeders should be to raise does that give at least the above amount after their first kidding. That can not be unless the animals are fairly well bred and cared for properly. Some does give more than that amount but not many give more than four to five quarts daily at any time. It is a good rule to allow does to become two years old before kidding.

There is no way of fixing steady prices on goats any more than on cows, as conditions vary so much; but in a general way would say that you should be able to purchase fairly well bred to purebred doe kids at weaning time (four to five months) from $10 to $50 or more. At a year old they will be worth from $25 to $75, depending upon their development. At 20 to 24 months of age and in kid by purebred registered bucks, they bring $35 to $100, depending upon their individuality.

There is usually a ready market in all large cities and small ones, too, for that matter, goat milk being especially recommended by many doctors for invalids and babies in particular. No doubt you could easily dispose of your product by letting people know you could supply their wants. The milk sells at various prices according to the market, 15 cents a quart being considered the minimum by most raisers, although it often sells for 20 cents or more. The demand for good goats is so much greater than the supply that I do not know where your subscriber could secure good does at this time. Perhaps an advertisement in your paper would bring him the names of people with such stock for sale.]

LIVE STOCK DATES AT FAIR.

The dates on which animals of various classes will be shown in competition for premiums in the Department of Live Stock of the Panama-Pacific International Exposition are given herewith. The entries for the several classes will close one month previous to the show dates for each class. This arrangement does not have any application to or connection with the view herds, which are maintained as non-competitive, educational exhibits throughout the entire period of the Exposition. The dates when animals of different groups will be placed on exhibition are as follows:

Horses, mules and asses—September 30 to October 13, 1915.

Cattle, beef and dairy—October 18 to November 1, 1915.

Sheep, swine and goats—November 3 to November 16, 1915.

Carlots of cattle, sheep and swine —November 11 to November 14, 1915.

Poultry and pigeons—November 18 to November 28, 1915.

Dogs, cats, pet stock and children's pets—November 28 to December 3, 1915.

Entries Are Free.—There will be no charge made for entry fees, stall rent or water in the Department of Live Stock, though a nominal fee will be charged for the cooping, feeding, watering, exhibiting and returning of poultry, pigeons and pet stock, and for receiving, benching, exhibiting and feeding dogs and cats.

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O

Oak Grove BERKSHIRES

Cholera Immune.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL.

OAK GROVE DAIRY FARM.
H. G. ARMSTRONG, Prop.
Woodland, Cal.

HOWARD CATTLE COMPANY
BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

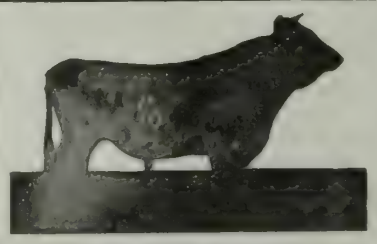
AXLE GREASE
LARGE HANDY BUCKET C&S SMALL CAN
WHITTIER COBURN CO. S.F. SOLE MFRS.

ZEROLENE

The STANDARD OIL FOR MOTOR CARS

The condition of your car after a term of service—its value in dollars and cents, is determined largely by the kind of lubricating oil you use. Zerolene lengthens the life of your car—keeps down depreciation by its efficient lubrication. Dealers everywhere

STANDARD OIL COMPANY
(CALIFORNIA)



Don Adonis of Linda Vista.

BERKSHIRES — GUERNSEYS

Our BERKSHIRES are the finest in the State. At the last State Fair we entered in fourteen classes and won ten firsts.

Stock of all ages for sale.

GUERNSEYS—We offer for sale bull calves of A. R. breeding on both sides. Some by Don Adonis of Linda Vista, whose dam, two grand dams, and two great grand dams have an average record of 714 pounds butter-fat in one year.

GRAPEWILD FARM,
A. B. Humphrey, Owner
Mayhews, Cal.

POLAND-CHINA HOGS
THE BROWNING STOCK FARM
LARGE TYPE
YOUNG STOCK FOR SALE. BOTH SEXES.
W. H. Browning, Prop. Woodland, Cal.

Mutton Sheep and Silage.

To the Editor: Would sheep raising be profitable on small alfalfa ranch near good market, and what breed would you recommend? We would expect to make production of mutton the chief aim. What would you recommend as the best silage crop on good sandy soil where moisture is rather scarce and irrigation water expensive? Would you recommend one of the sorghums or cane and what particular variety?—W. W. C., Ontario.

[There are still so many points about sheep raising in the way you propose, which have never been worked out in practice, that it is hard to tell whether such a venture would prove profitable. The only way to know for sure is to try it or find some one who has. We know of no one who has ascertained how much money can be obtained from an acre of alfalfa by raising sheep. In fact there are so many factors which would enter into the scheme, in different parts of the State, such as land values, cost of water, and yield of hay or forage to the acre, that what might apply one place would not in another locality. Theoretically and from the meager experience at hand, you should be able to keep about five head of ewes to the acre, provided they lambed in the fall or early winter months and were sold as winter or Easter lambs. If well bred and of the mutton type these lambs should bring about $4 a head at present meat prices. If properly cared for, the ewes should lamb about 125 per cent under proper conditions. So far the Shropshires have met most favor here for mutton purposes, but it is usually difficult to get purebred bucks of that breed to work early enough in the season for Easter lambing. There are so many versions of the phrase "small alfalfa ranch" that we do not know whether you could expect a reasonable revenue from the above figures on your acreage. Before going into the business, though, be sure you know something of the practice of sheep raising, for while they are easily cared for when one has had experience, they, like all other live stock, demand a certain amount of care and attention which an unfamiliar person does not think of.

Either milo maize or Kafir corn will probably be best for you to grow on account of the small amount of moisture available. Either of these makes good silage when properly handled, although neither has been deemed so valuable for that purpose as Indian corn. The former will grow under lack of moisture that would be extremely unfavorable to Indian corn.—Editors.]

WHEY AS SWINE FOOD.

To the Editor: Please let me know in your next columns what good is cheese whey to hogs? What should be fed with same for growing pigs and also what is best for fattening purposes?—F. A. H., Napa.

[Answered by Prof. F. W. Woll, Davis, Cal.]

[Whey is generally used for feeding hogs in cheese districts and makes a good swine feed when fed in sweet, or not very sour, condition. It has about one-half the feeding value of skim milk or buttermilk for feeding swine. It is safe to assume that 12 lbs. of whey will save you a pound of grain when fed to swine under sanitary conditions. At ordinary prices for grain this would make it worth about 12½c per hundred weight, which may be considered a fair average price. Whey is relatively higher in starchy substances and lower in flesh-forming substances (protein) than either of the other dairy products mentioned, and may, therefore, be supplemented by more high-protein feeds, like middlings, or shorts, and linseed meal, along with grain feeds like barley, Indian corn, ground kafir, milo, etc.

"I would recommend for feeding growing pigs on whey a mixture of ground barley, shorts and linseed meal in the proportions of 2:1:1 by weight, or of barley and shorts only, equal weights, giving 2 per cent of the grain feeds per weight of pigs and making a thin slop with the whey. As the pigs grow older the proportion of grain is increased. Fattening hogs are fed relatively less whey, say 3 lbs. per pound of grain fed, which may be made up of similar feeds as those mentioned, except that linseed meal is left out and more of starchy grains, like barley and grain sorghums, be included.]

UNIVERSITY EPITOMES.

Feeding Farm Animals.

[By Prof. F. W. Woll, University of California.]

Feeding stuffs contain three groups of components of special importance in the feeding of farm animals: 1, Protein; 2, Carbohydrates and fat, and, 3, Mineral matter.

Protein is required by the animal for making muscle and body substances of similar composition.

Carbohydrates and fat supply energy for the production of body heat and fat and for work.

Mineral matter is necessary for the building of the bone structure and for supplying ash materials in milk and other animal products.

Farm animals should receive rations containing all three groups of feed components, but the proportions of each will vary according to the kind and age of animals kept, and the character and cost of the available feeds.

The feed requirements of the animal body for maintenance must be met before production can begin; liberal rations containing a considerable proportion of feed available for production, therefore, yield the largest and the most profitable returns.

A portion of the feed of heavy producing animals should be in concentrated form.

The more important **protein feeds** in this State are alfalfa, clover, peas, beans, and various oil meals.

The more important **carbohydrate** or **starchy feeds** are wild, mixed, or grain hay, cereal grains, sorghums, and dried beet pulp. The mill feeds and many other factory by-products contain a medium amount of protein.

Succulent feeds are beneficial to milk secretion.

Alfalfa is best supplemented by corn silage and grain feeds, or both, in feeding dairy cows or fattening steers.

Grain hay is best supplemented by a mixture of mill feeds, oilmeals, and similar protein feeds.

RABBIT COCCIDIOSIS.

To the Editor: What is the cure for coccidiosis in rabbits?—Mrs. G. H., Patterson.

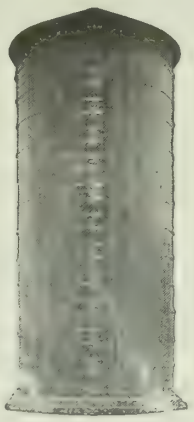
[There is no cure for coccidiosis. Prevention is the only means of combating this disease. The natural method of infection is by ingestion of food or water contaminated with the feces of rabbits affected with the disease. Young animals are especially susceptible while old animals are affected less seriously and as a rule show no symptoms, but are capable of infecting young animals by means of their feces. Separate young and old animals at the earliest moment. Destroy all visibly diseased animals. Hutches must be disinfected, kept dry and well ventilated. Particular attention must be paid to keeping their water pure and uncontaminated.]

The growing pig should be fed at least two per cent its weight of grain daily.

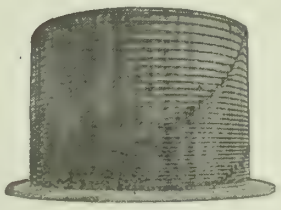
SILOS

BUILT FOR YOUR PARTICULAR NEEDS
EXACTLY AS YOU WANT THEM
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us at the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

English Shire Stallion

FOR SALE CHEAP

Pure bred, 3 years old, dark bay, heavy bone, stripe in face, weight 1820, good action.

S. E. RAILSBACK,
HANFORD, CAL.

RHOADES & RHOADES
EXPERT LIVE STOCK AUCTIONEERS

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Durocs Cholera Immuned
and
GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

TAMWORTHS

The Big Red Bacon and Block Hog. Send for prices and circulars.

COTTLE & HOBSON CO.,
Amsterdam, Cal.

WHY?

Is Napa, the best place to buy DRAFT STALLIONS.

BECAUSE

Salvador Stock Farm always has high-class stallions for sale.

BECAUSE

You can be sure of getting full value for your money.

BECAUSE

Our stallions always make good.

BECAUSE

Of the reputation of the Salvador Stock Farm for square dealing, and of the fact that we are permanently located and are always ready to stand behind all guarantees.

For full particulars address

Henry Wheatley
Napa, Cal.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by E. T. Lindley.]

This installment of my article, with the two accompanying illustrations, describes two of the many grades of inferior eggs that are the direct result of carelessless in handling before shipping, or to ignorance on the part of the producer or his local marketing agent, and will help to reveal the source of some of this seven million dollar loss.

Figure 5 represents the view before the candle of an egg one month old, which has not been stored; it was sold to a country dealer and found its way into the market

Figure 5—Sour-milk Washed Egg One Month Old. Not a Cold Storage Egg.

through one of the many devious channels by which a large number of eggs reach the ultimate consumer. Its condition indicates that it received better care than is usually the lot of these tramp eggs. This also was, when laid, a perfect egg such as described in the issue of January 23 and illustrated in Figure 1 and was injured when fresh by washing in sour milk or sour milk whey in order to remove dirt or to give it an unnatural whiteness. If this egg had been put in storage instead of several times passing from place to place under favorable conditions it would at the same age—one month—be perfectly black and rotten.

The illustration is intended to represent a large air cell, a weak watery white or albumen with a yellowish tinge and a yolk which, through lack of support in the weak white, has flattened out and fallen to one side ready to adhere to the shell; and the yolk also usually bears a white spot.

If, when fresh, this had been subjected to heat, the white would resemble that of an egg, the shell of which had been cracked sufficiently to allow the air to enter; the white of such an egg at first appears full of bubbles about the size of a pin head. These grow until at the end of say two months, they have united into an envelope causing the entire white to look like water.

Shrinkage, caused by deterioration and not, as in most damaged eggs, by evaporation, takes place rapidly. This applies to the egg that has been washed as well as the one that is further damaged by heat.

The yolk is tender and easily broken, even when fresh, and consequently this egg is not good for frying and poaching. It is not only unfit for cold storage but should not be put down in water glass nor preserved by any other method.

It is rated as a poor shipper, but when perfectly fresh it might be classed as of fair quality for use at once in the immediate neighborhood where produced.

Heated Infertile Egg.—Figure 6 represents the view before the candle of an infertile fresh number one or perfect egg that has been subjected to heat for several days. The illustration is intended to show a very large air cell; the size of the cell will vary according to where it may be at the time of heating; on the moist coast, it would be smaller; and about the size as illustrated if in the dry interior. In the illustration it is intended to show a very red yolk more or less dented in several places and to represent the yolk running into or blending with the white. The yolk has also settled toward the small end of the egg. If put in storage the yolks of fully seventy-five per cent of these eggs will stick to the shell.

The effect on a fertile egg is similar except that it will show live blood veins or dead rings of a somewhat darker hue.

The inferior eggs described above are two of many grades that might be included in this article. In December, at the show of the San Francisco Poultry, Pigeon, and Pet Stock Association, I displayed sixty varieties of eggs, all of distinct types, such as these; but there are numerous variations of these distinct types, some showing a less degree of injury

Figure 6—Heated Infertile Egg. Another Egg That Cannot be Stored.

and others that are even more complicated.

In our next installment we will describe the method of handling eggs in cold storage, including some suggestions for improvement. We will also present illustrations of damaged eggs that become worthless or of little value while in storage. These will help to demonstrate that the poultrymen of California must take the initiative in stopping the seven million dollar loss.

Between 35,000 and 40,000 tons of commercial fertilizer are used per year in California.

FREE BOOK

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

F. F. SMITH & CO., 1006 J St., Sacramento.

Poultry Breeder's Directory

If carried weekly for one year, 2½c per word. Rate in this directory, 3c per word each issue; or

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100 $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

QUALITY AND PRICE are our strong points, and the good-will of our customers proves it. Send for circular and let us tell you about our offerings. Rhode Island Reds: Our strain matures early; great winter layers; best of meat. Black Minorcas: the large white egg breed. White Leghorns: the kind that will suit you; heavy layers, good size, hardy. All stock carefully mated and bred for results. Baby chicks, 13c to 8c; depending on breed, quantity and worth. Hatching eggs, $1 setting; $4 to $5 per hundred. Thousand prices on request. Write us your wants. Roofden Poultry Ranch, Campbell, Cal.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery 773 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. I. W. Clark, Petaluma, Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Soquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wychoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

THOROUGHBRED Single-comb White Leghorn Eggs for hatching that will improve your flock, descendants of D. W. Young's strain. Hens 220 egg type. Jay Maxwell, Madera, Cal.

WHITE ORPINGTONS, ANCONAS.—Eggs from specially selected Hoganized breeders. Settings, $2 and $1.50. Quantities also. Cockerels for sale. H. Lechten, Newark, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

WHITE ROCK BABY CHICKS.—Winnings at Modesto White Rocks entries competing, were 1st prize pen, 1st hen, 3rd cockerel, 3rd pullet. Mrs. J. B. Tupper Ceres, Cal.

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee St. Helena, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

INCUBATOR CHICKS.—Standard-bred—true to type and Hoganized. White Leghorn and White Rock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

PIGEONS—Fancy and utility stock: Homers, Dragons, Dutchess, Owls, Archangels, Fantails. Guaranteed mated pairs. M. L. Dimmick, Orangevale, Sacramento Co., Cal.

WOODHAVEN FARM BUFF ORPINGTONS Winter layers. Breeding stock and eggs from special mating only. No baby chicks. Mrs. C. M. Smythe, Route 8, Stockton.

BOURBON RED TURKEYS—One variety only. Breeders never yarded. Winners of the blue Los Angeles, 1914 and 1915. New Eastern blood each season. Eggs from our own flock only. Fertility guaranteed. Baby turks. One fine yearling tom and unrelated hens for sale. Ferris Poultry Ranch, R. 2, 144D, Pomona, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

WINTER LAYERS from Walter Hogal's White Leghorns, selected and bred by Hogan system. Eggs $6 per 100; chicks, $12. John H. Barber, Verde Farm, Livermore.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS—Breeding and foundation stock eggs for hatching. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale, Fleming Ave., San Jose, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

BLUE RIBBON White Wyandottes. First prize-winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested, 250-egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W. Stawetski, San Jose, Cal., R. 2.

NO S. C. WHITE LEGHORN day-old Chicks or Hatching Eggs are too good for you. That is why you want them from J. H. Swann, R 3, Chico, Cal.

WM. LARM'S Rhode Island Red Yards moved to 3854 39th Ave., Oakland, Cal. Winners at leading California shows. Hatching Eggs and Stock.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. E. S. Spaulding, Woodland, Cal.

TOULOUSE AND EMDEN GEESE.—Direct imported strains. Prize Rhode Island Reds. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCK COCKERELS—Also Barred Rock, R. I. Red, Buff and White Orpington day-old chicks. Enoch Crews, Santa Cruz, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

DAY-OLD CHICKS—Hoganizing Egg Machines. We are booking orders for spring delivery. H. & F. Mortensen, Suisun, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL Address Wm. A. French, 545 W. Park St., Stockton, Cal.

ORPINGTONS—BUFF AND WHITE—Cockerels ready for service. Susan Swaysgood, Route 2, Pomona, Cal.

CARNEAU PIGEONS—Mated and working. Price low for quick sale, to make room. C. J. Sawyer, Colusa, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

GIANT BRONZE TURKEY Toms from prize-winning stock. Mrs. Nellie Hart, Holtville, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

RHODE ISLAND REDS—Fine young cockerels for sale. J. D. McCormack, Rio Vista, Cal.

BARRED ROCK COCKERELS, nine months old. A. A. Trueblood, Sacramento, Cal.

Poultry for Profit

[Written for PACIFIC RURAL PRESS By Mrs. Susan Swaysgood, Pomona.]

TRIALS OF A POULTRY SCRIBE.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

Perhaps some of you will think that is a funny heading, but it is not so funny as it appears to be. Being a poultry scribe leaves a person open to attacks from any carping critic who wants to ease a grouch. Some think that because you write for a paper you must have infallible information from some source that is out of reach. But I lay no claim to any such information. What I know has all been gained by experience and the same school is open to all. The past week has brought in a good many letters. Some were forwarded from the office and some came direct, but don't expect me to answer as if I were infallible. I am just plain human, and sometimes human enough to get mad.

Now letters that are written in a kindly spirit, whether they are criticising me or not, are welcome, because we can sometimes learn a little from them, but when they are written in a spiteful, sneering way nobody gains anything, not even the writer. Such a letter I received last week, sneering that the turkey article in issue of Jan. 2 was good for amusement, not for information. The writer is raising 97 turkeys from six hens, but lost some because they were smothered by huddling together. She wants to know what to feed.

Turk Feed.—Feed them milk curd, green onions, lettuce, hard boiled egg as a side dish, rolled oats, bread toasted and browned through until it rolls in crumbles under a rolling pin and feed only a small portion at a time. The very fact that your poults smothered speaks for itself—it was not only inexperience but lack of observation. Go around nights after they go to bed and find out how many are in one coop. If too many, remove them Do this seven nights a week until all are big enough to take care of themselves and you won't have any more smothered turks.

Coal Oil Bad.—Another letter is from a reader who appreciates what little humorous stuff I can squeeze into poultry matter, for she says, "Chickens have evidently not robbed you of humor, but they will me, if I stay with them." This reader also says, "I like your style of writing." That, you see, offsets the other and it's all right. This lady has had more or less trouble with lice, for she says, "I dipped the hens in sheep dip 1:80. Before and since they have been continually dusting themselves. I could find very few lice, but rubbed their heads with coal oil. Some lost their head feathers. I never saw any mites, but keep the perches drenched in coal oil." This is enough to quote, because the sole trouble with these chickens is that they have been doped with too harsh treatment to be of any account for quite a while. The safest dip for poultry is creolin, one teaspoonful to a pint of warm water; and just see that it goes down to the skin; then dry them as quickly as possible. Coal oil is very harsh treatment, and should certainly never be rubbed in, but applied as lightly as possible and all superfluous oil wiped off with a soft cloth. The feeding is good, but you have been very harsh, to put it mildly, and I am glad I am not a chicken in your hands. Milder treatment is better and costs no more. For all lice problems I am sure you will get five times your money's worth by purchasing the new book, and I am not telling you this from selfish motives, for I do not gain a cent from the books the Press sells. They paid me for the manuscript, but I know that if any reader is in trouble with such things the best thing for them is to buy the book and make their own lice remedies. I really think it will pay you to sell these birds and start in with a fresh supply of chicks and raise them right.

OIL CAUSES LATE MOLTING.

[Answered by Geo. H. Croley, San Francisco.]

To the Editor: Will you kindly tell me why my chickens are molting in the winter? They commenced early in the fall and looked fine as though they were over it, but have not laid as well as they should. The oldest are only one and a half years.—Mrs. M. M., Merced.

[They have continued molting or have completed one molt and gone into the second, because of some oily or fatty food. Soybean meal, linseed oil cake, cocoa cake meal, whole or ground flaxseed in oversupply will cause this trouble. It is possible to cause them to lose their feathers and rebuild new ones continuously through the whole year if enough vegetable oil is supplied. Animal fat smaller degree.]

SOUTHERN POULTRYMEN FEDERATE

[Written for PACIFIC RURAL PRESS by Mrs. Susan Swaysgood.]

Our market in Los Angeles has been getting from bad to worse for a long time now, and each producer has kept bearing the brunt of it as best he could. But between the high price of feed and the low price of eggs and poultry, it got so that a goodly number of the small poultrymen could not stand any more and the last few weeks many have gone out of business.

Hence it became a matter of necessity for the poultrymen to organize and try, at least, to make something better of a market. Accordingly a petition was gotten up and sent around to see how many would stand together and pool their eggs. The lowest number it was thought advisable to join forces with was 200,000 hens. This number was finally secured and a meeting was called for Jan. 22 to be held in Los Angeles. A big crowd was in attendance. F. B. Smith was made secretary pro tem, Mr. Schofield of Gardena in the chair. A lively meeting was held and finally the organization of the Federation was an accomplished fact. Five trustees were elected, namely, Mr. Davidson of Arlington, Mr. Ross of Pomona, Mr. Schofield of Gardena, Mr. Holloway of Van Nuys, Mr. Smith of Burbank. These men are all good, practical poultrymen who understand the marketing and commercial side as well as the producing of poultry and eggs, so we hope to accomplish something in the near future. The Federation is copied after the Sonoma County Federation as near as is practical. The trustees are now looking up the best market for the product of two hundred thousand hens, and this quantity of eggs in any one firm's or individual's hands ought to give them or him a fair chance to have a say in market prices.

It has been proved beyond a doubt that imported eggs have controlled the price of the local fresh eggs on the Los Angeles market. They have not even put our local product up on the exchange, claiming that they had none. Petaluma eggs have been shipped down to Los Angeles and brought, some say, 10 cents a dozen more than we were being paid. So it is easy to see "there is something rotten in Denmark." I have shipped poultry from here to San Francisco and made money, yet I had to pay express on over 500 miles instead fo 32 miles. A Riverside poultryman has been shipping eggs to San Francisco this winter and has made ten cents a dozen on his eggs after paying express charges. The poultrymen of this section have certainly been easy; but their backs are up now. It is the last straw that does all these things.

Man and horse labor should be employed constantly throughout the year.

Incubator Chicks

Standard Bred—true to type and Hoganized. White Leghorns and White Rock. Send for booklet of prices.

MAHAJO FARM

P. O. Box 597, Sacramento, Cal.

HOPLAND STOCK FARM, Hopland

Sanitary Conditions perfect. Largest Poultry Farm in California.

Hatching Eggs—S. C W Leghorns.....$ 5.00 per 100
Hatching Eggs—White Plymouth Rocks .....$15.00 per 100
Baby Chicks—S. C. W. Leghorns.....$10.50 per 100
Baby Chicks—White Plymouth Rocks.....$20.00 per 100

Incubator Capacity increased this year to 50,000.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

Send for our booklet "White Leghorn BABY CHICKS" FROM HEALTHY HAPPY HENS and that helpful pamphlet, "FEEDING CHICKS" Free on request.

Must Hatch Incubator Co., (Inc.)

419 Seventh St., Petaluma, Cal.

Eggs Wanted

Egg Producers! Egg Shippers!

STOP! LOOK! LISTEN!

Highest prices paid for clean fresh eggs.

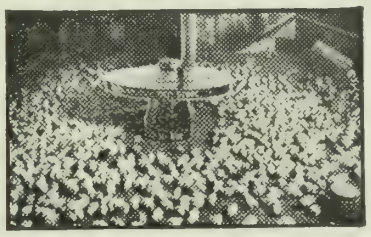
Address

E. F. ZUERN

Wholesale Produce

Butter-Cheese-Eggs-Poultry

354 Fourth St., Oakland, Cal.



The Fresh Air Brooder Stove

Our 1915 model is now out with splendid improvements, and is the finished touch of excellence in the brooding line. Get our new catalogue. It is worth money to you with any system because it tells you many things you should know. It is illustrated and full of detail this season, and every poultryman should have it,. It's free to you.

J. E. KRESKY

PETALUMA, CAL.

GET THE BEST

For Your Baby Chicks.

Coulson's POULTRY FOODS

SPECIAL CHICK FOOD

Write for Particulars to

COULSON CO., Petaluma, Cal.

Leghorn Chick

White, Brown and Buff selected, thoroughbred stock. Book your order now. Scored stock for sale, $2 up. Write today.

JAMES D. YATES
Poultry Judge.
Modesto, Cal.

VERMIN PROOF POULTRY HOUSES

All Kinds and Sizes.

Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house. Write for descriptive catalog.

ROGERS MFG. CO.

Williams, Calif.

MANURE

Carload Lots

HORSE, COW or SHEEP.

Fresh or Well Rotted.

Call or write

PACIFIC MANURE & FERTILIZING CO.

429 Davis St., San Francisco.

The Home Circle

GROWN-UP LAND.

"Good-morrow, fair maid, with lashes brown,
Can you tell me the way to Womanhood Town?"

"Oh, this way and that way, never a stop.
'Tis picking up stitches grandma will drop,
'Tis kissing the baby's troubles away,
'Tis learning that cross words never will pay,
'Tis helping, mother, 'tis sewing up rents,
'Tis reading and playing, 'tis saving the cents,
'Tis loving and smiling, forgetting to frown,
Oh, that is the way to Womanhood Town!"

"Just wait, my brave lad, one moment, I pray.
Manhood Town lies where? Can you tell the way?"

"Oh, by toiling and trying we reach that land,—
A bit with the head, a bit with the hand!
'Tis by climbing up the steep hill Work,
'Tis by keeping out of the wide street Shirk,
'Tis by always taking the weak one's part,
'Tis by giving the mother a happy heart,
'Tis by keeping bad thoughts and actions down,
Oh, that is the way to Manhood Town!"

And the lad and the maid ran hand in hand
To their fair estates in Grown-up Land.

—City and Country.

THE SPOOL OF PINK SILK.

Ruth was only ten years old, but she was quite a seamstress. With mother's help in cutting and fitting, she had pieced all the blocks for a quilt which covered her own little bed. She had helped sew many a long seam in sheets and pillow-cases. She had hemmed ever so many dish-towels. Besides all this "grown-up sewing," her dolls had good wardrobes, which were almost entirely the result of their little mother's careful needlework.

Now she was to be trusted with some very important sewing. Aunt Ellen was making a beautiful silk quilt for the living-room couch, and she told Ruth that one whole strip should be her work. Even the pieces were to be scraps of Ruth's own hair ribbons, and bits of silk and velvet which had been used to trim her own dresses from the time when she was a wee girl.

There was so much pink color in these pieces that auntie gave her a spool of dainty pink silk to use in her needle. It was a proud little girl who carried her work-basket out on the "upstairs porch," as she called the kitchen roof, and began her sewing.

It was a warm afternoon in June. Ruth worked away very happily for nearly an hour, often carrying the block to auntie, who praised the straight, even seams and small stitches. Then mother called her to stay with Baby Jay, and the work-basket was left on the roof. After tea, when Ruth went to gather up her work, the spool of silk could not be found.

"Never mind, dear," said her aunt. "It can't be lost, because there is no place for it to fall, except into the water pipes, or on the ground below. When you find it you may finish that block you began so nicely."

Now Ruth was a girl who took the words of older people very seriously, just as they were spoken. So she really imagined that the silk block could not be finished until the missing spool was found.

How she did hunt for that spool of silk! She poked her finger through every opening in the pipes. She searched the ground below, and she finally told mother and auntie that the fairies must have carried it away. They smiled at the idea, but they had no better explanation to offer, for they had joined in the search.

A few weeks later Aunt Ellen went away for her vacation. School began in September, and every one seemed to forget about the spool of silk.

The night after Aunt Ellen's return there was a severe wind-storm. Buildings were unroofed and many branches torn from trees and bushes. There had been a light frost a few days before, and after the storm the trees looked quite bare.

Aunt Ellen was the first one of the family to come down stairs in the morning. There lay the finest branches of her great lilac bush torn and shattered by the wind. As she picked them up a small cup-shaped object fell to the ground. She smiled, then laughed aloud as she carried it into the house.

"O Ruth," she called, as the little girl came down-stairs, "did you ever find your spool of pink silk?"

"No, Auntie, the fairies must have carried it away, 'cause I looked everywhere."

"Well, you are right, girlie. The fairies did carry it away. Just come here and see where they put it." And Aunt Ellen held up a queer little nest which had the daintiest kind of a pink silk lining.

"Why! Why! Is that my spool of silk?" gasped Ruth. "How did it get there, and all knit in like that?"

"The fairies," replied Aunt Ellen, still laughing. "These particular fairies were Mr. and Mrs. Summer Yellowbird. They are very fond of pretty silk linings for their houses, and they supposed, of course, that the spool of silk was put on the roof for their use. Just think how they must have worked to weave it so beautifully, and what a nice lining it made for the baby birds' cradle!"

Ruth was too much astonished to say much, but her serious little mind immediately went back to the silk quilt.

"May I finish the block now, Auntie?" she asked. "You said I might when we found the spool of silk."

Aunt Ellen laughed again. "Yes, you dear little niece!" she exclaimed, giving her a "bear hug." "We'll get a new spool of silk this very day, while Mrs. Summer Yellowbird is away, and we'll use it all up before she gets back."—Olive A. Smith, in Zion's Herald.

School-teacher: "What little boy can tell me where is the home of the swallow?" Bobby: "I ken, please." Teacher: "Well, Bobby." Bobby: "The home of the swallow is in the stommick."—Golden Rule.

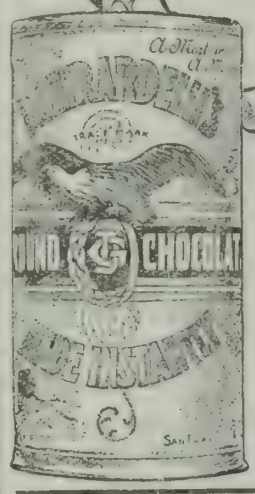
Two level tablespoonfuls Ghirardelli's Ground Chocolate; one-third cup sago; one cupful water; one piece stick cinnamon one-half cup chopped citron; one-half cup chopped almonds; one-half cupful sugar. Soak sago over night and drain next morning; put in a double boiler with water and boil until thick; add cinnamon and citron and cook thirty minutes; remove cinnamon and add almonds, sugar and chocolate. Remove from fire as soon as sugar is dissolved and set away to cool. Serve with cream flavored.

Topsy Turvy Dainty

To insure success in the making of this dainty as well as numerous other delightful desserts be sure to use

Ghirardelli's
Ground Chocolate

There is an improvement in the family health as soon as Ghirardelli's Ground Chocolate enters the kitchen.



You can, without much trouble or expense, serve the most nutritious and beneficial of daily beverages, with the aid of Ghirardelli's Ground Chocolate.

Order a tin from your Grocer today.

D. GHIRARDELLI CO.
San Francisco Since 1852 California

If It's
STILETTO
It's All O. K.

You don't need to ask a question—your dealer need not even talk—the name STILETTO upon a farm implement of any kind—a razor for yourself, or a kitchen knife for your wife—or any piece of cutlery or hardware—is all the assurance needed that it is absolutely right. A great deal of time, money and skill have been expended so as to make every article stamped STILETTO the very best of its kind.

Write us and we will give you the name of dealer in your locality.

Pacific Hardware & Steel Co.
701 Townsend St.
San Francisco, Cal.

STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

RURAL SCHOOLS FOR SOCIALS.

We need social centers where our young people can be entertained, amused, and instructed under the direction of cultured, clean and competent leadership, where aesthetic surroundings stir the love for the beautiful, where art charges the atmosphere with inspiration and power, and innocent amusements instruct and brighten their lives.

To hold our young people on the farm we must make farm life more attractive, as well as the business of farming more remunerative. The school house should be the social unit, properly equipped for nourishing and building character, so that the lives of our people can properly function around it and become supplied with the necessary elements of human thought and activity.—Peter Radford.

California

AND PACIFIC COAST

Nature's Exposition

AND

ALL-THE-YEAR VACATION GROUND

San Francisco, Oakland, Berkeley and Bay Region
Sacramento and San Joaquin Valleys
Santa Clara, Pajaro and Salinas Valleys
Santa Cruz, Mountains and Big Trees
Del Monte and Monterey Bay Points
Byron, Paraiso, El Pajaro and Gilroy Hot Springs
Yosemite National Park
Mariposa Big Tree Grove
Lake Tahoe and Sierra Region
Kings and Kern River Canyons
Lake County Resorts and Springs
Paso Robles Hot Springs, Santa Barbara and Coast Country
Los Angeles and Its Beaches
Pasadena, Riverside and Redlands
Imperial and Coachella Valleys
Shasta Springs and Resorts
Klamath and Crater Lakes
Willamette, Umpqua and Rogue River Valleys
Portland, Tacoma and Seattle

For Fares, Train Service and Descriptive Booklets

Inquire
Flood Building, Palace Hotel,
Third and Townsend Sts.,
Ferry Station,
San Francisco,

or ask any Agent of

Southern Pacific

THE EXPOSITION LINE 1915—FIRST IN SAFETY

HOUSEHOLD HINTS.

Hang Your Own Skirt.—To do this you will need a piece of soft chalk and one of those little sewing birds that cost about fifty cents and are worth their weight in gold in the sewing room.

Fasten the sewing bird to the leg of a chair the same distance from the floor that you want your skirt to be. Insert the chalk. Put on the skirt, being careful to adjust it properly at the waist. Now stand so that your skirt brushes against the chalk hard enough to receive a mark. Be sure to stand erect and turn around so that the marks on the skirt will be as near together as necessary. If you stand in front of a mirror it will be easier. Follow the chalk marks with a basting thread for the bottom of the skirt.

Baked Ham, Spiced.—Select a young ham for flavor and tenderness. It should weigh between 10 and 12 pounds. Parboil for not less than one and one-half hours, not too briskly. Allow to cool slightly in the broth, to retain the juices. Draw off the skin from the fat side and stick into the fat about three dozen whole cloves; rub with brown sugar and dust with bread crumbs. Bake slowly for about one and one-half hours. Serve hot for dinner or cold for supper or luncheon.

To Cook Oysters.—One of the best ways to serve oysters for lunch, or a side dish at dinner, is to make an oyster pie. For this pie, make a crust as for chicken pie; I always make it the same as for baking-powder biscuit; then roll out the crust, spread on one-fourth cup of butter, dust it with flour, fold it together, and roll again. Do this twice. Then line a shallow pudding pan with the crust; have the oysters well drained from the liquor, and see that there are no bits of shell in them; put in a layer of one-third of the oysters, dust powdered crackers over this, season with salt and pepper, and strew bits of butter over; then put on another layer of the oysters, etc. If you use three pints of oysters and there is not a teacupful of the liquor, add enough water to make a cupful, and pour it over the top of the pie. Then put on the top crust, cut a hole in the center, and bake it in a moderate oven. As soon as the crust is nicely browned the pie is done, for the oysters cook very quickly.

Fried Oysters.—Fried in batter, if well done, oysters are excellent. This is the batter: Three eggs well beaten, three tablespoonfuls of milk, one tablespoon of flour; salt to taste, and the oyster juice. After these ingredients have been well mixed, the oysters are added one at a time and fried a crisp brown in a tablespoonful of butter which has been allowed to become very hot in the saucepan.

Sweet Potato Souffle is a toothsome way in which to utilize cold baked or boiled potatoes. Peel the potatoes, and if they were baked, grate them, if they were boiled, mash them; it is well also to run them through a vegetable press as a sieve to insure an absolute lumpless consistency. To each cupful of the pulp add the beaten yolk of an egg, one tablespoonful of thick, sweet cream, and a quarter of a teaspoonful of salt and a tiny pinch of pepper. Beat until very smooth and light, add the white of an egg beaten into a stiff froth, turn into a greased baking dish, and run into a hot oven until well puffed and browned.

A colored philosopher "down South" is reported to have said, "Life, my breddern, am mos'ly made up of prayin' for rain and then wishin' it would cl'ar off."

WATERING WATERLESS PLANTS.

According to an ingenious Scotch device house plants can be kept well watered during a week's absence of the housekeeper. Set a bowl of water well above the plant to be watered by means of a box or a pile of books. Twist several strands of darning wool together or braid them to form a long wick and soak them in water. If one end of the wick reaches to the bottom of the bowl and the other hangs over the plants a steady drip will continue until the bowl is emptied.

SLIGHT MISUNDERSTANDING

"Husbands," said Wilton Lackaye, disgustedly, "certainly are fussy. My best friend won't speak to me, and I'm sure I don't know what is the matter. We met on the street, and we were talking just as friendly as could be when all of a sudden he flared up and tried to lick me."

"And what were you talking about?" asked an interested listener.

"Oh, just ordinary small talk. I remember, he said, 'I always kiss my wife three or four times a day.'"

"And what did you say?"

"I said, 'I know at least a dozen men who do the same,' and then he had a fit."—Young's Magazine.

WORTH FIFTY CENTS.

The little daughter of a clergyman stubbed her toe and said, "Darn!"

"I'll give you 10 cents," said her father, "if you'll never say that word again."

A few days afterward she same to him and said:

"Papa, I've got a word worth half a dollar."—Everybody's Magazine.

"Daddy," said a boy, "I know what makes folks laugh in their sleeves." "Well, my son, what makes them?' "Cause that's where their funny bone is."

Biff: "Roberts fell off a fifty-foot ladder and wasn't hurt a bit." Baff: "Fifty-foot ladder? I don't believe it at all." Biff: "It's quite true. He fell off the bottom rung."

"It certainly is the best way to build"

Writes W. T. Colvin of Ukiah, Cal., and he says further, "I never saw any building go together so nicely before."

YOU can build your own home as Mr. Colvin did, or let any member of your family do the building in their spare time. House comes to you "knocked down" complete in every detail.

Machine sawed material, insuring a perfect fit, and numbered to correspond with the plans. Simple—easy and better still, economical.

Satisfaction guaranteed by the **PIONEER** "knock down" house company of the Pacific Coast.

Send for our catalogue today. It tells the story.

READY BUILT HOUSE CO.
973 BROADWAY,
PORTLAND, ORE.

BURN OIL

SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO.,
Pasadena, Cal.

Dries Things Quicker

Welcome Clothes Dryer attaches to any stove pipe—right where things get all the heat. Ten detachable arms can be taken down out of the way when not in use. Equals 20-ft. line. No strings to break, or nails to tear clothes.

"You deserve thanks of womankind," says a mother. Price $1.00. If your dealer cannot supply you we will send Dryer postpaid on receipt of price. Money back if not satisfied. Circular.

E. J. CHUBBUCK CO.,
Dept. B, 731 Market St.,
San Francisco, Cal.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

Save the Big Retail Profit on a Mattress

GENUINE ELASTIC FELT, Reversible, No. F38—Nearly 6 inches thick. Heavy roll edge, all around top and bottom. Any color or design ticking. Guaranteed to never get hard or lumpy. Sanitary non-absorbent and resilient. Will stand hard and long usage. Same mattress sells at stores for at least $13.50. Our price, direct to you, only $8.95

No. F42—EXTRA THICK ELASTIC FELT MATTRESS.—Measures over 6 inches deep. Extra large roll, top and bottom and ends. Reversible. State color ticking wanted. Extra thick selected felt—will stand 15 years' constant use. Usual retail price about $18.00. Our price, direct to you, only $12.75. **ORDER NOW.**

No. F36—A GOOD REVERSIBLE, FELT TOP AND BOTTOM MATTRESS for those not wanting to pay the price of our solid Elastic Felt Mattresses No. 38 or 42. No. F36 has center of fine wood fibre and is extra thick for this style, being over 5 inches. Any color art ticking or stripes. Good, heavy elastic felt on both sides. Usual store price about $7.50. Our direct price, only $3.95.

Common Mattresses $2.90 up, but it pays to buy one of the above Felt Mattresses.

Order from this Ad. Cash rebate coupons given. SAVE O. H. S. COUPONS.
Any mattress delivered to any California point for 50c extra.

THE OLD HICKORY SUPPLY CO., Dept. 3
Capitola, San Francisco, Sacramento, Los Angeles, Portland.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Feb. 3, 1915.

WHEAT.

There was more excitement in the wheat market again this week; and prices, with the exception of northern bluestem, have been advanced about a dollar a ton.

Cal. Club, Ctl.	$2.35@2.40
Forty-fold	2.45@2.50
Northern Bluestem	2.50@2.55
Northern Club	2.35@2.40
Northern Red	2.40@2.55

BARLEY.

Barley has been following wheat in the upward movement, and both brewing and feed grains are reported a dollar a ton higher. Prices are very firm at the advance; and a further upward movement is a possibility of the near future.

Brewing & Shipping	$1.60@1.65
Choice feed, per ctl	1.55@1.60

OATS.

The oat market here has been moving upward this week, partly in sympathy with the advance in wheat and barley, but largely in response to the excited oat market at Portland. Red feed is quoted a dollar a ton higher, while white, which is now selling in Portland at 2 cents, is quoted here at from $2 to $2.05 per hundred on the local market. The demand for black seed has been about satisfied; and, while some lots are being held at $2 to $2.25, there are no buyers at those figures, and the old quotations stand.

Red feed	$1.60@1.65
Seed	1.80@1.90
White	2.00@2.05

CORN.

Corn is about the only thing in the grain line that has not been affected by this week's "war" movement. Little interest is manifested.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

BEANS.

Reports from the bean-growing sections claim additional advances during the last few days; but local handlers, while admitting the increasing activity, deny that the last week has brought any change in prices, aside from a 25-cent rise in the price of Limas. One purchase of a specially fancy grade of pinks was made at $5.50, and a transaction in fancy small whites at $5.65 is reported; but these appear to be exceptional cases. Heavy buying of Limas for Europe is reported. Mail advices from New York dated January 30 quote spot Limas there at $6.10 to $6.15.

(On Wharf.)

Bayos, Cal., per ctl	$5.25@5.50
Blackeyes	5.00@5.50
Cranberry Beans	4.25@4.50
Horse Beans	4.00@4.50
Small Whites	5.25@5.50
Large Whites	5.00@5.25
Pink	4.25@4.75
Limas	5.50@5.65
Red Kidneys	5.50@6 00
Mexican Reds	5.00@5.50

SEEDS.

The seed market continues quiet, with a tendency to lower prices in some lines. Hemp seed is now offering a half-cent lower; and millet is down a quarter of a cent.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

The rainy weather has been against the hay market this week, both sales and arrivals being somewhat restricted by the wet weather. Arrivals for the week were only about 1,800 tons, or not much over half the arrivals for the week previous. Local dealers, however, report that this was more than sufficient to take care of the demand, and that the general tone of the market is still decidedly weak. Considerable quantities appeared to be held in the country, with holders anxious to sell.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.50
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

Notwithstanding the sharp advance in the whole grains, there has been no advance in the general run of feedstuffs. The very high prices seem to have curtailed the demand somewhat; and cheap hay is also having an effect. Alfalfa meal has been advanced 50 cents per ton.

Alfalfa Meal, ton	$15.50@16.50
Alfalfa-molasses meal, per ton	$19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	37.00@38.00
Cocoanut Cake or Meal	25.00@25.50
Cracked Corn	40.00@41.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	34.00@35.00

VEGETABLES.

This week it has been excessive rains that have interfered with the vegetable market. Supplies have been uncertain both as to quantity and quality. Prices have been more or less unsettled on some lines in consequence; and in a good many cases there is a wider range owing to the varying degrees of quality in the offerings. Celery by the crate has been marked up, especially for choice offerings. The arrivals have been restricted by the bad weather. Cucumbers are sold at a very wide range, as are also tomatoes, the top prices being paid only for the choicest grades.

Mushrooms, box	@$1.00
Peas, lb	10 @15 c
Peppers, Bell, lb	10 @12½c
Chili, lb	4 @ 6 c
Carrots, per sack	50 c
Tomatoes, crate	85 @ 2.00
Beans:	
Lima	10 @12½c
Cream squash, sack	25 @35 c
Celery, doz	25 @40 c
do, crate	$1.00@ 2.50
Sprouts, lb	2 @ 4 c
Lettuce, crate, So.	85 @ 1.15
Rhubarb, box	1.00@ 1.50
Cucumbers, box	75 @ 1.50

POTATOES AND ONIONS.

The potato and onion market is steady here, with somewhat higher prices being secured. Sweet potatoes are rather weak, however. In Portland potatoes and onions are both weaker; but have apparently not reached a point where they affect this market. Shipments from the north continue light.

Potatoes, Oregon, ctl	$1.50@1.75
Salinas, ctl	2.00@2.10
River Burbanks, ctl.	1.10@1.30
Sweet Potatoes, ctl	1.50@1.75
Onions, yellow, sack	80 @90 c
Garlic, per lb	19 @ 20c

POULTRY.

The poultry market has been in fairly good shape all week, notwithstanding the bad weather. Some shipments were delayed owing to the rough weather on the bay; but this did not seem to have any particular effect. Prices for small broilers and hens are up, while there has been a drop in the price of live turkeys.

Live Turkeys, lb	18 @20 c
do, dressed	20 @23 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb	18 @19 c
Small Hens, per lb	17 @18 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb	9 @10 c

BUTTER.

The butter market has been sagging off all week owing to the pressure of increased supplies. The southern market after a drop late last week, has held with unchanged quotations though with a weaker tone for some days past.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	28	27	27	27	26	26½
Prime	26	26	26	25½	25½	25½
Firsts	25	25	25	25	24	24

EGGS.

The egg market has been up and down all week; but after running up to 28 cents for extras and 26 cents for selected pullets late last week it has finally come down to 23½ cents for extras and 22 cents for pullets, with a further drop considered likely within the week.

	Thu.	Fri.	Sat	Mon	Tue	Wed.
Extra	28	26½	27	24½	23½	23½
Sel. Pul.	26	25½	25	22½	22	22

CHEESE.

Fancy California Flats are down a cent this week, being for the time being quoted the same as the fancy grade of Young Americas.

Fancy California Flats, per lb	13½c
New Young America, fancy	13½c
Monterey Cheese	14@16c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	27	27	27	27	27	27
Eggs	26	26	26	26	26	26
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

The market is very quiet, with apples and pears selling slowly at the old prices and nothing else in sight.

Apples, Newtown Pippin	50@$1.00
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, bx	1.25@1.50

DRIED FRUITS.

Apples supply the bright spot in the dried fruit market. There is a good demand for nice evaporated apples; and the price is marked up a quarter of a cent with still better prices for stock in 50-pound boxes. Other prices remain the same, though in some cases the top figures are very rarely paid. Good bright peaches have been taken freely during the past few days at 3½ cents. Pears have sold this week at 7 cents, though probably a strictly choice lot might bring 8 cents. Apricots are about cleaned up. Some nice bright stock is offering here at 7½ cents. Figs are said to be out of first hands. Concerning the eastern situation the New York Journal of Commerce says:

The consuming demand is of moderate proportions, but better than it was immediately after the holiday period. Jobbers are buying spot goods from hand to mouth and are putting up few orders for forward shipment to the Coast. In prunes the speculative buying seems to have been halted because of a deadlock on the question of prices between buyers and sellers. The former are reported to be seeking concessions from quoted prices, which the latter are the less inclined to make because the goods could not be replaced by purchases from the Coast except at prices showing quite a little advance over current spot quotations. Coast stocks are reported to be small and in the hands of two or three packers for the most part. For Peaches the trade here shows little demand, but prices from the Coast indicate that buying in the interior markets is better, though no individually important transactions are recorded. The Coast market is firm. Apricots also are rather slow of sale here for forward shipment, but Coast holders seem to be getting a satisfactory demand from other quarters which encourages them to adhere firmly to their quotations.

Little spot business is noted in Raisins, loose or seeded, in the spot market and no sales of consequence for forward shipment from the Coast are reported. Prices are held firmly up to previous quotations on stock in both positions.

DRIED FRUITS.

Evap. Apples, 1914	4½@5¾c
Apricots, 1914	6 @9 c
Figs: White, 1914	4 c
Black	2½@2¾c
Calimyrna	5c
Prunes, 4-size basis, '14	5½@6¼c
Peaches, new	3 @4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction markets show a better demand for oranges now that a lot of poor fruit that had been frosted in transit is out of the way. California oranges now going east are of extra good quality and will command advancing prices, it is thought.

On the New York auction, Monday, Feb. 1st, prices for navels averaged from $2 to $2.40 per box. While the auctions at Boston showed a little higher level of prices and at St. Louis the prices were a trifle lower the same day.

Lemons are in slow demand and prices on auctions average from $2.10 to $3.05 per box.

Florida oranges on the Cincinnati auction last Monday, averaged from $1.35 to $2.15 per box.

Shipments up to Feb. 1st, for the season from southern California were 3706 cars of oranges and 794 cars of lemons as against 3637 and 369 cars respectively to same date last year. Up to Feb. 1st, Tulare country had shipped 5048 cars of oranges as against 4191 to same date last year. Butte county has shipped 547 cars as against 380 cars last season.

There has been a fairly large demand for all lines at San Francisco this week, though the continuous rains interfered more or less. Arrivals from the south have been steady. There has been a drop in the price of grapefruit and a slight advance in the top figure for tangerine oranges.

CITRUS FRUITS.

Oranges: Navel, box ... $1.25@2.00

The
California Almond Growers' Exchange
is a non-profit, co-operative, marketing agency.
The Growers composing the organization invite the co-operation and support of those not members.
For full information, address the main office,
SACRAMENTO, CALIFORNIA.

THE ELECTRIC WAY
From San Francisco and Oakland to and through the Sacramento Valley.
Look Up the Rate On All Your Freight.
Train Schedules Designed For Busy Travelers.
Oakland, Antioch and Eastern Railway
Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.
TICKET OFFICES:
Key Route Ferry, In S. F., Sutter 2339
Fortieth and Shafter Ave., In Oakland Piedmont 870
Third and I Streets, In Sacramento Main 261

Tangerines, small box	75c	@1.75
Grapefruit, seedless, bx.	1.50	@2.75
Lemons, box	1.50	@2.50

NUTS.

The feature in the nut market is the arrivals of Manchurian nuts, some twenty tons having come in one day this week. These are selling at from 6 to 9 cents, and for the time being have about stopped the sale of domestic walnuts. Probably not over 14 cents could be obtained for the best California walnuts now offering. There is more life to the almond than to the walnut market, though nobody appears to be paying within three or four cents of the Association prices. Dealers claim that not much first-class stock is not being offered, and that the general run of prices will go about four or five cents below the Association prices as quoted below.

Almonds, 1915 crop:	
Nonpareils	21 c
IXL	20 c
Ne Plus Ultra	19 c
Drakes	16 c
Texas, Prolific	16 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

Only a few boxes of honey are being sold; but commission houses report that these sales are at the old quotations. Lots of honey is offering, but no market has been found.

Water White, comb	10	@12 c
Light Amber	8	@10 c
Water White, extracted	6½	@ 7 c
Light Amber	5	@ 5½c
Dark		3½c

HOPS.

Business continues rather quiet, with a certain amount of business in future crops.

1914 crop	9	@13 c

LIVE STOCK.

There is very little change in the tone of the market. Slaughterers predict lower prices, and are unwilling to contract for cattle at present prices. Receipts of hogs are larger.

LIVE STOCK.

Steers: No. 1	7	@ 7¼c
No. 2	6¾	@ 7 c
Cows and Heifers: No. 1	6	@ 6½c
No. 2	5½	@ 5¾c
Bulls and stags	4	@ 6 c
Calves: Light	9	@ 9½c
Medium	8½	@ 9 c
Heavy	7	@ 8 c
Hogs: Grain-fed:		
225 to 300 lbs		6¾c
100 to 225		7¼c
Prime Wethers	6½	@ 6¾c
Ewes	5¼	@ 5¾c
Yearling Lambs	7½	@ 7¾c

DRESSED MEATS.

Steers	10¾	@11½c
Veal, large	13½	@14 c
Small	15	@15½c
Prime Wethers	6½	@ 7 c
Ewes	5½	@ 6 c
Suckling Lambs	13½	@14 c
Dressed Hogs	11½	@12 c

HORSES.

The demand for horses in this market is reported weaker, recent auction having failed to realize expectations of sellers. The foreign demand is supposed to have absorbed the surplus in certain grades; but apparently automobiles or the business depression has considerably restricted the local demand

California Poultry Practice

by Susan Swaysgood,

This handsomely illustrated, cloth bound

160 Pages

of Text Book

should be in your home if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco

Publisher's Department

Several letters received during the past week from stock and poultry advertisers all state that good results are being received through announcements made in these columns. In connection therewith we wish to call the attention of many of our subscribers to the opportunity presented them each week to use our classified advertising columns to dispose of extra stock, poultry, seed, nursery trees, and many other articles which they may have for sale. The price of 3 cents per word will carry your message to over 20,000 subscribers, many of whom will be glad to pay you for what you can not use or sell in your own locality.

It has rained some during the past week, which has kept most of our subscription workers housed up, but in spite of the weather we added 176 new paid subscribers to our list.

Our new book "California Flowers, Trees, Shrubs and Vines" by Prof. Wickson is now about all printed and we expect to receive bound copies next week. Better send $1.50 for your copy at once.

To the Editor. — Total premiums for all departments in 1913 were $7898.50 and the total for 1914 is $16,175.25, divided as follows:

Horses, including prizes for horse show	$3346.00
Cattle	2449.00
Swine	870.00
Sheep	300.00
Poultry	5538.50

This last, you understand, covers all the known classes of poultry and will possibly not have more than half the varieties filled.

Apiary	$ 110.50
Dairy Products and Milking Contest	516.00
Agricultural and Horticultural Products	1374.00
Floriculture and Nursery Stock	592.00
Fancy work and Culinary	460.75
Fine Arts	365.50
Educational	186.50
Oils and Minerals	150.00

Our new agricultural exhiit building is nearing completion and makes a splendid showing on the grounds. The new show barn for cattle is under construction, addition to the grandstand is finished, other minor buildings are under construction, and everything will be finished in time for the Fair.

We expect to rank first in attendance and attractions of all fairs in California, and possibly on the coast. —C. G. Eberhart, Secretary Fresno District Fair.

The third large shipment from Holland for the Panama-Pacific International Exposition arrived on the exposition grounds late in January and consists of eleven carloads of rhododendrons, clipped conifers, and bulbs. These will complete the most important landscape gardening exhibit ever made by Holland outside her own borders.

Classified Advertisement

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

BARGAIN—110 acres Watsonville district. Suitable for orchard, corn, potatoes, beans, vegetables. Sandy loam soil. Springs on land. No irrigation required. Fine climate. Schools, churches, rural route. Three railroad towns convenient. Fenced. 40 acres cultivated; more can be. $35 per acre. $1500 cash, balance 5 years, 6 per cent. A. H. Knox, Palo Alto, Cal.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97, Salinas, Cal.

FOR SALE—158 acre Dairy and Vineyard, near Modesto, price, $260 per acre. Ninety acres alfalfa, 67 acres wine grapes. Silo and all necessary buildings, first class. Call or write to Thos. McConnell, St. Anthony Apartments, Geary and Hyde Sts., San Francisco. No agents.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

COUNTY SECTIONAL MAPS—showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

MISCELLANEOUS.

SACRAMENTO VALLEY—Owner and operator of 2000 acre Citrus, Deciduous, Nut and Olive land, Alfalfa, Grain, Hog and Dairy property, desires silent or experienced partner with capital for more rapid development in order to take advantage of the high prices which above products will demand for many years to come. Box Q, Rural Press.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

WHOLESALE PRICES on merchandise of all kinds. Truly co-operative. Write for plan. Pacific Co-operative League, San Francisco.

SNAP.—$3750 cash, balance terms. 551 acres, house, barn, cattle, hogs, chickens, tools. Sam Rex, Middletown, Cal.

FOR SALE—Baled Alfalfa Hay in carload lots Write for prices. V. L. Wiser, Gridley, Cal., R. F. D. No. 1.

AGRICULTURAL HYDRATED LIME — Sheep and chicken manures. H. B. Matthews, 733 Merchants' Exchange Bldg., San Francisco.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

WANTED

WANTED—Position on farm near San Francisco for strong boy of 20. Good home and active life wanted. Wages unnecessary and will pay his board. References. Box 29, Rural Press.

OPPORTUNITY WANTED—Rice culture or dairying on shares by energetic Japanese. Agricultural College graduate. Box 30, this office.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

POSITION WANTED, as foreman, by practical up-to-date farmer. Married. Box P, Pacific Rural Press.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

THOROUGHBRED RABBITS—Sweepstakes Fresno, Modesto, Porterville. White Orpington chickens won all over Valley. Marshall's Parkside Place, R. 7, 246, Fresno.

SPECIAL SALE of thoroughbred Belgian Hares. Write for prices. Hurd Bros., Rabbit Yards, St. Helena, Cal.

TREES AND NURSERY STOCK

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand. For early orders, $40 per 1000. Wagner's $80 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

CALIFORNIA GROWN SOUDAN GRASS SEED—Absolutely free from Johnson Grass or other weed seeds I have a limited amount of this seed. Until sold will fill orders less than ten pounds for $1 per pound; over 10 lbs., 90c per pound. Delivered. D. W. Parker, Roseville, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A Hayne, Box 461, Marysville.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Riviera, Cal.

CHOICE MANZANILLO OLIVE TREES.—Will be two years old this planting season. Cuttings taken from some of the heaviest bearing trees in California. Diameter, ⅝-inch and larger. F. F. Palmer, Box 235, Claremont, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

HIMALAYA BERRIES may be planted soon. They bear tremendously anywhere in California and the berries can't be beaten. Write R. E. Hodges, 315 Underwood Bldg., San Francisco, for plants direct from grower.

WALNUT TREES—Eureka and El Monte varieties a specialty; also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

VALENCIA AND NAVEL organe trees, ⅝ inch and and up, 50c each, delivered at depot. The buds come from the famous Chapman ranch. Call or address S. D. Winters, R. 2, Box 53, Anaheim, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. R. Marshall's Nurseries, Santa Ana, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

FOR SALE—Choice, well-rooted grape vines. Thompson's Seedless, Emperor and Malaga. $15 per thousand. Special prices in larger quantities. R. L. Foster, R. D. 2, Modesto.

GRAFTED WALNUTS—Citrus. All kinds of deciduous and onamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SUDAN GRASS SEED guaranteed grown Santa Clara county without irrigation, free from Johnson and all weed seeds. 3½ lbs, $2.50, postpaid. G. W. Lane, Morganhill.

SECURE PRESENT PRICES by cash deposit now with Spring orders for Citrus Trees, and Spineless Cactus Robinson Citrus Nurseries, San Dimas, Cal. (Mention Rural Press.)

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

STRAWBERRY PLANTS—Gold dollar and Marshall at $3 per thousand. Head River and Magoon at $4 per thousand. N. A. Stimson, Denair, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

STRAWBERRY—Famous Ettersbury 80. Strong plants, 20 for 50c, $2.00 per hundred, postpaid. F. Ogden, 1940 82nd Ave., Oakland.

CALIFORNIA BLACKS, 1 and 2 year tops on 2 and 3 year roots. 6 to 10 feet, cheap. J. J. Byl, 430 So. 13th St., San Jose, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

STRAWBERRY PLANTS, "Dollar" variety. Close-out price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

WANTED—Scions of "Eureka" Walnuts. E. Thomson, Pacheco, Contra Costa Co., Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., box 12, Nordhoff, Cal.

plowing with the Yuba

No matter how hard the soil may be—no matter whether it is a light, sandy loam or a heavy adobe—The Yuba Ball Tread Tractor takes the plows through, going deep, too.

Many times we are asked to guarantee that the tractor will pull a certain number of plows. This we always decline to do. Soil conditions and textures vary so greatly that it is impossible. We do guarantee the Model 12 or 18 to deliver, at the drawbar, the power of twelve or eighteen horses—real live animals with head down and shoulder straining against the collar.

THE YUBA BALL TREAD TRACTOR

The Yuba Ball Tread Tractor never has to stop to rest. In an emergency it can work twenty-four hours a day. If this is necessary it can be equipped with electric headlights front and rear.

In the end it will have been found to have accomplished the work of three or four times the number of horses it is rated to displace. It cuts the cost of plowing-power and labor.

Where a Yuba Ball Tread Tractor is used, there is a surprising addition to the year's profits.

There is a booklet describing its uses and construction fully.

THE YUBA CONSTRUCTION CO.

433 California Street, San Francisco

Dept. C-13

Works, Marysville

Vol. LXXXIX—No. 6 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, February 13, 1915 LOS ANGELES

State Library 7-1-16

Pioneering With Artichokes.

[Written for PACIFIC RURAL PRESS by Paul Parker, Salinas.]

The artichoke growers along the Ocean Shore line to the south of San Francisco have had to hit many obstacles in the head before they reached their present success with this vegetable of Southern Europe. In the first place they had to fertilize very heavily, so much so that they have been able to utilize the bare, bleak sand-dunes. Secondly, they flim-flammed nature so that she sends forth all the edible buds during the winter season, instead of having them scattered along the summer and fall when prices are poor. Thirdly, they pioneered their way through strange markets over the United States, and built up an extensive trade by sane business methods and sound management.

Seven years ago a few drums of artichokes were sent to New York by express, but they did not arrive in good condition and the expense was great. It was then that some of the far-sighted growers realized, if they expected to break into the New York market, the "chokes" would have to be sent in refrigerated cars, for their chief competitor, France, shipped her buds in cold storage. However, no individual grower was able to pick a full carload of selected buds in a day and ship them. For they are very tender and wilt quickly; consequently, before any one man could pick and grade a full shipment those picked first would have spoiled. So an association was formed for the purpose of collecting, grading, shipping, and selling the combined output of all the growers. In this way the continuous stream of artichokes coming into the association's packing-house enables them to ship several carloads that have been picked the same day. The result is the Eastern consumer gets as fresh a "choke" as is possible to ship. After the organization was perfected, the association saw that they could handle a much larger trade than they were, so they sent scouts to several large Eastern cities to drum up business. These men work in certain prescribed territories and remain there during the entire shipping season. The results have been very good. From a few barrels in 1907, the Eastern business has jumped to 211 cars, or 105,500 boxes, during the last season of 1913-14. Besides this, almost as many boxes were sold west of the Rocky Mountains. This year they expect to ship 300 carloads East; and if the European war continues, so as to exclude the French product, they hope to improve on this estimate.

A 250 Acre Artichoke Field, Taken Shortly After Old Growth Had Been Cut Away.

Much Room for Expansion.—However, the way this association is handling its business, it looks like the artichoke industry is only in its infancy. At the present time 75 per cent of their trade is with the natives of France, Italy, and Spain. But they realize that their business cannot expand much further with the foreign element; it must be with the American public. So they are now hammering away trying to show them what an epicurean delight lies in the bud of the artichoke. They do this by means of a neat brochure, which tells thirty-three ways of preparing the buds. A few of these booklets are placed in every box of artichokes that goes out. They aim, not only to educate the public, but also the retailers over the country, as to the merits of the "chokes" so that when a prospective customer asks concerning them, they can tell some of the simpler ways of cooking the buds. Another feature of their propaganda is to get those who have been preparing buds in the way most popular in America—that of boiling and serving either hot or cold with some simple sauce, to try them in soups, stews, omelets, or baked or fried.

Changing the Season.—The Italians who first raised artichokes for the local markets allowed the plants to run their natural course, with the result that the buds came largely in the summer and fall, when the stores were well supplied with vegetables and fruit. This made the business unprofitable, not only from the low prices received, but the warm spells would cause the buds to open out before they had matured, thus spoiling many. However, scattered through the fields in the winter, a few well-matured "chokes" would be gathered that brought fancy prices. So these men worked out a plan whereby they could force the plants to do all their budding in the winter and be dormant in the summer. This is accomplished by cutting the plants down to the ground during June and July. The new shoots that come up will not bear until September or October. The top buds always mature first; and cutting these off causes new buds continually to be sent out. This continues during the winter, reaching the maximum yield in January. In the following May, no more buds are cut off, as other vegetables are flooding the market. Besides, allowing the buds to bloom seems to

(Continued on page 205.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - **Editor**
Frank Honeywell - **Publisher and Manager**
W. H. Schrader - - **Advertising Manager**
D. L. Schrader - - - **Subscription Manager**
R. E. Hodges }
J. C. Loomis } - - - - **Assistant Editors**

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., February 9, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	...*	29.57†	26.95	†62°	†50°
Red Bluff...	3.32	22.72	15.09	56	38
Sacramento.	1.26	10.06	11.80	60	44
S. Francisco.	2.17	17.11	13.79	62	46
San Jose...	2.82	14.60	9.86	64	42
Fresno.....	1.86	7.21	5.67	74	40
Indep'nd'nce	0	2.24	5.55	54	22
S. L. Obispo.	4.18	17.99	11.89	66	40
Los Angeles.	1.68	12.14	9.09	72	40
San Diego..	.25	10.27	5.90	74	46

*Reports missing since Feb. 6. †To Feb. 6.

The Week.

We cannot really blame the "storm-centers" for liking California. They are forlorn things, usually condemned to whirl unseen above the vasty deeps of the North Pacific until, now and again, they manage to break the bonds of their birthplace to tango desolately over the ice-plains of Alaska and British Columbia, unless they can successfully storm the trenches with which a high barometer encircles the Rocky Mountain region, and then they may disport themselves as blizzards, bringing suffering and destruction to the northwest of the Mississippi valley and distributing tribulation southward and eastward—so far as in them lies the force to circle and spiral thence. Little reck they the ruin and hardship which they bring upon people who long to live in comfort and quiet. Just now the storm-center, in its origin, development and accomplishment, seems to us, most of all, like the spirit of war which is devastating Europe; resolutely pursuing the unholy purposes for which it was invoked from the chill chaos of ambition and inhumanity.

But all storm-centers are not condemned to blizzard-breeding. Occasionally one manages to whirl itself out of the established eastward pathway and to carom southward until it enters the atmospheric environment of California, which changes its whole character, purpose and destiny. Instead of carrying the weapons of cruelty, which work human suffering, clog the arteries of transportation and trade, and cause life to be a burden to many people, the storm-center which enters California skies is made beneficent. Day after day it may linger, pouring down warm rains in great volumes, preparing for times of plentiful production, ensuring continued activity in transportation and trade and inducing new and greater beauty of landscape even for those who neither toil nor spin. Salubrity of environment of a storm-center does not reduce its energy nor rob it of accomplishment, but it may change its method and transform its results so that, from a human point of view at least, they appear truly godlike. Not otherwise is it when the Spirit of Peace, and not of War, directs the cyclonic energy of mankind. It is a relic of barbarism to summon God to partnership in aggressive warfare.

But, though California can make angelic even a north-Pacific storm-center, we must own that, in spite of the command, California may weary in well-doing. Let Oregon and the mouth of the Columbia play their accustomed part in entertaining storm-centers. For the rest of this season we shall be content to be refreshed by the spray which high and low barometers, contending for mastery in more northerly latitudes, may cast upon us.

Whirls in Wheat.

But weather whirls do not seem to have much on the cyclonic movements of wheat. Some people are talking about a duty of the government to put an embargo on exports of wheat to keep down the bakers' prices for bread, which seem to be rather bouyant at the East, though unchanged in California, so far as we have observed. We apprehend that such a sensational thing as interference with the opportunity of American bread-growers to feed the world will never be heard from, except in idle talk. It is un-American, uneconomic and unnecessary. It is the duty of the government to regulate trade to exclude inhuman speculation in food, and this would be a general benefit, but to place an embargo, which would kill legitimate production and trade, would be a calamity at home and inhumanity abroad. We hope the proposition will be soon forgotten. Those who think that the farmers are to blame for increased prices and are getting unduly rich thereby, should read the letter from Assemblyman Ashley of San Joaquin county on another page of this issue.

It is, of course, a world-condition which is lifting wheat and is playing strange pranks with it. Restrictions in Austria and Germany have reached even to taking away what a man has saved to feed his own family—but that is a war-measure, about which we do not know enough to either commend or condemn. It ought, however, to make every man hate the word "war" with deadly hatred. In the neutral countries wheat is certainly a strenuous thing, causing mild bread-riots in Italy, and showing that methods of unloading ships previously adequate are unable to cope with the situation. Twelve million dollars' worth of wheat lying in ships in the harbor of Genoa, and the people rioting for bread on the shore, shows clearly how war thwarts commerce and imposes suffering. And then for West American wheat Europe is now buying against the South Sea countries, for New Zealand needs a million bushels of Canadian wheat for July delivery. Meantime, Portland announces that the Northwest has not enough wheat to supply this coast, and Europe is trying to buy that. The statement is interesting, as follows: "Europe is combing the entire Pacific Northwest for supplies of wheat and flour. There are in the hands of millers and farmers less than 3,000,000 bushels of wheat. California alone during a normal season purchases from 3,000,000 to 7,000,000 bushels of wheat from the Pacific Northwest during the spring months."

It is fortunate indeed that California has a largely increased acreage in wheat at this moment, and that there will probably be ample moisture to bring it through: also that California wheat ripens very early and that our warehouses will be full of the home product long before wheat can be had from other districts of the country. But of course we are not dependent upon wheat. Good American corn bread is a delicious substitute, and oatmeal cakes will do for a change. Besides, no one has ever suggested that there may be a shortage of the mysteries which comprise "breakfast-foods." Surely our outlook is all to the good!

Rural-Credit Cycles.

The wheels of rural-credit creation are beginning to move. We have on another page this week the full text of the bill prepared by the University committee, to provide long-term or mortgage-credit, for which money is to be secured by sale of bonds with State guaranty. As the reader will notice, the bill creates an authority which has initiative and power. It does not merely provide opportunity for farmers to organize and do their own business, if they so desire: it aims to go to work, largely through officials who are now a part of the State's Executive machinery, to pass on the land of an applicant as to productivity; to pass on the applicant as to moral and agricultural quality; to pass on the alleged needs of the man as reasonable and prospectively profitable agriculture; to dig up the money for him by selling bonds on the land to an amount not more than half the appraised value of it: to watch him spend the money and to make him pay it back in installments, so that loan, interest and all are wiped out within 35 years. A sequence of agencies and activities is invoked which will work with accuracy and precision like the clock-work in the house that Jack built. Just as soon as the bill becomes a law, the borrower begins to ask for a loan, the appraiser begins to examine the land, the State begins to sell the bonds, the buyer begins to pay the money, the farmer begins to make the improvement, the improvement begins to pay the installments—and all will fall dead in a heap, interest, principal and borrower, simultaneously amortized as it were—at the end of 35 years: for that is the average endurance of a man after he reaches the age of discrimination in enterprise. From this rather cruel picture the reader can easily see why it is for the interest of the State, which never dies, to do this for its citizens, who are always dying. It is for the sake of the land and to enable it to do its duty to the State. The death-struck man cannot begin farming without capital; the land can pay the man a good joy in his life, and repay all that was borrowed for the start, providing loan-sharks are not allowed to bite off the man's arms and legs. This is what the State will do—the well-paid worker enters into everlasting rest and the land is free from incumbrance to carry a new generation comfortably along the same course.

But some one will say: "The land will not need to be re-stocked or re-equipped for each generation." That is true, to a degree, perhaps, but there will be vested interests in that land which must be disposed of. The son who stays on his father's place must pay his sister's

dowry, or must pay his brother for his share in the inheritance. He must use capital to clear the land of such claims, and so he needs help to start quite as much as his father did. Recognition of this need is fundamental in European systems of rural credit, and to prevent cutting up farms into unfarmable fractions loans are made to meet the claims of co-heirs. This is what we mean by rural credit cycles. They comprise one of the many reasons why it is good statesmanship to make it possible for the land to clear itself from debt at intervals, so that the owners' family successor may have a chance to hold it in profitable production. As it now is, it is only a matter of time when all an early owner's family are off the land. As we have no primogeniture or entail, for which the Lord be praised, it is our duty to give the worthy sons of worthy sires a way to hold family land, in reasonable amount, without trying to pay more interest on loans to satisfy co-heirs than farming profits justify.

Rural Credit Committees.

As Governor Johnson informally announced his intention to do, he has requested a committee to examine the various propositions for rural credit, and frame, during the recess, an administration rural credit measure for presentation at the second session of the Legislature. These words are credited to him: "I have asked Dean David P. Barrows of the University of California, Harris Weinstock of the Industrial Accident Commission and Chester Rowell of Fresno, to confer on the rural credit measures introduced in the Legislature. They will bring together the best points of all bills. Dean Barrows and Col. Weinstock are each the author of bills before the Legislature designed to provide farmers with money at low rates of interest on amortization loans. The Barrows bill plans a straight State institution, while that of Weinstock calls for a triple alliance between the State, private banks and the borrower." Dr. Barrows is professor of political science in the University, and is chairman of the University committee on rural credit. Col. Weinstock is a member of the American Commission on Rural Credit, and Mr. Rowell is well known for his acquaintance with and interest in rural development of California. We have full confidence that the governor's committee will be very glad to hear the voice of the California farming interests on the subjects committed to them.

It is also important to note that last week, representatives of farmers' organizations met in Washington, D. C., and organized the "Rural Credit League of America." A resolution was adopted requesting the appointment by Congress of a joint sub-committee to hold hearings "on such personal rural credit bills as may be presented by persons having sufficient authoritative backing." An executive committee was named which was authorized to elect officers for the following year.

A New Water-Power for California.

We are aware, although we have not yet seen the full details of it, that there will be in progress through the Legislature a measure for regulation and control of irrigation waters through a new commission created for that purpose. Under the proposed laws, water for irrigation purposes will be sold by actual measurement, as in cities water is now supplied by meter to consumers. The new commission will be established in even more rigorous control of water sources and streams than provided by the Legislature of 1913 for the State Conservation Commission. The board will have authority to mark out irrigation districts, to fix rates at which consumers in these districts shall be supplied, to regulate the bonding of the property embraced, to recommend State aid for projects in their infancy, and in the case of private power companies, to establish uniform rates. It is intended that this body shall regulate irrigation with powers as rigid and ample as the direction which the railroad commission holds over the public utilities. This is a matter which has always caused a great ruction in this State, and it behooves every one with water property and prospects to pay attention to the matter. We shall endeavor to present the points of the plan more definitely later.

That Menace of State Division.

In our issue of December 12, we gave reasons why it is practically impossible to divide California into two States, no matter who or how many desired to thus divide it. For those unanswerable reasons it is worse than foolish to agitate the subject because it is an actual waste of time—for some folly may be entertaining and therefore not wasteful of time. But agitation for division is not only wasteful; it is positively undesirable; it tends to dissipate patriotism and discourage effort to develop California into its destined place—first in the sisterhood of States. We supposed that the proposition was no more dangerous now than it has been in the past, but since we have legislation open to such freak uses as the initiative and referendum provide, it does not do to consider any foolishness futile. It is now claimed that there is some sort of a push at work in San Francisco and vicinity and that an initiative petition is being circulated which has already received more than 5,000 signatures, and is likely, or, as some say, sure to go on the ballot at the next State election. It is really a pretty severe condemnation of our system of legislation that a thing which is utterly impossible of consummation, and which, because of its nature, should never be even thought of, really has to be considered, voted on and beaten at a general election.

Queries and Replies

Querists must give name and address.

Meal Mite in Crushed Barley.

To the Editor: I am sending a package of "lice" and barley. This was taken out of our barley granary. This barley was bought in San Francisco and was supposed to be clean and steam rolled. Two of the other granaries had not as yet become "alive." Please tell me what these are and what is the remedy, if any. I have ordered the thickest masses taken out and burned, but it is spreading throughout the rest of the granary.—Reader, Suisun.

Your crushed barley is infested with the meal mite or acarus. The stuff would not be dangerous for feeding hogs or fowls and probably would not injure other animals. Any crushed grain would be likely to be infested by this minute insect if stored after crushing. Thorough cleaning of the granaries and whitewashing, with a good spray which would shoot the cracks full, ought to reduce it to a minimum, but it is always dangerous to store crushed grain for long.

Feterita and Other Sorghums.

To the Editor: I would like to know the feeding value, the yield per acre under ordinary conditions and the sale price, if there is a market demand for Feterita. Is there the same demand as for Egyptian corn? Is it as good for horses and hens as Egyptian corn?—M. H. C., Lodi.

It is at points like other sorghums (Egyptian, Kafir, etc.). It is probable that the demand for seed purposes, which this much-advertised sorghum enjoys, may temporarily lift the price until all who desire it are supplied. It is desirable that all sorghum-growers should try it in comparison with the older kinds and thus secure data for their future choice for cropping.

Grains and Cheat.

To the Editor: What is cheat grass in hay? I am told it comes from oat seed under certain conditions, but am inclined to doubt this. What is its feeding value compared with oats?—T. P. I., Sebastopol.

Nearly forty years ago Professor Hilgard pointed out that the "cheat" found in California grain fields is a wild rye grass, while the "cheat" in Eastern grain fields is a wild brome grass. Those then who hold that grain turns to cheat have to admit that grain turns to one wild plant in California and to another wild plant at the East. The fact is that it turns to neither, but when cold wet ground causes the seed grain to rot, whatever wild plant which can endure to have its seed soaked in cold mud is likely to appear in the place of the grain. The wild rye grass which comes as cheat in California has feeding value when it is young and tender, and is considerably used for pasturage. As it matures it becomes hard and stemmy and is very much less valuable than hay made from either wheat, barley or oats.

Prune Trees Needing Stimulation.

To the Editor: I have a 15-acre prune orchard, five acres of which is creek sediment, which bears consistently fruit that dries about 60 to the pound; five acres are heavy adobe, which bears consistently about 70 to the pound, and five acres are gravelly loam, on which the trees are very shy bearers of large fruit that will run 50s. This orchard has always received the same care in the way of cultivation and pruning and is about twenty years old. But the five acres on gravelly loam has never borne over one-eighth to one-fourth of a crop. What cultivation or treatment would you suggest? Also, what fertilizer should be used to increase the size of the fruit on the entire orchard?—Subscriber, Santa Rosa.

Supposing that the cultivation has been deep and frequent enough to make a good summer mulch for moisture-saving and supposing the pruning has been thorough enough so that the trees are not full of weak, old brush, we would give the orchard throughout a good coat of stable manure or apply a ton to the acre of good complete commercial fertilizer. We should also figure on securing irrigation for the gravelly soil, applying about three acre-inches in July and about two acre-inches just as soon as the fruit is gathered. When we had determined the effect of irrigation on the gravelly soil we should extend it to the silty loam. With your rainfall the adobe ought to give plenty of fruit if your cultivation is deep and frequent enough, but we would lime the adobe at 1000 lbs. to the acre for two or three years. Meantime see what winter growth of burr clover or vetch you can get for plowing under.

Lime Sulphur for Walnut Aphis.

[Written for PACIFIC RURAL PRESS.]

"The thing that walnut growers of California are most interested in," says R. Wiltz of Santa Clara county, "is walnut aphis."

"The things walnut growers of California are most interested in are aphis and blight, and the aphis spreads the blight," says Prof. R. E. Smith of the University of California. "The aphis has of recent years been more serious than the blight in most sections and it attacks all kinds of walnut trees all over the State."

It was five or six years ago that E. R. Lake of the U. S. Dept. Agr. was sent to San Jose to see why the walnuts were of such a light crop and also to learn somewhat of the cause of the large percentage of perforated nuts. An Italian on Mr. Wiltz's place took Mr. Lake out to the orchard and with marvelous ability led him to the scattered trees on which perforated nuts were abundant. The explanation of his ability was that he looked for the sooty fungus on the leaves and knew that these trees carried perforated nuts. The sooty fungus covered the leaves and limbs, and even the ground under the trees to a certain extent because of the honey dew exuded by a large number of aphids in the trees.

At that time the aphis was scarcely known in California, although it had been doing some damage in various places for some years. Mr. Lake immediately worked out a contact spray to apply in the summer time; but it was found practically impossible to do a thorough job, especially on large trees, while the leaves were on. And it was only while the leaves were on that the aphis could be found.

The damage done by the insects is of several kinds. By sucking the sap from the leaves and small twigs and nuts, they reduce the possibility of vigorous growth and sound maturity. This reduction of vitality prevents the tree from making the hard part of the shells, so is the direct cause of perforated nuts. The shell part of the nut contains most of the solid matter in it; and the making of the shell is the hardest drain on the mineral plant foods which are secured from the soil.

Walnut blight is caused by bacteria, which are readily carried by the aphids from twig to twig and often from tree to tree, so that they are a direct agent in the spread of this terror to walnut growers. The honey dew they excrete supports the sooty fungus, which makes the orchards look unhealthy. Their presence on young nuts sometimes reduces the size by as much as three-fourths, which, of course, makes the nuts unmarketable. Wm. Davidson of the U. S. Dept. Agr. has found over thirty young aphids on a single young nut and as many as two hundred on a single young leaf. Aphis is practically the only insect that seriously affects the walnut and may be distinguished as lemon-yellow colored lice 1-16 of an inch long with six legs each. They produce eight to twelve generations each season, and each insect produces an average of fifteen young when the season is favorable. Figure how many insects come from each egg.

Cool, moist summer climate is best for their multiplication, and the hot sunshine has a tendency to kill them off. Thus it is that their damage is greatest in the southern coast counties; and this is where Prof. Smith has carried on most of his experiments for their control

Some generations of the aphis have wings and the last two or three generations lay eggs in bunches of four or five, usually on rough places of the bark. Sometimes in serious infestations the eggs simply form an accumulated crust often over the smooth bark. They are oval-shaped, lemon-colored, less than 1-32 of an inch long and about one-half as wide. They are covered with fine microscopic hexagonal ridges. After two or three days the eggs turn dark. They are laid from August until the leaves fall, and where they are not very numerous, crotches of the limbs, old leaf scars, and rough bark are selected for that purpose.

Experiments conducted by Mr. Davidson in Contra Costa county led him to recommend for spraying in spring and summer 2 per cent distillate emulsion combined with commercial tobacco extract No. 2, 1 to 1500, applied with a pressure of over 150 pounds. Such treatment may be practicable where the trees are young, so that the upper limbs may be easily reached, and the spray applied thoroughly to the under side of all the leaves. However, on the older orchards on the southern coast counties it would be impossible to do effective work. Some experiments have shown all of the insects killed on the under side of a leaf except those near the mid-rib where they were well protected; but summer spraying, to say the least, is very uneconomical.

For this reason, he recommends a lime-sulphur spray in the winter time with a strength of one to eight or one to eleven, to kill the eggs. The next best spray, which has an advantage in its spreading ability, is crude oil emulsion of eight to twelve per cent strength, using oil not lighter than 24 degrees B. The winter spraying may be done at any time while the trees are dormant after all the leaves have fallen, because it is designed to kill the eggs. However, the eggs are somewhat more resistant in the dead of winter than they are shortly before they begin to hatch. The hatching period depends almost entirely upon the sap flow of the tree to which the eggs are stuck. Thus with the Santa Barbara soft shell the hatching begins some time in February, while on the Franquette, Mayette, and the later varieties, hatching does not begin until April. It is very important to have the eggs destroyed before any hatch, because the larvae crawl into protective places on the rough buds and on the bark where it is difficult to catch them, and it is well not to allow any of them to multiply through the season.

Prof. Smith has worked out to entire satisfaction what seems to be a more effective spraying application than this. It is to use commercial lime sulphur solution five gallons, quick lime twenty-five pounds, water ninety-five gallons. The object of the quick lime is solely to tell the

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.
Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

Orange and Lemon Trees

Big--Clean--Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
We Can Save You Money Write For Prices
McMillan-Graffen Nurseries
Established 1900 Spadra, Cal.

operators of the spraying outfit whether they have missed any of the twigs or spots on the tree. To make the spraying application profitable at all, every twig and every square inch of bark must be thoroughly soaked, and on old trees this requires at least 200 pounds pressure. For the tops of tall trees, Prof. Smith recommends the eastern made M. A. C. nozzle on one hose of the power sprayer and an ordinary Bordeaux nozzle on the other hose. With this equipment the tips of the trees can be sprayed with the M. A. C. nozzle and the rest with the Bordeaux, both at the same time.

For the average sized tree about 25 gallons of spray mixture is used. It takes abons 40 gallons for the largest trees. One outfit with three men, and one who could mix the spray for several outfits at once, could spray about 80 trees per day of the old seedlings found in the southern walnut sections.

Lime-sulphur costs $10 per 50 gallons and the lime $1.10 per cwt. The lime could be omitted when the spray rod men have become expert enough to be certain that they have reached every part of the tree.

This expense makes the spraying cost about 1¼c per gallon and the application about .007c per gallon, which includes the labor, gasolene, and depreciation on the outfit. Thus the cost of spraying old trees varies from 45c to 72c each and Prof. Smith thinks this can be easily cut down to 50c in large acreages.

Excessive amounts of water-soluble salts (alkali) are deterimental to crop production.

Oranges Do Not Like Wet Feet.

[Written for PACIFIC RURAL PRESS.]

A large number of failures in citrus growing in Butte county are due, according to Mr. Fitzgerald of the Palermo Citrus Association, to too much water, especially on clayey lands with poor drainage.

It struck us last summer that this was the cause of the dying of quite a number of the trees in a beautiful orchard of Tulare county.

The owner had been digging up occasional trees, which were dying. He made vain attempts to discover the cause of the trouble. He thought possibly it was in the marly formation of the subsoil, which was found in digging the trees. The question seemed answered when a man who was working for him spoke of the time required to get the irrigation water through the orchard.

An irrigating pipe line extends along one side of the 20-acre orchard. From this the water runs in furrows down through the rows to the road at the farther side of the tract. It takes about 36 to 50 hours to get the water through, so that the soil near the outlets of the pipe is thoroughly soaked. This soaking, of course, drives out the soil air, which is necessary to the growth of roots and to the life of bacteria, which render plant food available.

LEMON FROST FIGHTING.

[Written for PACIFIC RURAL PRESS.]

The young lemon orchard of the late A. F. Call of Corona was saved from a temperature of 20 degrees for several hours with large fire pots, one per tree. Mr. Call said he really needed more pots for such a cold snap. Soot collectors are all right for moderate cold, but must be taken off for extremes and then the fire burns out sooner so more pots are needed. Sooting of fruit seems no worse without the "collectors"—it is bad at best, but dirty fruit is better than none. Crude oil makes more expense and more soot than the remnant after kerosene, asphalt and gasolene are taken out. He thinks that a sufficient number of pots will save citrus fruit on the coldest nights to which California is subject. Properly used, 250 gallons of oil per acre will save the coldest orchard on the coldest night yet known in California at a cost of $10 per acre including firing, refilling, interest, and depreciation. This would probably not apply practically because the pots could scarcely be moved to the windward side soon enough when a cold gale is blowing, and the extra heat there might kill the nearby trees, too.

COVERING SMALL CITRUS TREES.

[Written for PACIFIC RURAL PRESS.]

Sacking pomelos through warm winter weather smothers them, scalds the leaves and tends to kill the tops. It would kill them dead, according to Henry Hoover of Sacramento county, who has tried it, if long continued. He attempted to prevent frost damage by placing three laths upright around young trees and dropping a sack over the laths. This was not allowed over the trees long enough to kill them, though it did show some of the effects in that direction. A. Dodson of Los Angeles county found that the sack covering was worse than no protection at all against the frost except when the sacks extended several inches above the tops of the trees.

WHEN TO PRUNE ORANGES.

To the Editor: I have a five-acre navel orchard. The trees will be four years old in July and are small for their age. I have plowed the orchard and put two feet of first-class stable manure to each tree and covered it over. I have some first-class chicken manure and would like to know when would be the best time to put it on. I am working the orchard to the best of my ability. I read the advice you give others and always find it satisfactory and to the point. What time of year is best to clean the dead wood out of the trees and do what pruning there is to be done?—J. R. W., Fontana.

[If the slow growth is not due to previous neglect perhaps it is due to hardpan, marl, lack of drainage, etc. A soil auger will tell about this. We would spread out that two feet of manure all over the orchard, not alone close around the trees, and we would do it when convenient considering the fruit picking. The same is true of the pruning, both of dead wood and green. The pruning is best done at one operation after the fruit is off to avoid injury to the crop.—Editors.]

SURPLUS TREES

AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of **Grape Vines.**
Fine supply of **Olive** and **Citrus** trees; also Grape Vines in **Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha,** etc., etc.

Mission Olive Trees in our Nursery at Fresno, propagated from selected large Mission Trees.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast. this spring, wire us (our expense) for quotations on If you will need some stock your orders.

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

A FEW LINES FROM OUR CUSTOMERS IN THE MORNING'S MAIL

Delano, Cal., Jan. 31, 1915.

Dear Sirs: Trees arrived and passed inspection. They are certainly fine trees, root systems perfect. Yours truly.

Watsonville, Cal., Jan. 25, 1915.

Kirkman Nurseries: Have just finished unloading the second car, and believe me, it's a pleasure to handle stock as well grown and clean as your stock comes. The root system simply cannot be equalled. I received a few pears from elsewhere last week, varieties which you did not have, and I am ashamed to offer them to my customers, or put them in same row with yours. Very truly,

Visalia, Cal., Jan. 28, 1915

Kirkman Nurseries, Fresno, Cal.

Gentlemen: Have received shipment of 350 prune trees on peach root, invoice No. 5400. The trees are in fine condition, and am enclosing P. O. money order for payment of same. Yours respectfully,

San Juan, Cal., Jan. 27, 1915.

Dear Sirs: I received the trees the 18th inst., and have planted the same, and I will say that I did not find one tree but what was in No. 1 condition in every way. Yours truly,

Santa Paula, Jan. 28, 1915.

Kirkman Nurseries, Fresno, Cal.

Gentlemen: I beg to enclose three orders for shipment at once; also my check for $500.00 upon my account. Have been very much pleased with the quality of stock received so far, and all the customers are well satisfied. Very truly yours,

Jan. 30, 1914.

Kirkman Nurseries, Fresno, Cal.

Gentlemen: * * * I am getting fine reports from the trees; all the inspectors in this and the surrounding counties are unanimous in saying that it is the finest stock that ever came through their inspection. I think you have this section roped and tied. Very truly yours,

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

Farmers' Profits Not Adequate.

WHY THE FARMER DOES NOT MAKE MORE MONEY.

To the Editor: I am enclosing you a copy of an article I had printed in the Stockton Record a few days ago, and copies of which I have had placed on the desks of each Senator and Assemblyman here. My reason at this time for putting out this data is that the papers are going into this more or less and that they sometimes create false impressions by the way they give out the facts and especially is this so in regard to the present high price of wheat. The present high price of wheat is helping but few farmers who need help, for the farmers who need help have no wheat to sell at this time.

When we have so many abandoned and vacant farm houses in the various sections off or removed from the railroad or good roads, it shows that something is wrong with the farming industry. I should like, if you see fit, to have at least the general results given in my article published in your paper.

Sacramento. GEO. W. ASHLEY.

Assemblyman Ashley's views on the subject mentioned in his note, as printed above, are as follows:

The farmer is just as much of a humanitarian as any other class, but owing to the fact that about nine out of every ten of them are receiving little or no compensation for the labor they perform, they are driven into an antagonistic position. Why? Because the farmer cannot pass along the cost of high taxes and the cost of the various innovations; but must from the very nature of the way the price for what he has to sell is fixed, pay, not only his own share of the cost, but a very great portion of the other fellow's share also.

The figures were taken from the United States Department Bulletin No. 635. These cover only ten states and 438 farms and may or may not be representative. But as you and the Department have published them, I will accept them for the purposes of this article.

Those figures were, that it costs $176 to maintain an average grown person, on the farm, one year. The various items were dairy products, $21; pork, $12; poultry and eggs, $12; garden, $10; beef, $6; fruit, $6; wood and coal, $13; groceries, $22; house rent, $28; labor, $46. Total, $176.

Now taking the United States census figures for 1910, United States Department of Agriculture, Farmers' Bulletin 570, page 3, and after allowing five per cent on his investment and a reasonable depreciation on tools and buildings; also after having allowed for the sale of his milk and cream, the farmer is shown to have received from his labor income the sum of $318.22. This, however, does not cover the amount that he received towards his and his family's living (personal use), such as the fruit, eggs, etc., enumerated in your article, but excepting milk and cream. Taking these two sets of figures together, and what do we have? First, deduct $21 for dairy products, so the amount will not be used twice. Second, as we are figuring labor income, deduct the $46 in your statement, as it will show in the finals. These added make $67, deducted from $176 leaves $109. Then deduct the amount paid out in cash for living expenses, or 22 per cent; 22 per cent of $109 is $24. This taken from $109 leaves $75. The department has figured that the average family consists of a little less than three grown persons. Call it three. Three times $75 is $225; this added to $318.22 makes the farmer's labor income for the year $543.22. Now as there are 52 Sundays in a year, and allowing the farmer 10 holidays and days off for sickness, etc., you will have 62 idle days. But as every working farmer has to work at least one-fourth of every Sunday and holiday at chores and other necessary work, or say 15 days of the 62 days he has off. Sixty-two days less 15 days is 47 days; 365 less 47 days is 318 days of work in one year; $543.22 divided by 318 days gives the farmer say $1.70 per day.

Now the average farm laborer in California, according to the department bulletin No. 584, page 7, receives, without his board, $2.08. Therefore the laborer is receiving more for his labor than the farmer that hires him does for his labor. This does not take into consideration the labor of the farmer's wife or children. The wife often has to cook for large crowds of men.

But some one immediately says that the farmer is riding around in his automobile, etc. They do not stop to consider that any one with an investment of from $5,000 to $50,000 has a right to interest on his investment, and that the interest would buy an automobile. Also that an automobile is much more of a business investment to the average farmer than to the average business man or clerk.

The amount the average farmer is making was never called to my notice as forcibly as it was when I was making my campaign for the Legislature. Nearly every farmer had the same complaint to make. I then got all the data I could upon it.

Now do not come back at me and try to tell me that the California farmer's work costs him more to the bushel than the average in the United States, or I will have to give you the government figures. They will show you that the California farmer produces his wheat, his barley, his potatoes and, in fact, nearly all leading farm products cheaper than the average in the United States.

Where he loses out is in the high cost of his land and by the cost of reaching the centers of population with his product. Our freight bills, running up into the hundreds of dollars per acre per year on our fruits and grapes, are instances of this.

In these figures and statements, together with the freak legislation, passed and proposed, are the reasons why the farmer is leaving the farm and why the city man that moves to the farm does not stay there.

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

New MACATAWA Everbearing Blackberry

The **MACATAWA** originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless, very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.

It begins blooming in the southern and coast States about February 15. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact, is the only berry in my 46 years' experience that is an everbearing variety.

The Macatawa is 3½ inches one way by 3¼ inches the other.

Its habit is similar to that of the Eldorado, upright grower, needs no support, self-branching, and the bloom is almost semi-double, about the size of a silver dollar. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half-inch pieces.

These piece roots are sown in rows four inches deep, the rows two feet apart. They should be sown in the southern and coast States from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots, $10 per thousand: one year old plants, $1.50 per dozen, $10 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

Address All Orders to

Santa Cruz Bulb and Plant Co.
8 New Street, Santa Cruz, Cal.

WANTED AGENT to sell New Macatawa Everbearing Blackberry Plants. Some of our agents are making $10 to $25 a day. We allow a liberal discount on all sales made. Send for outfit now with references to Santa Cruz Bulb & Plant Co., No. 8 New St., Santa Cruz, Cal.

CONTROL BY SPRAYING WITH **ZENO**

San Jose Scale
Brown Apricot Scale
Scurvy Scale
Black Olive Scale
Oyster Shell Scale
Cottony Cushion Scale
Moss
Pear Thrips
Red Spider
Aphis

Send for Catalog

Standard Chemical Co.
Foot of 12th Avenue
OAKLAND, CAL.

OUR SERVICES ARE FREE

We have the best equipped and most up-to-date Soil Laboratory on the Coast, with a staff of skilled and experienced Agricultural Chemists.

We will make, without charge, the analysis of any soil a customer may send us, and give full advice as to what are its needs in the way of a fertilizer.

OUR SPECIALTY: BONE AND BLOOD FERTILIZERS.

Write for Booklet.

CALIFORNIA FERTILIZER WORKS,
444 Pine Street, San Francisco.

BEST AND MOST BLACKBERRIES
Order early and plant now. Practically coreless and seedless.
Himalayas, Tremendous Bearers
Ship East. Train annually without much trouble. 30 to 75 berries per spur. Ripen July till Frost.
Write **R. E. HODGES,** 315 UNDERWOOD BLDG., San Francisco, for plants direct from Grower.

Dehydrated Olives.

To the Editor: The dehydrated olive story, which I send you as clipped from the New Era, is really too good to be kept from you. It is truth in every statement, and the dried olive is the most marvelous food creation of recent years.

As a muscle maker a 4 oz. carton of these olives will shovel more dirt than a pound of beefsteak or a pound of beans. This olive is destined to become a universal food, and another 10 years' time will see the value of the California olive crop exceed that of the orange crop.

The orange is a luxury. The olive is a real food. Its consumption will be limited only by its distribution. It is the basis of one of the most popular and profitable mail order or parcels post propositions in the United States.

By the way, I was about to overlook an important fact with relation to this dried olive; i. e., that under chemical analysis, it shows an oil content of 76 per cent.

Corning. W. N. WOODSON.

The following is a slightly reduced form of the New Era statement to which Mr. Woodson refers:

"More than a year ago F. G. Beresford, manager of the Maywood Packing company, manufacturers of olive oil and ripe pickled olives, began a series of experiments in the hope of developing a process by which ripe olives, of any variety or size, could be cured and flavored, or seasoned, so as to render them palatable and non-perishable. A process has now been perfected by which the water content is eliminated, the tannic acid extracted and the oil so delicately neturalized that to eat one is to long for more. The olive, in this condensed and convenient form, contains much of food and medical value, about 70 per cent of the meat of the olive being oil.

"The dried olive, in this form, is not beautiful to look upon, but there are some things in this world that are better than they look, and the dehydrated olive is a conspicuous case of this kind. This product has made an instant hit with all who have sampled it. Children like them, and with considerate parents, this article is supplanting confectionery.

"The Maywood Packing Company is now in position to utilize, at mutual profit, the entire olive crop of its stockholders and customers. The Manzanillo, Nevadillo, and other varieties of olives which have not, of late years, been counted desirable for pickling purposes, will now be utilized for this new product. A percentage of the Mission olives, and at times this percentage is large, will be worked into dehydrated olives. All in all, it is believed by those of authority that this new feature in the olive game is to prove a veritable boon to this important industry. Test lots have been carried for a year in heated rooms, other lots in cool rooms, other lots in damp places, and yet no sign or rancidity or deterioration has developed. These trying tests have satisfied Mr. Beresford that he has created a food product that will stand up through all kinds of climatic conditions.

"Already a large wood-heated evaporator has been constructed, treating vats have been installed and packing rooms prepared. This industry promises to add materially to the already active pay-roll of this company.

"The process has been patented, the trade-name copyrighted and soon the attractive carton, at 10 cents a package, will be for sale by the 'peanut butcher,' stores, on the street corners and on the grounds of the Panama-Pacific International Exposition."

IRRIGATION WATER USED TWICE.

Early maturity of rice in Butte county is one of the problems on which the seed breeders are working; but Spence & Pratt do not have to worry about this. They have seven hundred acres lying above the Sutter-Butte canal system.

Their first trouble was to get water at all because it could not be obtained by gravity from the ditch. They installed a centrifugal pump with 15,000 gallons of water per minute capacity to raise it 10 feet high.

All of the overflow from the lowest check runs down in a drain ditch to the pump and is used over again. A particular advantage of this is that the water is considerably warmer after having soaked through the fields in the hot sunshine and its warmth hastens the maturity of the rice instead of checking it as would a continual supply of fresh cold water.

A bee inspector has been appointed in Butte county to serve without salary because the county has no right to pay such an inspector until bee diseases are found.

Red Crown
the Gasoline of Quality

Made up to a standard—not down to a price. We make the best gasoline that our experience and resources enable us to produce. The quality of the gasoline determines its price—not the price its quality. Dealers everywhere.

STANDARD OIL COMPANY (California)

TREES and PLANTS For Every Purpose

We Grow Everything That Grows

The Orchard--

If figuring on setting out any deciduous or citrus fruit trees, vines or plants this season you will do well to get our prices and suggestions—

—for our more than 30 years of experience and immense stock are important factors in the development of California.

ROEDING TRUE TREES FRESNO, CAL.

The Home Grounds--

No matter how small or how large and pretentious your home place, you should have it planted with Roeding's True Trees, Vines, Shrubs or Plants.

Roeding's splendid stock of hardy, field-grown roses excites the admiration of plant lovers.

WRITE FOR OUR SUGGESTIONS—

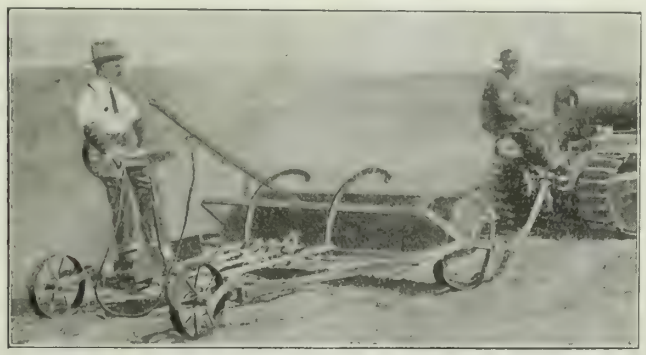
—1915 ILLUSTRATED CATALOG FREE

We are always glad to advise with you about what you think of planting, and as to what is best adapted to your soil and locality. Send us your list for prices and suggestions. Catalog free on request.

Fancher Creek Nurseries, Inc.

PAID UP CAPITAL $200,000 — GEO. C. ROEDING, Pres. & Mgr.

Box 18 Fresno, California



THE OAKLAND REVOLVING BOWL SCRAPER.

A Fresno Scraper that loads and dumps almost automatically. It is also a first-class leveler; is made in four sizes—five, six, seven and eight feet. When used tandem they will level from 10 to 16 feet wide at one operation. Write us and we will tell you all about it.

GRAVES SPEARS ROAD MACHINERY CO., Oakland, Cal.

Sales Agents for all kinds of land levelers, scrapers, plows, farm tools, concrete mixers, etc. ASK FOR CATALOGS.

NOW IS THE TIME TO

FERTILIZE FRUIT TREES

Use the specially prepared MOCOCO Deciduous Fruit Fertilizer and increase the quantity and improve the quality of your fruit.

Mountain Copper Company

332 Pine Street, San Francisco.

GIANT WINTER RHUBARB

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

Climate and Soil for Figs.

[By G. P. Rixford, U. S. Dept. Agr.]

The fig endures about the same degree of cold as does the olive. If not long continued, a minimum of 12 to 14 degrees above zero is not injurious to mature trees, but this appears to be about the limit. It delights in a dry climate, but thrives in a moist one. The Smyrna fig, by far the best in cultivation, is, climatically speaking, more exacting, as its crop of fruit is absolutely dependent on the fertilizing wasp, Blastophaga, and its culture is therefore confined to regions where the winters are sufficiently mild to permit the mamme or winter insect-bearing crop to live through without injury.

Frost, however, is not the only controlling factor, for it is well known that the insect-bearing figs wintered much better during the unusually frosty season of 1912-13, when in many localities the temperature went down for several nights to 14 to 16 degrees without much injury to the mamme crop; while during the past pinter, with a minimum ten degrees higher, the loss of mamme figs was very serious almost throughout California.

While the fruit of the cultivated fig tree is one of the most wholesome and nutritious when fresh, it becomes a product of commercial importance only when dried. To produce the best dried figs therefore, dry warm summers are indispensable. The ideal climate is, therefore, one with winter temperature sufficiently mild to permit the capri tree, with its winter crop of figs and its insect inhabitants, to pass the cold period without injury, followed by a long, dry, warm summer and rainless autumn. The ripening period of the main fig crop in California is from the last of August to October. As the figs dry on the trees and fall to the ground, rain during this period would be disastrous. As these conditions prevail nowhere else in the United States, except in California, and parts of southern Arizona and perhaps limited areas in New Mexico and southern Texas, the future development of the fig industry will be restricted to these regions.

While the soil requirements of the fig are less important than that of climate, the size and quality of the fruit is affected to a considerable extent by the character of the land upon which it is grown. Some varieties, like the Mission, seem to thrive on almost all kinds from light sand to heavy adobe. It is now pretty well settled that the best Smyrna figs are grown on quite heavy soil, not adobe, rather than light sandy soil. The water requirements of the fig are less than those of most other fruit trees. Still it demands above all a well drained soil and little irrigation. The fig will not succeed, for instance, on land where the Bartlett pear thrives. Next to a well-drained compact loam, a rich sandy loam is best, and a good dressing of stable manure will always repay the cost of the application in the increased size of the fruit.

CLEFT-GRAFT FIGS.

[By G. P. Rixford, U. S. Dept. Agr.]

To those who have fig grafting to do, there are one or two points sufficiently essential to the success of the work to make it worth while to call attention to them. The fig tree is not difficult to graft and it may be done by any of the methods used for other deciduous trees. The most essential point is to select for the scions two-year-old wood, which, if carefully inserted, 90 per cent of the grafts will live. If soft, pithy wood of one-year growth is used, in my experience not more than one-fourth or one-third will take. Generally and especially for large trees or branches, I find it better not to split the stock but to saw into it, making a slanting cut about an inch deep at the top and ending at the surface about three inches below the top and with a sharp knife cut out a V shaped pointed groove, into which the scion with two buds is to be fitted. Then wax and tie in the usual way. In most parts of the State, February or March will be the best time to do the work.

WATERWAYS CONGRESS HERE IN MARCH.

We desire to call your attention to the California Inland Waterways Congress which will convene at the Exposition Auditorium March 25, 26 and 27. We do not believe that the people of this State fully recognize the relationship this movement has to the future development of California. This is the only State in this country that is not at work in the direction of bringing to bear public opinion upon the necessity for developing harbors and inland waterways and other necessary related work.

Under the present methods adopted in Washington for appropriations for public work of this kind, the Inland Waterways Association of California is more important than heretofore. From now on appropriations will be made when it can be fully shown that they are absolutely necessary for the development of the respective sections and through the co-operation of the Federal and State Governments. The coming Inland Waterways Congress will be the most important convention of its kind that has ever assembled on the Pacific Coast. — Inland Waterways Association of California.

DOUBLE WORK ROBE'S.

Robe de Sargent prunes are very hard to work on peach, apricot, or almond. On peach or almond they sooner or later will sever from the stock, even though they do make some growth. They do not do so well on Myrobalan as on other varities of plums, which may have already been worked on Myrobalan. Likewise, double working on peach or almond is advised if those stocks are used and by this system they do very well.

The Mahaleb cherry stock is a farce in Placer county according to H. E. Butler, who had six or seven acres, all of which died.

ESTABLISHED REX 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.
WRITE FOR BULLETINS.

California Rex Spray Co.
BENICIA, CALIFORNIA.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.
TUSTIN CALIFORNIA

Economy and Expensive Fertilizers.

are inconsistent terms. Give your pocketbook as well as your soil a square deal. Proper soil care is the safest investment you can make.

Finely Ground, High Grade
Shield Brand.

Phosphate Rock

The Phosphate of Lime,
is the key to an ideal system of economical and permanent soil fertility.

UNITED STATES PHOSPHATE CO.
405 MARSH-STRONG BLDG., LOS ANGELES.

Martinez Nursery
Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. If not for sale by your dealer, write us.

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

Japanese Pear Stock vs. Aphis.

[By J. W. Barnicott, United Fruit Co.]

To the Editor: I have been much interested in reading Mr. Frank T. Swett's letter in the last issue of the Pacific Rural Press regarding the resistance of various pear stocks to aphis.

Mr. Swett asks for information, particularly in regard to the Japanese Asiatic Sand Pear Seedling Stock. We have been propagating on these stocks for some years, and have found them very strong, vigorous growers in nursery rows, and aphis resistant.

Raising on an average of from forty to fifty thousand Bartletts on Japanese root, for the last four or five years we have found less than one in ten thousand affected with aphis; in fact, we have never found it necessary to dip the roots in Whale Soap solution during our experience with this stock.

On the other hand, we have raised during the same period, and in practically the same location in the nursery, Bartletts on the French seedling, and have always had to guard against aphis, and would never think of sending any out without first dipping in Whale Soap solution as a primary precaution.

The Jap root also, in our opinion, is almost blight proof, which is another distinct advantage. In all our experiences, the only disadvantage of the Jap seedling is that it will not stand so much water as the French root.

We have confined ourselves to actual facts that have come under our own observation, and, to sum up the advantages of the Jap root, we would say it is: (1) Aphis resistant; (2) practically blight resistant; (3) exceedingly strong grower; (4) makes a good union with the graft or bud; (5) varieties propagated on this root are earlier bearers.

JAPANESE KUZW VINE.

To the Editor: Sometimes ago I have read in your valuable paper about "Japanese Kuzw Vine" and was very interested. I am now a horticulturist in America, but as I was born in the Sunrise country, and well acquainted with that Kuzw vine, I would like to mention a little more about it.

The Japanese Kuzw vine is a perennial plant and its growth is decumbent. In one season, Kuzw vine grows from 10 feet up to 50 or 60 feet and it is not uncommon to find a vine has made a growth of even 100 feet long. The average size of the stem is from ¼ to ½ inch in diameter. The arrangement of leaves is alternate. The margin of leaves is palmately cleft.

The young Kuzw vine flowers rarely, but when they are old they produce purplish flowers which resemble that of wistaria. They seldom produce fruit, but the vine is a legume and resembles a lima bean.

Throughout the southern part of Japan, especially on the island of Kiushu, we find Kuzw vines abundantly growing on hillside, along the bank of river, or in brush, etc. The Japanese do not cultivate this plant at all, but they grow spontaneously.

In the summertime the farmers get Kuzw vines, stem, leaves and all, and feed to horses, cattle, hogs and sheep, and they are very fond of this plant, as all its parts are tender in the summer time. In the fall, before the leaves are off, farmers get all the leaves and dry them in the sun and keep them for winter feed for domestic animals.

After the leaves are off, the vine is hardened and they are very tenacious and strong so that they can be used for tying fences, making rope, etc.

The root of Kuzw vine resembles that of "man root" and it is perfectly white or of creamy color. The size of the root is from a couple of pounds up to 10 or 20 pounds, and as they get older, they are longer and heavier. The root is the most valuable part of this plant. The root contains a great amount of starch, that can be extracted. The "Kuzw" is made from the root. The manufactured Kuzw resembles cornstarch and it is very expensive and very useful for cooking, especially for high-grade cooking. For weddings or other special parties it is always used. The propagation of Kuzw vine is from young rooted plants, but it takes a good many years to form a large root, and it is better to plant on hillsides, where it is much easier to dig the root.

Salem, Oregon. GEO. S. URA.

[This is very interesting, but it is unlikely that it will ever be in much use in this country. We can get starch more cheaply than by mining for it.—Editors.]

Don't Plant CITRUS TREES

until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES,** embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

Armstrong Nurseries
ESTABLISHED 1889

Olive Trees

Your Order for Olive Trees should be placed with me soon

If you want the best stock obtainable in California, I can supply you at prices to meet your approval. Write me.

Have you received and read a copy of my "Booklet" on the Culture of the Olive? If not, I will, on request, be pleased to mail you a free copy.

Write or wire for special prices on large lots of Mission, Manzanillo and Ascolano olive trees—all sizes, ⅜ to one inch caliper.
Safe deliveries guaranteed to all points in California and Arizona.

54-page illustrated Catalog and Price List of high grade nursery stock, describing every wanted kind of fruits and their many varieties. Write for a free copy.

JOHN S. ARMSTRONG, Proprietor
406 Euclid Ave.
ONTARIO CALIFORNIA

Visit my Nurseries, 37 miles east of Los Angeles on the S. P., Salt Lake, Santa Fe and P. E. Railways. State Highway by auto.

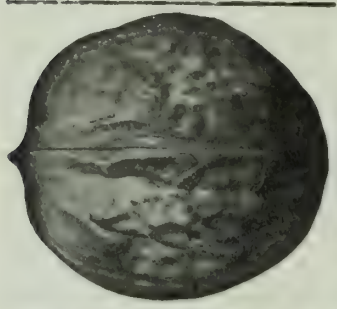
ALWAYS
Money Makers

IMPERIAL PRUNES, BLENHEIM and ROYAL APRICOTS, WALNUTS.

We have also on hand French prunes, almonds, cherries, peaches, and assorted fruit tree stock.

IMMENSE STOCK ORNAMENTALS.

Landscape Gardening a Specialty.



LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

Absolute Protection Against
FROST DAMAGE
BOLTON ORCHARD HEATERS
One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.
Write for our new booklet R. P.
The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

Irrigation Machinery
Pumps-- Motors--Engines
Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION."
Expert Engineers.
Three Stores to Serve You.
California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco.
31 S. Briar St., Lindsay.
AMERICAN PUMP CO., 120 No. Los Angeles St., Los Angeles.

California Native Plants
Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.
THEODORE PAYNE,
845 Main St., Los Angeles, Cal.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

University Proposes Rural Credit.

The following is one of the bills prepared by the University committee for the consideration of the legislature as noted in the Pacific Rural Press of January 30, page 130. It was introduced by Senator Brown of Los Angeles and referred to the Committee on Agriculture:

An act creating a special trust fund in aid of Agriculture within the State of California, to be known as the State Rural Credit Fund, and providing for its administration.

The people of the State of California do enact as follows:

Section 1. There is hereby appropriated out of any funds available in the State treasury the sum of two hundred thousand, to establish a special trust fund in aid of the agricultural development of the State, to be known as the State rural credit fund. All moneys received under the administration of this fund shall be paid into the fund, form a part of it, and be administered and accounted for in the manner hereinafter provided.

Sec. 2. The trustees of this fund are authorized to make loans payable in fixed annual sums of both principal and interest secured by first mortgages on agricultural property within the State, to approved borrowers and under approved conditions, as hereinafter provided, for periods not to exceed thirty-five years, and for rates of interest not less than four per centum per annum.

Sec. 3. The trustees are authorized to issue and sell mortgage collateral bonds on the fund and on mortgage securities of the fund, at rates of interest and for terms fixed by the trustees and approved by the Governor of the State. The mortgage collateral bonds issued in accordance with the provisions of this act shall be exempt from taxation in the State of California, and shall be a legal investment for trust and savings funds; provided, that the amount of such bonds shall not at any time exceed twenty times the amount of paid up capital of the trust fund.

Sec. 4. The trustees of this fund are authorized to make purchase of mortgage loans on agricultural property within the State from private banking and credit corporations in the State of California, doing business under State laws. And the trustees are further empowered, if in their judgment it is advisable, in purchasing said mortgage securities, to reduce rates of interest to not less than four per centum per annum, to extend the duration of the loan, and, with the consent of the mortgagee, to introduce into the instrument a plan of gradual amortization of both principal and interest.

Sec. 5. The trustees are authorized to frame regulations, which shall receive the approval of the Governor of the State, for the organization of rural credit associations, and on the sufficient security of the members of such associations to make loans to members, secured by first property mortgages; and furthermore, the trustees are authorized to accept the deposits of reserve funds of such associations and to pay interest thereon, and in general to act as the agent and trustee of such rural credit associations.

Sec. 6. Upon every loan directly made out of this fund the trustees shall make or cause to be made full investigation of the land offered for security for the loan and of the development to which the loan shall be applied, and of the character of the proposed borrower; and the trustees may make stipulations as to the purposes for which the money loaned shall be expended, for the oversight of the management of the property, and for the possession of requisite experience on the part of the borrower and cultivator. The rejection by the trustees of any application for a loan from this fund shall be final.

Sec. 7. For purposes of report on lands upon which developments are contemplated through loans from this fund and also for the instruction and guidance of the borrower and cultivator of these lands, the department of agriculture of the University of California, upon request of the trustees, shall give all services in its power without expense to the rural credit fund; but the trustees shall employ other agents for determining the value of the property on which loans are sought, and shall be solely responsible for the placing of the loans. In passing upon applications the trustees may engage banking or credit institutions, building and loan associations, rural credit associations organized under the provisions of this act, or other reputable credit institutions organized under state law and subject to state supervision, and the costs, if any, of such examination shall be accurately determined and, in case a loan is placed, shall be charged upon such loan and added to it.

Sec. 8. The secretary of agriculture, the superintendent of banks, the State controller, and one other member, to be appointed by the Governor of the State, shall constitute a commission who shall be trustees of the State rural credit fund. The appointed member shall be chairman and the commission and shall receive a salary of five thousand dollars per annum. The ex-officio members shall serve without additional compensation, but actual and necessary expenses in the discharge of their duties shall be paid to all members of the commission. Subject to civil service regulations the commission may appoint such subordinate employees as shall be provided by law.

Sec. 9. The trustees shall adopt by-laws for their own government as a commission, and shall frame regulations not inconsistent with this act for the operation of the rural credit fund, which shall become operative upon approval by the Governor of the State.

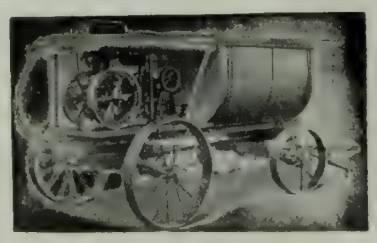
Sec. 10. The trustees of the State rural credit fund shall constitute a body corporate, with the right to hold property, receive bequests, sue and be sued, and all other rights as established by the constitution and laws of the State of California as belonging to bodies corporate. The office and principal place of business of the trustees shall be the State capital.

Sec. 11. The board of control shall be auditor of the rural credit fund, and is authorized to prescribe necessary reports and forms of accounting, and to make such examinations of the fund as it deems proper.

The Land Settlement Bill.

The other measure framed by the University Committee, relating to land subdivision and settlement, was also introduced by Senator Brown, and is Senate Bill No. 509. The bill is thrice the length of rural credit bill, because of the details to be provided for. We shall take it up in another issue.—Editors.

Hardie Sprayers



The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.
Write for Catalog.
THEO. POINDEXTER, State Agent,
320 Market St., San Francisco

TREES
Grown on Sandy Loam Soil
No Spike Roots.
Almonds on Almond & Peach Root.
All Varieties of Fruit Trees for sale.
Write for Special Prices.
Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.
Plenty of Water.
RIPON NURSERY AND IMPROVEMENT CO.
J. F. STUART, MGR.

TRADE Thomas A Edison MARK
ELECTRIC LIGHT PLANT
Gives you safe, convenient, cheerful Electric Light—the same genuine Edison Electric Light that the cities enjoy—at little cost and trouble.
Write for Catalog N.
Edison Storage Battery Supply Co.
Distributors.
441 Golden Gate Ave., San Francisco.
Los Angeles, Seattle, Portland.

San Joaquin Nursery Co.
for all varieties of Home Grown
PEACH, APRICOT, GRAPE VINES.
Special Price on Royal Apricot.
1sts, $120 per thousand.
2nds, $80 per thousand.
Our Stock is The Best.
HANFORD YARDS,
Cor. Seventh and Reddington Sts.
STAND AT ARMONA.
K. YAMAMOTO, Prop. HARRY W. EBY, Mgr.
Hanford, Cal.

Varieties of Grapes to Plant.

[Written for PACIFIC RURAL PRESS.]

On the day we first saw San Francisco, we walked up Market Street and bought some delicious looking, green-colored grapes. We did not eat them on the street, nor at the hotel, because one bite was enough—they were sour. We did not know the difference between ripe, green grapes, and green, green grapes. There was no law to compel the growers to leave their grapes on the vines until they were fit to eat and a good many growers made considerable money from "suckers" like us.

A movement has been steadily gathering force ever since we bit into that green grape to compel growers by State law to leave grapes on the vine until they reach a sweetness of 17 per cent. This is proposed by some of the growers themselves, who are far-seeing enough to want to avoid the demoralization of markets, caused by giving unsuspecting innocents stuff that would prevent them from buying the good grapes when they should become ripe. It is high time to do something to prevent demoralization of markets, for the grapes shipped in 1914 exceeded all other years by 2400 carloads.

This suspicion of green grapes has worked against the California product in the grapes so that at present only grapes of high color are much demanded and the rest find poor sale when the high-colored ones are available.

General Qualities. — Naturally, human desires make the large-sized berries and large-sized bunches more in demand. The grapes to be grown in California for the eastern market must always have tough skins and a rather solid body to withstand the long shipment. They also need to be of such a nature that they will keep, during the long trip and the exposure for sale in eastern markets. Green grapes should always have a yellowish tinge before being picked. Such varieties include the Malagas, Muscats, Thompson Seedless, etc. The variety which fulfils the market demand and which grows to good advantage in a given district is the one to plant. The influence of climate has as much to do with the development of some varieties into marketable condition as that marketable condition has with the sale of them.

Southern Grapes, Less Color.—It is common to all varieties that in the lower Sacramento valley, the upper San Joaquin and the Coast counties they get a deeper color. J. F. Nagle calls attention to the fact that if one of two cuttings from the same vine is planted at Fresno and the other at Acampo, the first will bear red grapes, the other black. Sometimes this deeper color is not as desirable as a lighter color; for instance, the Emperors, which grow black in Contra Costa county, are not quite so salable as those which grow a brownish red in Tulare county, though they are the same variety. However, intermediate colors between the deep black and the brownish red find still less demand than the black. Tokays are another example of the deeper color in the cooler night temperatures and heavier soil of the northern San Joaquin, where they grow to their greatest perfection. The market demands that they shall have the most flame color possible. In the southern San Joaquin valley they ripen with scarcely any color. This is to their disadvantage in the South and sometimes in the North. Tokays in the North sometimes get so much color, before they get sweet enough to cause the consumer to give a repeat order, that they are picked prematurely.

Cornichons show similar variation. Their most demanded color, however, is a strong black. Since the strong black is produced in the Sacramento foothills and the Coast counties, they are grown there more than through southern California, where their color is more of a red.

There is a flame variety of Muscat, which is grown in South Africa and has been shipped on a twenty-one-day voyage to London and thence re-shipped to New York, arriving in fair condition. This variety has been slightly tried in California and has shown good color in the hotter sections of the San Joaquin valley, so that it gives some promise of becoming a strong competitor of the Malaga, which does not produce enough color to quite suit the eastern demand. The Malaga is not grown much in the northern sections because it needs more heat for the sizing up.

The Gros Colman has been grown some in California and makes an attractive round, black type. When grown in the hotter sections with careful irrigation, it does not split when it ripens as it does in the cooler sections.

There are early varieties, such as Sweetwater, Thompson Seedless and Fontainbleau, which are a paying proposition in the Imperial valley because they ripen ahead of grapes from other parts. They used to pay better in the Vaca valley than they do now on account of the Imperial competition.

The Lengthened Season. — The most striking movement in the extension of the grape season is in regard to the Emperors of Tulare county, which have been shipped in large quantities to the East since the first few carloads showed up so well in 1911. About six or seven hundred carloads of the 1913 crop were sold in the East for the Christmas trade and still larger amounts have been packed in the drums this season. Two objects are attained by this innovation: not only are the Emperors able to be held for the best paying markets; but they reduce the pressure on the markets for those varieties which cannot be held so well. Success of these experiences has led Tokay growers to attempt similar experiments, which have not as yet grown to commercial importance, though they have paid well. Emperors may be held in sawdust until January 10; Malagas which have been kept in sawdust drums were not satisfactory after the middle of December; Muscats after the middle of November. These drum-stored grapes compete on the market with a large crop of Almerias from Spain, which are put up in corkdust and which will keep even until April. Some experiments in growing Almerias in California have shown that there are peculiar conditions necessary for their successful growth; but that certain parts of California may furnish these conditions. It is hoped that the near future will show commercial culture of this variety.

Ornamental Trees

For Street, Sidewalk and Home Grounds.

Texas Umbrella
American Elm
Norway Maple
Silver Maple
Ash Leaf Maple
Catalpa
American Sycamore
American Linden
Carolina Poplar
Mountain Ash
Russian Mulberry
California Black Walnut

All varieties in 6 to 8, 8 to 10, and 10 to 12 ft. graded. Straight heavy trunks, require no staking.

Buttelands Nursery

JOHN L. AMES, Mgr. LIVE OAK, CAL.

Olives Olives Olives

Strong, Vigorous Trees for Spring Planting at reasonable prices. All well rooted cuttings from selected trees. For information write

TETLEY, MERRIMAN & GERNERT, Riverside, Cal.

Citrus Trees With Pedigrees

Guaranteed Stock—Grown by Americans.

LEMONS—GRAPE FRUIT—ORANGES.

These are unusually high-class trees. We want to close them out. Write for Special Prices.

C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

ANDERSON FLUME GATES are specially adapted to modern up-to-date irrigating systems. Their construction permits of a finer adjustment, without clogging, than any other Gate made and when closed they are watertight.

We make a specially adjusted Gate for pressure systems, which is unsurpassed by any sheet metal Gate made, and being used in capped stands; no valves are needed. Send for descriptive circular today. Samples sent postpaid, 10c.

Anderson Flume Gate Co. Redlands, Cal. Phone Black 96

Manufacturers of high-grade flume and pressure Gates.

TREES

French and Imperial Prunes, Bartletts and other Pears; Tuscan and Phillips Clings, Fay, Elbertas and other Peaches, Cherries, Plums, Apples, Grafted Walnuts, etc. Stock pure and of best strain. Place orders promptly. Prices reasonable.

TABLE GROVE NURSERIES

Healdsburg, Cal.

Orange, Lemon, Grapefruit, Olives.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.

Orders Now Being Booked.

Write for prices and particulars.

THE RICE CITRUS NURSERIES.

Main Office:

608 Haas Bldg., Los Angeles, Cal.

Phones A 3029; Main 3252.

Nurseries: Lindsay, Cal.

Phone: Farmers 1235.

The Truth on Avocados

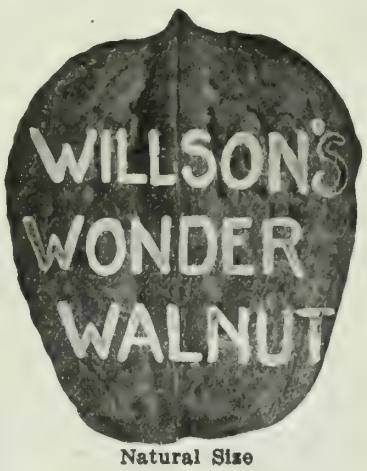
Write today for the most valuable and interesting facts on the future fruit industry of Southern California. This is a newspaper article of which a copy will be mailed FREE upon request. It tells you of the wonderful possibilities of the Avocado and the proper methods of raising. Educate yourself in this branch of agriculture by sending your name and address immediately. All questions in regard to the Avocado will be authentically answered. Proper methods for planting and prices furnished upon application.

Trees from 4 ft. to 7 ft. high, $2 to $3.

Budwood. All standard varieties.

W. A. SPINKS.

DUARTE, CALIFORNIA.



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer

Customer on investigating trip says:

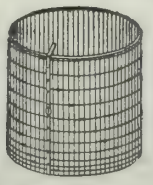
"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."

All trees grafted on Cal. Black Stock limited

Write for circular with prices.

Encinal Nurseries

Sunnyvale, Santa Clara Co., Cal.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers.

Steel and Wood.

Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL.

RHODES DOUBLE OUT PRUNING SHEAR

PAT.

Cuts from both sides of limb and does not bruise the bark.

We pay Express charges on all orders.

Write for circular and prices.

RHODES MFG. CO.

581 S. Division A, GRAND RAPIDS, MICH.

Why a Secretary of Agriculture?

To the Editor: As you suggested in last week's Rural Press, I have carefully read and considered the bill creating a state department of agriculture. At the outset let me say that I am not opposed to a co-ordination of the agricultural activities of the state, if such a co-ordination will result in benefits to the art and science of agriculture. That these effects will follow the enactment of the bill in question is not apparent. In fact, aside from vague claims in the daily papers, I have seen no setting forth of the benefits, financial or other, hoped for by the creation of the department.

Will not the proponents of the bill make public a statement showing the economies to be effected—theoretically at least—by the enactment of the the bill? Will they not show us where duplication of effort is to be avoided and how efficiency in administration is to be gained? Why should the powers of the state board of horticultural examiners be retained if the county horticultural commissioners are to be appointed by the state commissioner of horticulture, as he has recommended in his report to the Legislature? Would not the passage of the bill under discussion pave the way for the creation of a powerful political machine with ramifications as extensive as the State itself, especially if an active and able politician were made Secretary of Agriculture, an official in whom would be centered the powers and perquisites of the consolidated boards, officials and commissions? In short, as the bill now stands, will not its enactment simply result in a regrouping of various powers that be, under the direction of an official whose powers would be so great that he could do good work if he were sufficiently honest, aggressive and efficient, but who would I believe be so subjected to pulls and influences that present conditions would be but little changed?

If the state's agricultural activities are to be reorganized let the reorganization be thorough, not merely a reassembling of the present boards, commissions and officials. If any of their functions now overlap or if their duties conflict, let these superfluities be elminated now while the matter is before the legislature, rather than perpetuated under a new regime.

Although I am not one who believes that rigid civil service requirements will cure all the ills of the body politic, nevertheless I do believe that method to be the best yet devised for the selecting of our officials. If such requirements are desirable in choosing the clerks, stenographers and minor experts of the proposed department, they are, I think, still more needed in the selection of the division chiefs and bureau directors. There is nothing that reacts more to the benefit of the service rendered by a department of government than the opening of important posts to those best qualified to fill them. The fact that the important posts of the proposed department would be practically impossible of attainment by the men in the ranks is one of the worst features of the proposed law. Then, too, there is nothing in the act that would prevent a governor from making a union labor leader or a water front ward heeler the Secretary of Agriculture. Would it not be wise to insist that the Secretary, in a general way at least, be competent to perform the duties of his office?

San Jose G. E. MERRILL.

[Mr. Merrill is right that the proponents, of this measure should state definitely what they think is to be gained by it.—Editors.]

FIRE POTS AT 31 DEGREES.

[By J. D. Culbertson of Limoneira Ranch.]

If any one point should be impressed on the mind of him who has an orchard equipped for frost protection, or is contemplating such equipment, it is the supreme importance of firing early. "Of all the words of tongue or pen the saddest are these—'It might have been.'" The bitterest memories that linger in our minds in connection with our years of fighting frost are of the nights when, hoping to save a modicum of paltry fuel, we waited a few minutes too long. Every chapter in our experience has borne testimony that once the latent reserve heat becomes exhausted from air, fruit, tree and soil, the task of raising and holding a temperature is not only far more difficult and expensive, but in nearly every case accomplished only after irreparable damage has been done to small fruit especially, and often to the entire crop and tree. If you let the thermometer fall below 30 degrees you are taking the reckless gambler's chance, unless perhaps it be just a short, sudden drop during the last few minutes before sunrise. Whether your equipment be heavy or light, we firmly believe it should be brought into action on all occasions if the mercury falls below 31 degrees, and then used just freely enough to keep the temperature above 32 degrees, putting out part of the pots, cutting down the flame, or adding to, as the case may require.

SUDAN HAY, 1 TO 8 TONS.

Sudan grass is rapidly taking a place in California agriculture. Those who have found root stocks among their Sudan grass have bought seed mixed with Johnson grass. Following is an extract from the Experiment Station Record summarizing experiments by H. N. Vinall of U. S. Dept. Agr.:

"The yields vary from 1 to 8 tons of cured hay per acre. Its seed habits are good, and large returns are now being secured from the seed produced. The seed of Sudan grass resembles very closely that of Johnson grass; therefore farmers should use seed only from regions free from Johnson grass. It promises to fill a long-felt want for a hay grass in the South, and will likely replace millets as a catch crop in the Central and Eastern States. It does not do well in sections having a high altitude, because the nights are generally cool. There seems to be a place for it in irrigated regions as a forage to mix with alfalfa hay. Chinch bugs and grasshoppers, among insects, and the red-spot disease are its greatest enemies."

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QPESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED
Farms

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif

Prune Trees

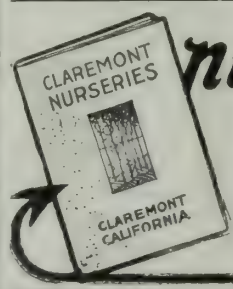
A few hundred IMPERIAL and SUGAR on Myrobolan and Almond roots, first class trees. Also IMPERIAL, SUGAR and FRENCH PRUNES on same roots, in the smaller sizes at BARGAIN PRICES.

CHERRIES, BARTLETT PEARS,
APPLES, CITRUS TREES,
APRICOTS, ORNAMENTALS.

ROSES, GLADIOLI and DAHLIAS a specialty.
Write for new Price Catalog.

Santa Clara Valley Nurseries

Max J. Crow, Prop. Gilroy, Cal



Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. . Claremont, Calif.

Second Hand PIPE Screw Casing

ALEXANDER PIPE COMPANY
254 No. Point Street, San Francisco, Cal.
501 Clarence St. Los Angeles, Cal.

Pioneering With Artichokes.

(Continued from page 193)

re-enforce the root system, because the later the cutting down of the plant is delayed the larger the buds will be next winter. When the plants are cut back too early in June, the buds will appear very early but they are always small. Then, too, prices are low and worms are plentiful.

They Work the Roots.—Only one variety of artichoke is planted in this section, the Large Green Paris. It is a vigorous grower and the flowering buds are large. The scales are broad and fleshy at the base, and the "bottom" or receptacle is very thick. While this variety can not stand very hot weather or frosts, yet it recuperates quickly if handled properly. Whenever the weather gets warm enough to wilt the plants, a generous supply of water is given them and no setback is received. When a frost nips the plants, as it sometimes does in the canyons away from the ocean, they can be made to put out buds in six or seven weeks, if the foliage is cut down before the poisoned sap reaches the roots.

Propagate from Suckers.—Seeds are never used in propagating new plants, as they seldom produce plants like the old ones, but show great variation. When new fields are set out sprouts are taken from those plants which have proven their worth. This has resulted in a gradual improvement of the artichokes. Sprouts or suckers can be removed from the root crown of old plants without injuring them, in fact, where the growth is too dense it helps the plant. A long sharp knife is always used for this work and a knot or lobe of the parent root is always taken off with the sucker. The top foliage of the sucker is cut off before being placed in the ground and an application of manure and water soon forces the young plant along. So that those sprouts set out in the spring will bear a few buds by the following November.

On account of the length of the fronds, considerable space is given each plant. About 900 plants are figured to the acre. On level ground they are set six feet apart with ten feet spaces between rows. This gives ample space for wagons, cultivators, and small irrigation ditches. On many of the farms they raise peas, corn, beans, and tomatoes between the rows. Where ground is high and the irrigation ditches have to be deep, the artichokes are planted, on each side of the ditch so that there is sometimes fully 30 feet space between the canals.

After young shoots are planted they are kept damp by constant irrigations. Sometimes when the weather is very warm they are watered as frequently as once a week. Old plants are irrigated four or five times a summer until the rains come.

A plant does not reach its prime until the third year, when it yields from three to four dozen buds in the season. At the end of the fifth year the plants are all dug up and suckers from the best plants set out. They are not planted along the line of the old rows but moved over a few feet into new soil. When the industry first started the old plants were not dug up until the ninth year, but experiments proved that it was too long a time. The constant forcing of the plants causes them to deteriorate about the sixth year so that they find it more profitable to replant at the end of the fifth season.

Climate and Fertilizer Do the Trick.—Most of the Italians rent their land in amounts ranging from 10 to 250 acres. The soil ranges from good to very bad, but according to one of the growers there are more important items than soil. He said: "Give me a foggy climate with no extremes of heat or cold, plenty of manure and water, and I can raise artichokes any place." Manure plays a very important part in the artichoke business. Every day long strings of cars loaded with this fertilizer go from San Francisco to the artichoke belt. On average soil it costs $25.00 per acre a year for manure and on the flattened sand dunes much more. It not only increases the number of buds on a stalk but insures a large tender "choke."

Picking Chokes.—Picking the buds is an art and requires much practice to tell at a glance if they are marketable. The danger lies in allowing them to remain too long a time on the stalk. It frequently happens that a warm spell causes buds to open in 24 hours. After a bud starts to open or flower it is practically worthless, being pithy and tasteless. Consequently on the large farms it requires many men to watch the flower buds. Often 30 or 40 pickers are needed during the busy season to glean the fields.

The buds are cut from the stalk leaving a four-inch stem. These are thrown into large lug boxes that are hauled to the artichoke growers' packing house as soon as full. Here they are sorted and the long stem is neatly cut so that there is only an inch joining onto the bud. Where the stem is long, it bruises the tender leaves or scales of the bud so as to give them a very bad appearance in the market.

The "chokes" are then packed on their side in standard apple boxes. If they are packed on end the constant shifting and jarring of the box has a tendency to open them out. This does not harm them as far as their eating qualities go, but it makes them look like old buds starting to bloom out. Until within the last two years a drum holding 70 pounds of buds was used, but it was given up because those in the bottom were often squashed and bruised by the time they reached the Atlantic coast. From 9 to 12 dozen large and from 18 to 25 small buds were shipped in these drums. The apple box holds but six dozen large and 15 dozen small. Five hundred of these boxes constitute a carload and bring the growers about $600 a car.

Formerly the buds were graded into six sizes, "number 1" being the large and so on down the line. As this was not a grade of quality it caused much confusion in the Eastern market. When commission men saw "Number 4" on the drums they thought they were getting fourth-rate "chokes" and wanted a reduction in price. So the growers changed their grading into large and small and the number of buds in each box is stamped on the side.

In each car load that goes out they always try to put in a certain proportion of large and small buds, as the Americans like the larger size while the Italians and French prefer the smaller. They claim that the smaller chokes are more delicate in taste. However, it makes an agreeable combination for the artichoke growers to cater to, and "what's the odds, so long as everybody's happy?"

GIVE APRICOTS ROOM.

Old apricot trees 20 feet apart are too close according to M. Sharpe of Vaca valley. They have fruit on the outside but none inside. They need more sun and air. It makes them healthier as well as more fruitful. They ought to be 30 feet apart, perhaps with a tree in the center of each square, to take out afterward.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping.

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Send us a List of your needs and get our Special Quotations

SPECIALTIES:
Deciduous Fruit Trees, Grape Vines,
Grafted Walnuts, Olive Trees,
Shade Trees of All Kinds, and Palms.

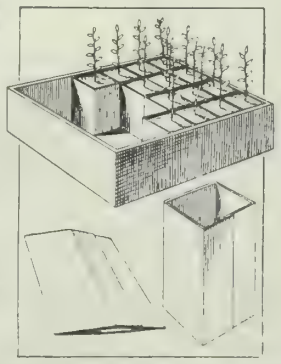
LARGE CATALOG, Full of Iinformation, mailed free. We give every one a square deal and their money's worth. Write us and make known your wants.

HONEST NURSERY STOCK FROM THE ROOTS UP

The FRESNO NURSERY Co. INC.
FRESNO, CALIF.

PERFORATED TREE PROTECTORS
The only Perforated Protector made, practically a small lath house about each tree.
Prevents sunburn, rabbits, squirrels, barking by sand storms and cultivation.
Easy to put on and cheaper than gunny sacks.

COLLAPSIBLE PLANTING POTS
Why not raise your early
TOMATO, CABBAGE, CHILI and EGG PLANTS
For home use or for market. Do you know that you can start
CUCUMBER, CANTALOUPES, MELONS
of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Write for samples and prices of both Pots and Protectors. State which you are interested in
THE EXPAN PROTECTOR CO.,
935 E. Central Ave., Redlands, Cal.



Fruit Trees ! Fruit Trees !

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. Cor. First and Cedar Sts., Chico, Cal.

MAXWELL'S NURSERIES, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

Mechanical Power on the Farm.

AFTERNOON AT TRACTOR SCHOOL.

[Written for PACIFIC RURAL PRESS.]

"Here they are grinding piston rings for the engine. They must be ground within one-thousandth of an inch of the required diameter to fit the cylinders. A cigarette paper is six times as thick as the space to be allowed on each side between the piston rings and the cylinders. More room would allow the gas to escape past the piston, and the horsepower would be reduced," said Prof. F. L. Peterson last week to a bunch of Caterpillar operators and owners at the free school provided at Stockton by the Holt. Mfg. Co. for its customers.

The carborundum wheel was speeding and sliding bodily back and forth in front of the piston, which was revolving swiftly; and sparks would fly when the high places were touched.

"Doesn't the carborundum wheel sometimes wear unevenly so as to throw your grinding out of true?"

"No, it is made entirely uniform throughout, in electric furnaces."

Next to this machine was another, onto which a "rough finish" cylinder was fastened with the open end toward a swiftly revolving carborundum wheel of slightly smaller diameter. The carborundum wheel was on an axis which was worked by a cam so that the axis itself made a small circle while the wheel was revolving on it. The carborundum was shoved squarely into the cylinder and the cam arrangement brought the wheel against the high places inside the cylinder all the way around at each revolution of the cam.

"Sometimes a cylinder gets worn inside and the gas escapes past the piston," said Prof. Peterson. "Feel of this old one."

The inside of the old cylinder was hollowed out quite perceptibly on one side.

"What caused that?" asked a student.

"A number of things might have caused it. One thing would have prevented it. That is proper care, though with old age it might wear some unevenly. Carbon from burning too much fuel or lubricating oil, looseness of the bearings underneath, lack of lubrication, or use of cheap lubricating oil are common causes. When it gets in that shape, the only way to fix it is to grind out the whole inside until it is a true circle again. That may make it 3-16 inch greater diameter; and so a piston will have to be specially made to fit it. That is just a matter of adjusting the grinders to cut to that diameter."

The cylinders are made of harder metal than the piston because they are far harder to replace, so the wear should come on the piston rings. It is a simple matter to get new piston rings and put them on.

"Ever wonder what made the crack in the piston rings, and what it is for?" asked the Professor. "Watch the man cutting them here."

The outside circumference of the rings is a true circle; the inside circumference is flattened on one side by the greater depth or thickness of the metal. A man was placing the thin side of the ring into a machine which gouged out a piece on one side of a mark, half an inch wide and half through the ring, as easily as the men in the molding department gouged grooves in the sand. The ring was then turned over and another piece cut out on the other side of the mark. This cut the ring in two at the inside corners of the notches. The ring could then be sqeezed together to ½ inch less circumference and still present a smooth surface at the joint. The thick opposite side of the ring acts as a spring to expand the ring as big as the cylinder would allow. Some rings expand after wearing, until quite a notch is opened at the junction of the ends. This is all right so long as they do not get entirely past each other so gas can get through.

Outside the foundry were a multitude of castings simply calming their nerves down for six months after being poured like water into the molds that shaped them for usefulness.

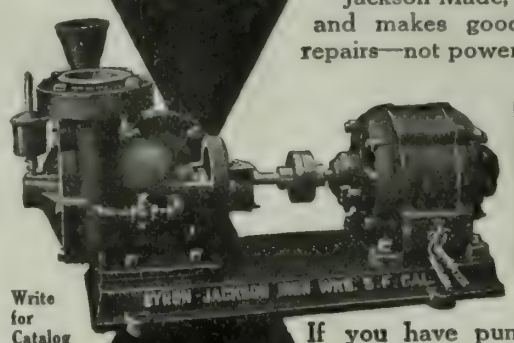
"In the chemistry of cast iron," said Prof. Peterson, "they tell us that the ultra-microscopic particles, of which the cast iron is composed and which are called molecules, are jumping back and forth with tremendous speed in spaces between the molecules, for perhaps a year after the iron is melted. For some months this molecular vibration produces irregular strains in the casting which cannot be located or foretold until, as sometimes happens, the casting cracks. Some of these cracks are so microscopic that they cannot be seen, yet they may weaken the casting. For this reason, those parts that will be subjected to great and critical pressure are thoroughly tested. The cylinders are subjected to 400 pounds per square inch hydraulic pressure, which is over twice the pressure exerted by gas explosions when the engine is working. If the slightest moisture appears on the outside of the cylinder while under hydraulic pressure, it is rejected for it shows the presence of some of those microscopic cracks.

The afternoon of the instruction was full of pointers, of which those mentioned are but a small proportion.

The "Caterpillar School" opened January 18 and closed Feb. 13. At the beginning of the week some 68 operators of Holt machinery had enrolled, and about 15 more were paying the tuition charged others. The total enrollment at Stockton on that date was 83; at the similar school held in Spokane at the same time there were 107, because the weather there prevents the outdoor

"Jackson MADE"

The secret of the wonderful popularity of "Jackson Made" pumps is their all the year round efficiency. No matter what the job may be to which you put a "Jackson Made," it takes right hold and makes good. No expensive repairs—not power eaters.



"Jackson Made" Pumps save practically their first cost in a very few months.

Write for Catalog No. 47J

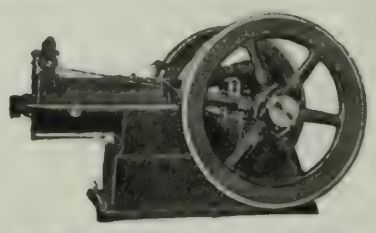
If you have pumping worries—tell them to our expert engineers—they'll help you free of charge.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

Drought Insurance

A PUMPING PLANT equipped with an ALPHA ENGINE, fitted to burn gasoline or low-grade distillate, is the best insurance against drought.



Self-Contained, Closed-Jacket-Type Alpha Engine.

ALPHA ENGINES.
Low in fuel consumption.
High in efficiency.

ALPHA ENGINES ARE DEPENDABLE and will deliver the power 24 hours a day, 365 days in the year, if necessary.

No Batteries—No Coils—No Cranking—No Troubles

Write for Engine Catalog 28.
IDEAL GREEN FEED SILOS. JAMES BARN EQUIPMENT.

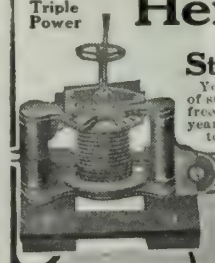
DE LAVAL DAIRY SUPPLY COMPANY
SAN FRANCISCO, SEATTLE.
Everything for the Dairy.

1000% Returns From

the use of a Hercules Stump Puller. Bumper crops instead of stumps. Big money in place of taxes. $1,200 from 40 acres the first year—$750 in extra crops every year after. Get the catalog of the

Triple Power

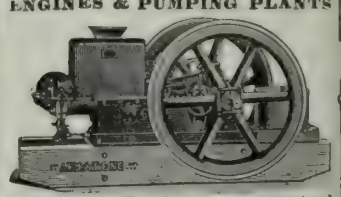
Hercules
Genuine Steel
Stump Puller



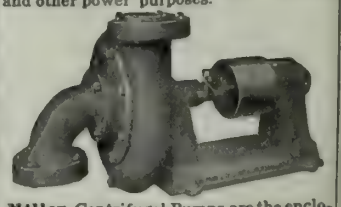
You can clear an acre of stumps a day. 30 days' free trial. Guaranteed 3 years. Special introductory price proposition. Write today for big free catalog.
HERCULES MFG. CO.
112 23 St.
Centerville, Iowa

From Iowa

ENGINES & PUMPING PLANTS



Armstrong Engines are guaranteed for FIVE YEARS, are equipped with Magneto and patent roller valve gear. 1½, 2, 4, 6, 8, 10, 15, 20-h. p. sizes. Just the Engine for pumps, saws, sprayers, grinders and other power purposes.



Miller Centrifugal Pumps are the enclosed runner, automatically water balanced kind. Greater capacity for less power. Longer life for less money. Arranged for gas engine or motor drive.
Write for catalog and state requirements.

Norman B. Miller Co. San Francisco, Cal
503 MARKET STREET

CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Write for Catalog
Light Weight
THOMAS H. BROWNE, Stockton, Cal.

Easy to own an Engine Now

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Portable Engines Proportionally Low.

WITTE Engines
Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Long-wearing, separable, semi-steel cylinders and 4-ring pistons; automatic timed spark shift; vertical valves; variable speed; and other merits without which no engine is now high-grade.

Liberal 5-Year Guaranty

Cash or Easy Terms. Why pay double price for any good engine, or take a poor one, for any price, when the WITTE costs so little and saves you all the risk?

New Book Free. Tells you the "inside of engine selling and manufacturing. Get the facts whether you buy from me or not.

Ed. H. Witte, Witte Iron Works Co.
2666 Oakland Ave., Kansas City, Mo.

work which kept California farmers away. The students were divided in the afternoons into groups of ten, who undertook "laboratory" work in one of five general divisions of the course, each group with a competent leader and guide. That was the system, anyway, but one man wanted to grind valves, four or five wanted to see an engine demonstration, some wanted to see the tractors at work on the streets among the factory buildings. Thus the groupings were irregular, but interested in whatever they were seeing, so that one or another student kept the leaders pretty busy shouting answers to their questions. The formal subdivision of the laboratory work was into shop practice, motor adjustment, field operation, field repairs, and foundry work. Mornings were given over to lectures by experts on the problems and theory of traction engine running.

ADVANTAGES OF PUMP WATER.

[By P. E. Fuller, U. S. Dept. Agr.]

It may be emphatically stated that in the very large majority of instances when plants have been investigated by this department, the failure could have been avoided had the farmer appreciated the great importance of proper or suitable equipment for the raising of water from underground resources, or had they endeavored to apply the water economically after it was pumped to the surface of the ground. This condition is unfortunate, for it tends to discourage those contemplating irrigation by pumping, when the field for development along such lines offers excellent opportunities if the plant is designed and installed properly.

Water pumped for irrigation possesses many advantages not measured in money value. Water stored in the underground strata is a relatively permanent resource, increasing the quantity, within the limit of supply, as the underground channel becomes cleaned or eroded. Also, fertile areas may be irrigated, where the underflow furnishing the supply has its inception in streams many miles distant from the place of its application, or where the water bearing strata comes to the surface hundreds of miles away in the mountains. In this case, three or four years' continuous drought through the region supplied by the pumped water will not affect the supply of water in the underground strata. Pumped water also offers a source of irrigation supply not contaminated by seeds of weeds. Then again, by using the pump system, water is immediately available at all hours of the day or night, so that your crops get their water when they need it, giving complete independence from the water requirements of your neighbors, since there is no one to dictate to you how much water you shall have or when you shall irrigate. Prior rights have no terrors for you. You have complete independence and freedom from losses due to inadequate rains in the drainage basin which supplies the water under the gravity system of irrigation.

The first and most important factor is the water supply, the sufficiency and constancy of which should be carefully determined before installing a pumping plant, especially if the supply is obtained from wells. Instances have been known where costly plants have been built only to find on testing out, that the water supply was entirely inadequate. This has resulted in many cases in the abandonment of the entire project with great financial loss.

Water having been found, or at least indications that there is sufficient quantity present, the next move is to determine at what depth or total pumping head it is profitable to irrigate. As a general rule, the more valuable the crop, the greater is the profitable total pumping head limit.

SILAGE CUTTING COSTS.

[From Experiment Station Record.]

The cost of cutting and loading corn for silage by means of the sled harvester was found in Nebraska to be $1.28 per acre in one case and $1.98 per acre, or $0.259 per ton in another. The cost of cutting corn with a corn binder on 16 Nebraska farms and of delivering it bound was about $1.77 per acre or $0.236 per ton. Power cutters with fan blowers are considered to be always advisable where many large silos are to be filled. The drag carrier may be used successfully in filling pit and semipit silos but is not successful where a long carrier is required or in windy countries unless the carrier is covered.

For cutting corn the use of corn knives is considered advisable only on very small jobs and then only when sled harvesters or corn binders are not available. The sled harvester is said to be probably the cheapest of the three methods, but the corn binder is considered to be the most satisfactory.

FAST SOIL PUNCHING.

To the Editor: The power punch for soil blasting described in the issue of Jan. 23 is of our invention. We wish to make a few corrections and additions in the description.

It is possible to put down a hole anywhere from one to five feet with this machine as required; the 74-pound weight is operated direct from the upper pulley without a snatch block, and only one turn is taken around the drum. By pulling lightly on the end of the rope, it is tightened on the drum, thus making the engine lift the weight as much sometimes as 10 feet. When it reaches the required height, the rope is slackened on the drum allowing the weight to fall. A 3 h.p. engine is used; it runs at the same speed both when working and when idle. It will punch 250 holes a day in average soil.—J. P. Jones and Sons.

[We like to be corrected when we go astray even in unessential details. It was about a year ago that we saw the machine. Now we would like to ask, why shouldn't a heavier weight be used, requiring a shorter fall and less rope handling. The snatch block would surely waste power, as it is not needed because the pile driver frame is braced toward the engine with 4x4's to resist the diagonal pull from the top. —Editors.]

---delighted!

You will be delighted with

The Commercial Engine

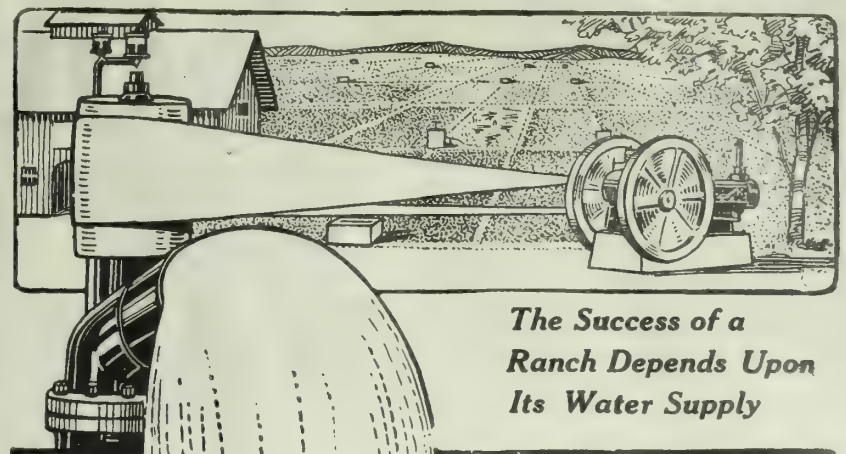
Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.

2416 PORTER ST., Los Angeles



The Success of a Ranch Depends Upon Its Water Supply

Install the Pump You Can Depend Upon

A SUCCESSFUL ranch must have an efficient water system. There's no getting around that fact. Be protected from crop losses by installing a pump that can be depended upon at all times and under all conditions. Only a reliable pump such as the

Layne & Bowler Pump

will give you the perfectly adequate service you demand. It is positively the best investment you can make.

Write today for our Catalog No. 25 on Pumps and Irrigation

Layne & Bowler Corporation

900-910 Santa Fe Avenue.
Los Angeles, Cal.

READ-MILLER CO.

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—**stays** absolutely water tight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside leaving a perfectly smooth surface and making possible a water-tight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.

Box V, Gilroy, California.

NOTES ON LIME AND GYPSUM

[Written for for PACIFIC RURAL PRESS by Prof. C. B. Lipman, University of Cal.]

Neither bacteria nor oxygen can be looked upon as the most active agent in the decay of vegetable matter which results in the production of humus. Both have a very important part to play in humus production and are absolutely interdependent. Lime stimulates the bacteria.

The poisonous material I refer to on page 2 of the lime circular are organic compounds of what has heretofore been believed to be an acid reaction and which the presence of lime in the soil prevents from forming. The ideas with respect to this matter may not be absolutely correct as more recent investigations show.

We recommend the application of quick lime and hydrated lime two or three months prior to planting simply because of the fact that these materials are caustic and are likely to destroy the organic matter of the young plants and thus kill them. Hydrated lime should be used no closer than one month to the time of planting any crop, regardless of the month of the year, but dependent entirely upon the time of planting. Quick lime does indeed, as has been found by recent researches, have a partially stimulating effect on the soil. The subsequent effect, however, after one season, is to increase the number of bacteria, probably because the quick lime removes other agents in the soil as well as some of the bacteria which are detrimental to the latter.

We recommend ground limestone in preference to the other forms of lime on light soils simply because they are more easily handled, because they are just as good for making acid soils alkaline, and because under normal conditions, though not always in California, ground limestone is very much cheaper than the other forms.

Gypsum may stimulate many other forms of bacteria besides the legume bacteria, but not necessarily all of them.

TULARE COUNTY TEPARIES.

To the Editor: Your article on the tepary bean makes me wish to tell my experiences in Tulare county. I planted five 50-foot rows in the garden. It took half a pound of seed. I watered them every ten days; but did not cultivate, as the vines had grown runners so long that I could not cultivate, but they kept on bearing as long as I irrigated. These yielded 25 pounds of dried beans from five pickings. I planted some under field conditions, using three pounds of seed to plant eight rows across ten acres. The ground was furrowed out, water run in the furrows; and when the ground was in condition to cultivate, I used a one-horse cultivator twice over each row. A one-horse corn planter was used with a plate having holes big enough so the beans did not crack or plug up. Some of these teparies had water only once and some twice; the lack of irrigation being made up with plenty of cultivation. There was not much difference in the yield. I would advise the planting 30 inches apart. I did not notice that the flowers dropped much during our hottest weather, though they were in bloom all the time.

Lindsay. CARL NELSON.

TRUE TO NAME

"Behind ... is ...

SILVA-BERG

Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree and a tree that is true to name.

The Time to Plant Fruit Trees

Is Now

Look over this list: It shows the number, size and price of each variety available at this date.

Fruit growers are fast depleting our stock, so we would advise an early selection or it will be impossible for us to fulfill your wants. Our list shows how low our stock is. By ordering now we can make immediate shipment of TREES TRUE TO NAME.

We specialize on foot-hill grown stock for hardiness, good, well-branched roots, freedom from root knot and disease.

They are superior to those grown in any other soil or location.

Order today, if possible.

A special discount of 5% allowed for cash with order.

FRUIT TREE SPECIALS

Growers and Shippers as Well as Nurserym

Trees in Stock Feb. 5th

ALMOND ON ALMOND AND PEACH ROOT

4 to 6 feet	[illegible]	[illegible]	[illegible]	[illegible]
3 to 4 feet	[illegible]	[illegible]	[illegible]	125.00
2 to 3 feet	[illegible]	[illegible]	[illegible]	[illegible]
1 to 2 feet	[illegible]	[illegible]	[illegible]	80.00
On Almond	**4-6**	**3-4**	**2-3**	**1-2**
Drake's Seedling	[illegible]	[illegible]	[illegible]	[illegible]
I X L	[illegible]	[illegible]	[illegible]	[illegible]
Nonpareil	...	...	...	2717
No Pits	[illegible]	[illegible]	[illegible]	1750
Peerless	[illegible]	[illegible]	1074	2000
Texas Prolific	[illegible]	[illegible]	1254	1411
On Peach				
Drake's Seedling	[illegible]	[illegible]	469	
I X L	[illegible]	[illegible]	134	52
Peerless	[illegible]	[illegible]	[illegible]	70
Texas Prolific	[illegible]	[illegible]	195	

APRICOT ON APRICOT AND PEACH ROOT

4 to 6 feet	[illegible]	[illegible]	[illegible]	$170.00
3 to 4 feet	[illegible]	[illegible]	[illegible]	125.00
2 to 3 feet	[illegible]	[illegible]	[illegible]	90.00
On Apricot	**4-6**	**3-4**	**2-3**	**1-2**
Gibson	[illegible]	1700	795	200
Moorpark	627	477	[illegible]	163
Newcastle Early	[illegible]	1248	904	180
Royal	[illegible]	[illegible]	[illegible]	1109
Routiers Peach	[illegible]	445	58	13
Tilton	[illegible]	1944	[illegible]	229
On Peach				
Blenheim	669	159	170	69
Moorpark	[illegible]	[illegible]	[illegible]	15
Newcastle Early	[illegible]	70	474	58
Royal	1000	...	...	70
Routiers Peach	160	36	30	

APRICOT ON MYROBOLAN ROOT

	Each	10	100
4 to 6 feet	$0.40	$3.50	$27.50
3 to 4 feet	.35	3.00	23.50
2 to 3 feet	.30	2.50	18.50
1 to 2 feet	.25	2.00	15.00
	[illegible]	[illegible]	1-2
Blenheim	...	...	55
Moorpark	14	28	23
Royal	[illegible]	[illegible]	104
Routiers Peach	[illegible]	[illegible]	[illegible]
Tilton		15	25

PLUM ON ALMOND AND PEACH ROOT

4 to 6 feet	$0.40	$3.50	$22.00	$185.00
3 to 4 feet	[illegible]	[illegible]	[illegible]	[illegible]
2 to 3 feet	.30	2.50	14.00	115.00
On Almond	**4-6**	**3-4**	**2-3**	**1-2**
Burbank	[illegible]	21	80	112
Climax	636	515	160	150
Diamond	[illegible]	111	299	1100
Formosa	941	755	8	40
Fellenberg	...	..	30	
Giant	167	70	60	80
Grand Duke	817	[illegible]	241	269
Gaviota	387	409	145	90
Hungarian	387			..
Kelsey	11	87	138	60
Santa Rosa			224	510
Tragedy			71	130
Wickson	376	10	50	
Yellow Egg	10	10	50	10
On Peach				
Beauty		105	98	100
Burbank	716	51	20	20
Climax	532	297	1	150
Coe's Golden Drop	104	100	...	50
Formosa	1099	457	5	100
Giant	253	348	102	40
Grand Duke	415	14	2	30
Gaviota	473	236	80	50
Hungarian	289	104	43	...
Kelsey	159	480	...	10
Santa Rosa	...	447	199	...
Satsuma	1000	600	567	540
Tragedy	557	193	239	...
Vacaville	130	...	167	360
Wickson	1694	49	138	25

PLUM ON MYROBOLAN

	Each
4 to 6 feet	$0.40
3 to 4 feet	.35
2 to 3 feet	.30
1 to 2 feet	.25
	4-6
Beauty	1
Burbank	117
Climax	109
Duane	100
Coe's Golden Drop	58
Diamond	5
Damson	92
Formosa	192
Fellenberg	344
Giant	524
Grand Duke	385
Gaviota	621
Imperial Gage	92
Jefferson	105
Kelsey	110
Quackenboss	
Queen Rosa	347
Satsuma	168
Tragedy	
Vacaville	6
Wickson	12
Yellow Egg	120

PRUNE ON ALMOND, PEACH AND

	Each	10
4 to 6 feet	$0.40	$3.50
3 to 4 feet	.35	3.00
2 to 3 feet	.30	2.50
1 to 2 feet	.25	2.00
On Almond		
Compiegne	287	1
French	1747	85
Imperial		9
On Apricot		
French	156	1
On Peach		
Compiegne	494	2
French	2451	
Imperial	109	2
Robe de Sargent		
Standard	918	3
Sugar	197	2

PRUNE ON MYROBOLAN

	Each
4 to 6 feet	$0.45
3 to 4 feet	40
2 to 3 feet	35
1 to 2 feet	30
	1-2
Compiegne	48
French	749
Imperial	100
Robe de Sargent	27
Sugar	
Standard	

PEAR ON PEAR ROOT

	Each	10
4 to 6 feet	$0.40	$3.00
3 to 4 feet	.35	2.50
2 to 3 feet	.30	2.00
1 to 2 feet	.25	1.75
	4-6	
Bartlett	1250	1300
Beurre d'Anjou	1494	462
Beurre Bosc	21	1
Beurre Hardy		
Beurre Clairgeau	907	160
Comet	335	185
Comic	430	305
Winter Nelis	118	18
Wilder		

PEAR ON QUINCE.

	Each	10
4 to 6 feet	$0.40	$3.00
3 to 4 feet	.35	2.50
2 to 3 feet	.30	2.00
	4-6	3-4
Bartlett	166	
Beurre d'Anjou	1824	72
Comic	390	48
Winter Nelis	1027	47

SILVA-BERG

NEWCASTLE

ach tree
r guarantee"

Our name and guarantee stands back of every tree leaving our nursery. When you purchase SILVA-BERGTHOLDT TREES you buy from a firm who are fruit growers and shippers as well as nurserymen.

Our years of experience, knowledge and observation in horticulture are at your service. We show you how to succeed.

CHERRY ON MAZZARD ROOT

	Each	10	100	1000
4 to 6 feet	$0.40	$3.00	$22.00	$185.00
3 to 4 feet	.35	2.50	17.50	140.00
2 to 3 feet	25	2.00	13.00	100.00

	4-6	3-4	2-3	1-2
Bing	1125	829	258	...
Black Tartarian	1000	500	198	10
Black Oregon	606	252	228	150
Early Purple Guigne	128	..	27	...
Royal Ann	1471	186	494	100

CLINGSTONE PEACH

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$22.00	$180.00
3 to 4 feet	.29	2.50	19.00	155.00
2 to 3 feet	.25	2.00	15.00	125.00
1 to 2 feet	.2	1.50	12.00	85.00

	4-6	3-4	2-3	1-2
Levi	8601	3603	2112	280
McKevitt	296	517	306	..
McDevitt	2	99	242	..
Phillips	1500	..	..	1490
Tuscan	..	..	500	1315
White Heath	19	49	76	...

FREESTONE PEACHES

	Each	10	100	1000
4 to 6 feet	$0.35	$2.50	$18.00	$150.00
3 to 4 feet	.30	2.25	16.00	125.00
2 to 3 feet	.25	2.00	13.00	110.00
1 to 2 feet	.20	1.50	10.00	70.00

	4-6	3-4	2-3	1-2
Alexanders	285	186	433	...
Early Crawford	200	486	19	...
Elberta	1411	1021	569	6
Early Elberta	1082	1283	499	80
Foster	267	19	173	100
Hale's Early	279	149	25	25
Late Crawford	121	183	163	55
Lovell	1304	1500	257	..
Muir	1963	576	1777	512
Salway	95	35	250	...
Strawberry Free	..	151	40	20
St. John	100	..	43	30
Triumph	15	..	296	...
Yellow Swan	19	50	..	...

OLIVES ON PICHOLINE ROOT

	Each	10	100	1000
2 to 3 feet	$0.75	$5.50	$45.00	$275.00

	4-6	3-4	2-3	1-2
Mission	..	..	6292	...

OLIVES ON CUTTINGS

	Each	10	100	1000
6 to 8 feet	$1.15	$9.00	$70.00	$625.00
4 to 6 feet	.90	7.50	60.00	525.00
3 to 4 feet	.75	6.00	50.00	350.00
2 to 3 feet	.65	4.50	35.00	275.00

	6-8	4-6	3-4	2-3
Mission	1570	1017	1080	1250
Manzanillo	250	361	63	32
Sevillano	..	42	33	...

WALNUT GRAFTED ON BLACK WALNUT ROOT

	Each	10	100	1000
6 to 8 feet	$1.50	$12.50	$80.00	$700.00
4 to 6 feet	1.25	9.00	65.00	600.00
3 to 4 feet	1.00	7.00	50.00	450.00
2 to 3 feet	.75	6.00	40.00	350.00

	6-8	4-6	3-4	2-3
Concord	1	6	8	...
Franquette	188	57	...	...
Mayette	500	1191	500	100
Neff's Pro	..	2	7	7

QUINCE ON QUINCE ROOT

	Each	10	100	1000
4 to 6 feet	$0.40	$3.50	$23.00	$200.00
3 to 4 feet	.35	3.00	20.00	175.00
2 to 3 feet	.30	2.50	16.50	125.00

	4-6	3-4	2-3	1-2
Orange	240	157	...	...
Pineapple	...	387	...	20
Rea's Mammoth	202	140	29	..

	Each	10	100	1000
Smyrna	459	129	136	..
Van Deman	917	744	377	20

APPLE ON APPLE ROOT

	Each	10	100	1000
4 to 6 feet	$0.30	$2.50	$15.00	$125.00
3 to 4 feet	.25	2.00	13.50	115.00
2 to 3 feet	.25	1.75	12.00	100.00

	4-6	3-4	2-3	1-2
Alexander	42	...	...	...
Arkansas Black	209	122	2	...
Bellflower (Yellow)	1341	153	13	...
Baldwin	22	13	9	...
Delicious	513	100	75	...
Early Harvest	50	25	...	...
Gravenstein	500	152	17	...
Grimes Golden	47	48	..	..
Jonathan	159	26	7	.
King David	100	50	...	
Mammoth Black Twig	41	31	...	
Ortley	150	50	..	
Red June	143	44	.	
Rome Beauty	201	15	..	
R. I. Greening	24	8	...	
Red Astrachan	200	25	...	
Spitzenberg	40	58	...	
Tolman	30	70	..	
White Winter Pearmain	152	54	..	
Winter Banana	73	65	...	..
Wagner	15	45	..	...
Yellow Newton	825	260	..	...
Yellow Transparent	23	25	..	...

APPLE ON RESISTANT ROOT

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$18.50	$160.00
3 to 4 feet	.30	2.50	16.00	135.00
2 to 3 feet	.30	2.00	13.50	120.00

	4-6	3-4	2-3	1-2
Alexander	373	21	87	..
Bellflower (Yellow)	126	25	106	...
Ben Davis	108	37	...	...
Delicious	245	91	15	...
R. I. Greening	56	67	8	
Red Astrachan	365	79	21	...
Spitzenberg	356	55	28	...
Stayman Winesap	352	45	7	...
White Astrachan	379	...	...	..
Yellow Newtown	223	35	1	...
York Imperial	...	60	...	..

Crab Apple

	4-6	3-4	2-3	1-2
Red Siberian	53	84	...	...
Hyslop	65	88	.	
Yellow Siberian	..	47	...	...

PERSIMMONS

	Each	10	100	1000
3 to 4 feet	$0.35	$2.50	$20.00	$125.00

	4-6	3-4	2-3	1-2
Hyakume	...	1441	...	...
Hachiya	...	883	...	...
Mammoth Goshio	...	289	...	...
Tane-Nashi	...	1627	...	...

NECTARINE

	Each	10	100	1000
4 to 6 feet	$0.40	$3.50	$25.00	.....
3 to 4 feet	.35	3.00	20.00	.....

On Peach

	4-6	3-4	2-3	1-2
Boston	50	25	...	...
Stanwick	42	...	79	...
New White	18	...	..	...
Victoria	100	...	...	...

PECAN GRAFTED

	Each	10
4 to 6 feet	$1.75	$15.00

	4-6	3-4	2-3	1-2
Stewart	93	...	...	...

GRAPE—AMERICAN VARIETIES

	Each	10	100
Strong 2-year-old vines	$0.20	$1.50	$10.00

	Vines		Vines
Concord	135	Worden	117
Catawba	17	Isabella	134
Niagara	23		

GRAPES—EUROPEAN VARIETIES

	Each	10	100	1000
Rooted vines	$0.10	$0.75	$2.50	$17.50

	Vines		Vines
Black Morocco	675	Malaga	1164
Black Ferrera	528	Purple Damascus	293
Fountainbleau	247	Rose Peru	1763
Lady Finger	5	Thompson Seedless	8297
Muscat	2000	Tokay	2251
Mission	400		

FIG

	Each	10	100	1000
4 to 6 feet	$0.60	$3.50	$22.50	$200.00
3 to 4 feet	.50	3.00	20.00	170.00
2 to 3 feet	.35	2.50	17.50	140.00

	4-6	3-4	2-3	1-2
Celestina	39	106	276	...
Mission	200	59	62	
White Adriatic	200	224	186	..

BLACKBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$2.50	$15.00

Lawton ..... 3000 Lucretia Dewberry .. 4000
Mammoth 634

RASPBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$2.50	$15.00

Cuthbert ..... 5000 King 2000
Hansel ..... 200 Kansas 50

LOGANBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.75	$5.00	$30.00

Loganberry 2325

PHENOMENAL BERRY

	Each	10	100	1000
Rooted plants	$0.15	$1.00	$7.50	$50.00

Phenomenal 1734

STRAWBERRY

	Each	10	100	1000
Rooted plants	$0.10	$0.50	$2.00	$10.00

Dollar Berry 100,000

GOOSEBERRY

One-year plants ..... $0.25 $2.00 $15.00 .....
Oregon Champion 394

CURRANT

Strong one-year plants $0.15 $1.25 $10.00
Cherry 134
Fay's Prolific 424
White Grape 196

SEEDLINGS

We quote strong, well rooted Seedlings in lots of 100 or more.

		Each
Bitter Almond	500	$0.10
Myrobolan	3000	.10
Mazzard	100	.08
Natural Peach	2000	.08

ORANGES, LEMONS AND POMELOS

For pleasure, attractiveness and profit nothing will enhance the value of your home or ranch so much as a dozen or more well-kept citrus trees. Oranges, Lemons and Pomelos can be successfully grown in every section of California up to an altitude of 1200 feet. NOW IS THE BEST TIME TO PLANT. We have a fine lot of trees in all varieties, on which we are prepared to make immediate delivery.

Prices on All Varieties

	Each	10	100
3-8 to 3-4-inch caliber, balled	$1.25	$11.00	$80.00
1-2 to 5-8-inch caliber, balled	$1.10	10.00	70.00

Prices are F. O. B. Newcastle with a nominal charge for boxing.

Varieties	3/8 to 3/4 in.	1/2 to 5/8 in.
Washington Navel Orange	596	200
Valencia Late Orange	250	150
Thomoson's Improved Navel Orange	20	20
Golden Nugget Navel Orange	20	..
Genshui Orange	.	..
Satsuma Tangerine	30	...
Nancy Tangerine	45	...
Eureka Lemon	175	125
Lisbon Lemon	115	45
Villa Franca Lemon	254	60
Marsh Seedless Pomelo	250	25
Triumph Pomelo	150	40

ORNAMENTALS

We offer also a few fine, large trees in several of the Standard Ornamental Varieties.

Prices

	Each	10
8-10 feet	$0.60	$0.50
6-8 feet	.50	.40
5-6 feet	.40	.30

Varieties

	8-10	6-8	5-6
Texas Umbrella	200	200	40
American Elm	200	500	300
Norway Maple	20	50	50
Silver Leaf Maple	50	50	20
Mountain Ash	20	50	10
American Sycamore	200	200	100
Catalpa Special	100	150	25
Carolina Poplar	100	20	...
Russian Mulberry	...	20	100

THOLDT CO.
CALIFORNIA

GYPSUM AND FLIES.

To the Editor: A few numbers back I saw an article on manure pits. The gentleman wrote of the action of gypsum on the fly pest and preserving the manure. Can you tell me what definite information you possess? I am looking for a means of keeping down the flies and I do not wish to injure the manure, either by liberating the valuable parts of it or stopping the bacterial action.—A. W. Woodside.

[Usually the greatest loss of farm manure is due to failure to save the liquid excrement of the animals, the nitrogen of which is chiefly contained in the compound known as urea. Unless properly handled decomposition by fermentation rapidly follows and the matter is changed into ammonium carbonate, which is volatile, and passes off into the air, where it can be detected by the odor of ammonia. Due to this escape of ammonia, horse and sheep manures are particularly subject to this loss of nitrogen. By using gypsum or land plaster, which fixes the ammonia in part by forming ammonium sulphate, which is non-volatile, the escape of ammonia can be somewhat lessened. This is the chief reason for the Malone Ranch company using gypsum as formerly described, although it materially aids in solving the fly question at the pit. Many dairymen use from one half to a pound of gypsum per 1000 pounds of animals in their milking barns, scattering it on the floor after the barn has been cleaned. The Millbrae Dairy of San Mateo county practices this in order to keep flies down as well as foul odors. You need not fear damaging the quality of your moisture through liberal use of gypsum.—Editors.]

WATER CONVEYING TO TAKE LESS LAND.

To the Editor: I am laying out some ditches for a farm. I want them to carry about 4.2 second feet of water. There is a ditch described in Farmer's Bulletin 373, having this capacity of 4.2 second feet. It takes up too much land as it is 12 ft. wide over all. Would it be possible to make a ditch with very much steeper banks than the one mentioned by oiling it with an asphalt base oil to protect it from erosion? If so, could you give me some idea of how steep I might make the banks, some idea of the method of applying the oil, and the amount of oil to be used per square yard? the soil is clay loam.—Subscriber, San Francisco.

[Answered by Prof. B. A. Etcheverry.]

[In reply to the above letter, I would advise your subscriber that the ditch to which he refers can be built with steeper slopes, so that it will not need to take over about eight feet of ground if slopes of 1:1 are used. I doubt if the use of the asphalt base oil would be of any particular advantage, as a clay loam soil would probably stand on this slope.

In case he desires to save the land, an 18-inch pipe would give him about the same capacity as this ditch. Also a flume, 18 inches wide by 12 inches deep, would carry the same amount of water. The pipe could be buried, so as to require practically no space, and the flume would also need little width.

University of California, Berkeley.

Grape growers to the number of 175 gathered at a banquet Feb. 4 to hear addresses by the Associated Raisin Co. officials and others.

Agricultural Review

CITRUS AND SEMITROPICAL.

The shipping season in the Ontario district is at its height with a total estimated crop of over 3000 cars of oranges and 600 cars of lemons. A car of oranges was recently shipped from that district to England.

A Riverside man suggests the "buy a box" idea for oranges. If retailers would make a special price on boxes of oranges he thinks that the local consumption would be greatly increased.

The forty-second anniversary of the planting of the first navel oranges in California will be celebrated during the National Orange Show at San Bernardino Feb. 17 to 24.

The planting of grapefruit in Imperial Valley is receiving quite a boom. Considerably over 100 acres in small lots of five to ten acres are being planted in several of the districts of the Valley.

An avocado tree containing an estimated 3000 pears, each weighing about one pound, is claimed by J. H. Walker of Los Angeles county. The tree is seventeen years old, 35 feet high and has a 30-foot spread.

A fig tree at Live Oak with a spread of 65 feet and a height of over 50 feet is claimed to be the biggest in America. It is 35 years old and its trunk is 9 feet, 2 inches in circumference: the largest limb being 5 feet, 7 inches.

The Interstate Commerce Commission recently permitted the railroads to make special rates on fruit and vegetables from California to Montana by way of Portland. This will give us a considerably greater outlet than heretofore, and lemon growers of Santa Barbara county are rejoicing.

OLIVES AND NUTS.

About 60 acres of land in one tract are to be set to almonds near Paso Robles.

The Clovis Grammar School has 100 young pecan trees on its playgrounds, set there with the idea of beautifying the grounds and attracting the boys to school.

The American Investment Co. is preparing to set out 6000 acres to olives in Glenn county, to be subdivided for settlers as soon as the olives are well started. Water for irrigation will be developed from wells.

A very good move is being helped along by the California Ripe Olive Company in urging those who are to sell olives to them to be very careful to have their olives ripe enough to conform to the standard, which the company says is soon to be established by the Government. They suggest the early maturing of olives in order to avoid danger of frost. The means for hastening maturity are suggested as proper irrigation, fertilization, and pruning. They say that olives will develop faster and become larger in size if the limbs are thinned out.

DECIDUOUS FRUITS.

A new fruit shed is being planned for Elk Grove by the Pioneer Fruit Co. at a cost of $1500.

About 40,000 apricot trees are to be planted this year in the Hollister valley, and about as many trees of other kinds of fruit.

About 50 cars of prunes, peaches, pears, and apricots have been shipped from Chico this season by way of the Panama Canal.

Horticultural Commissioner C. R. McBride, of Solano county, is going into the nursery business with C. J. Uhl of Vacaville.

Chico's new cannery is assured. It, like all other canneries now being put in, will handle both vegetables and fruits.

There are commercial peach orchards in 39 out of the 48 states in the Union. California ranks third in the total acreage and second in the acreage of non-bearing trees.

Chico is to exhibit 140 boxes of fancy packed fruit at the San Francisco Exposition. These shall include prunes, figs, peaches, pears, and apricots.

Ernest Gammon of Sacramento county is planning to plant 5000 Bartlett pears in spite of the big fight against pear blight which is being waged in the river district.

According to the Horticultural Commissioners' reports of fruit acreage, California has 515,517 acres in bearing and a little over one-half as much non-bearing.

Plans are being made to put up another cannery at Atwater. The cannery people are offering to make long time contracts for cling peaches and this is stimulating the planting of that fruit.

The Contra Costa County Fruit Growers' Association recently met to consider the state of their roads. There is a very direct connection between roads and fruit.

Horticultural Commissioner B. V. Sharp, of Kings county, says that more prunes will be planted there this year than ever before. Apricots also are having an inning and peaches are very popular in planting. Loganberry and strawberry tree planting will aggregate several hundred acres.

Cold storage of apples in Sonoma county is receiving a big boost by the Sebastopol Apple Growers' Union authorizing an indebtedness of $15,000 for the purpose of providing a cold storage plant. It will be remembered that the Press described the cold storage plant of C. H. King in a recent issue.

A. C. Wheelock says that the growers of Fresno county are feeling optimistic in regard to the canning peach proposition. They are also being stirred by the idea of peeling peaches before drying since prices are nearly doubled in that way.

The Kerman Cured Fruit Association, affiliated with the California Cured Fruit Exchange, reports the netting of one to three cents more for peaches during the two years of its affiliation than for fruit sold outside of the Exchange.

POTASH

is food for thought as well as for crops this year.

When shipments were interrupted by the war, it was estimated that there was enough Potash on hand in the United States to provide two and three per cent Potash in mixed fertilizers for this spring's trade. Some manufacturers had more than enough for these percentages.

Since then minor sources of Potash have been fully utilized, and additional shipments from the usual source are still being received.

The supply is below normal, but this need not prevent farmers securing some Potash in their fertilizers, nor should it lead farmers to decide not to use fertilizers.

There is no reason to return to the out-of-date goods without Potash, although some authorities may try to "wish" them on us.

We have not used enough Potash in the past. The largest annual import of Potash was only one-seventieth of the Potash *taken from the soil* by our *1914 corn crop* and only one-fifteenth of the Potash lost every year in drainage water.

Spring crops use from two to ten times as much Potash as Phosphoric Acid. Get as much Potash in the fertilizer as possible. A few firms are offering to furnish from four to ten per cent.

There is no substitute for Potash. It may be harder to get just now, but POTASH PAYS.

GERMAN KALI WORKS, Inc., 42 Broadway, New York
Chicago, McCormick Block — San Francisco, 25 California St.
Atlanta, Empire Bldg. — Savannah, Bank & Trust Bldg.
New Orleans, Whitney Central Bank Bldg.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St.
San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco.
CALIFORNIA SEED CO., 151 Market St., San Francisco.
SUNSET NURSERY CO., 92 41st St., Oakland.
VALLANCE BROS., 31 Glen Ave., Oakland

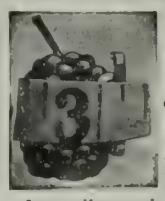
Beautify Your Home
FLORA FERTILIZER

spread on the lawn and around the flowers. For your spring planting of berries and vegetables — just the thing.

A 5-lb. can enough to cover a lawn of 200 square feet. At your seed store or florist's — 50c, or sent direct by parcels post, to any address in California—60c. Send money order, check or coin.

Write us for our prices on complete fertilizers, Nitrate of Soda, Bone Meal, Potash Salts, Superphosphate, etc.

Pac. Bone, Coal & Fertilizing Co.
203 Clunie Bldg., San Francisco.



PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¼ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Lime, Air-Slacked

Good for Sour or Stiff Soil—Alfalfa, cover crops, beans, peas and crops in general.
H. B. MATTHEWS, Soil Chemist and Fertilizer Dealer
733 Merchants Ex. Bldg., San Francisco

Write for a copy of Morse's 1915 Garden Guide
Just off the press
Mailed Free

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Every packer of Morse's Seeds
Vegetable or Flower, are dependable seeds. Fully tested before packed.
For Sale Everywhere.

GRAPES AND SMALL FRUITS.

The Sebastopol Berry Growers recently decided not to declare a dividend with the profit of $1700 in their treasury, but to use it as capital for the coming season's business.

About 200 grape growers attended the meeting at Kingsburg to hear the result of the Associated Raisin Co.'s activities. The sentiment of the meeting was unanimous for signing up new contracts, even for ten years if the company should desire.

Grafting 70 acres of wine grapes to Thompson Seedless, A. C. Palladine expects to make his vineyard, which he cannot now sell at all, produce enough with the first crop to repay the expense of grafting and the loss of one crop.

Officials of the California Associated Raisin Co. are vigorously prosecuting the campaign for new contracts. Their exploits of the past two or three years are such that growers are easily influenced to join.

An Argentine soap maker has provided a process for the manufacture of oil from grape seeds. The inferior grades will be used for soap, the other for table use. The cost of production of the table oil is about 5.8c per pound.

The desire of the California Raisin Exchange to have a census made of all the grape growers in the State is proposed to be carried out by the State Board of Viticulture Commission, who expect to list the names, acreage, and varieties grown by all vineyardists in the State.

Grapes at 30 years of age having been properly pruned would produce better than vines six years old, pruned under present conditions, according to Frank Henry of Fresno county. Pruning has a vital relation to sunburn, wind damage, and the injury to grapes, besides regulation of size of bunches and berries.

A dividend of 20 per cent on subscribed capital was declared by the San Joaquin Table Grape Growers' Association, to be paid in cash to its 66 stockholders. A tonnage dividend was also declared to all growers who shipped through the Association, whose marketing is done through the California Fruit Exchange. Not a serious result of one of the biggest table grape shipping seasons California has had!

A demonstration of grape pruning was given by Prof. F. T. Bioletti of the University of California near Lodi recently. The Professor brought out the points that inferior grapes are largely due to overbearing of weak vines and to the irregular distribution of grapes, due to pruning. He says that three-year-old vines should have a paying crop and that they should be in full bearing the next year.

GRAIN AND FIELD CROPS.

A number of Butte county rice growers have leased a large acreage of Tulare county lands, which they will plant to rice in tracts of 80 acres each.

A ranch in Monterey county claims to have grown corn every year since 1779—about 200 acres are planted each season now, most of which is cut for silage to be fed to dairy cattle, hogs, and beef cattle.

Several 5000 gallon tanks are being located in the vicinity of Garden Grove, Los Angeles county, to take care of the cucumber crop for pickles to be put up by one company, who have contracted for about 300 tons this season.

Grain seeding in Stanislaus county is about completed, according to H. G. Turner of the Grange Company. The wheat acreage is doubled this year, and barley is still heavily planted.

A number of Glenn county farmers are to raise Egyptian or Indian corn on their land between grain crops. They expect the corn to mature in time to sow the grain and reap the harvest before the next corn planting time comes.

Two new warehouses, with a capacity of 5,000 tons of grain, are to be built at Huron, Kings county. Last year about 40,000 acres of grain were raised in this section and this has been increased 10 per cent during the present season.

Butte county beards the lion in his den when she ships 4000 sacks, or about 200 tons, of rice by way of the Panama Canal to New Orleans, which is the natural outlet for the great rice districts of Louisiana and Arkansas.

The Potato Experiment Station at Moorland in the delta region has been discontinued because the company, which has financed the proposition, finds the experiments too expensive. However, the Government man, W. V. Shear, who had charge, will continue to advise the potato growers, especially in regard to avoiding diseases. A number of eastern states are quarantined against California potatoes.

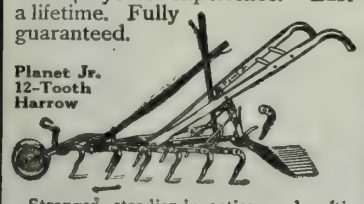
Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK, Dept. B.
731 Market St., San Francisco, Cal.

Planet Jr. Harrow-Wheel Hoe

Planet Jr. tools save time, lighten labor, and get bigger, better crops at less cost. Designed by a practical farmer and manufacturer with over 40 years' experience. Last a lifetime. Fully guaranteed.



Planet Jr. 12-Tooth Harrow

Stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Non-clogging steel wheel. Invaluable to the market-gardener, trucker, tobacco or small-fruit grower.

No. 16 Planet Jr. Single Wheel Hoe, Cultivator, Rake and Plow

The highest type of Single Wheel Hoe made. Light but strong, and can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Indestructible steel frame.

72-page Catalog (168 illustrations) free
Describes 55 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard-and Beet Cultivators.
Write postal for it.
S L ALLEN & CO Box 1203F Phila Pa
We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast Cities.

Are you going to plant

POTATOES

this year?

Then just look over the following figures and see how you could get an

80% Increased Yield

from the proper use of our SPECIAL POTATO FERTILIZERS.

	SACKS PER ACRE Unfertilized	Fertilized	Increase per Acre	Cost of Fertilizer	Net Profit Increase
SONOMA COUNTY, sandy soil	72¼	130	57¾ sks.	$ 9 per acre	$48.75
SAN JOAQUIN, peat lands	82	149¼	67¼ sks.	$12 per acre	$52.25

These figures are the results of actual tests, and we want to tell you how and by whom they were made.

Write Today for Free Information

Note: Tell us how many acres you will plant; when you will plant; fully describe character of your soil; how many plants per acre, or how many pounds seeded per acre; how many sacks per acre last produced.

Why till the soil for only half a crop when a little of our fertilizer will double the net results from your hard work?—Think this over!

THE PACIFIC GUANO & FERTILIZER CO. SAN FRANCISCO, CAL. TRADE MARK

The Pacific Guano & Fertilizer Co.
804 SECURITY BLDG.
San Francisco, California.

HIGH COST OF LIVING

It can be reduced by raising bigger crops and having more to sell. Also your labor and outlay can be made to pay much better by raising bigger crops and having more to sell.

Fertilizer is necessary, just as is the rain and sunshine. The sunshine warms the ground and starts the growth. The rain furnishes the moisture necessary to plant development. The fertilizer releases the life in the soil and makes it fertile.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

Fertilizer of animal origin produces the most life, by returning to the soil that which was taken from it. GOLD BEAR fertilizer is animal fertilizer, made at our meat packing plant.

There is an interesting booklet on fertilizer, which we shall be glad to mail upon request.

Western Meat Company
704 Townsend, St.
San Francisco

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening.
It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

LIME FOR LAND

HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

To Safeguard Horse Buyers.

[Written for PACIFIC RURAL PRESS.]

In line with their announced intention of putting the draft horse business of the State upon a surer and more sound basis, the California Draft Horse Breeders' association, through their board of directors, have announced the incorporating of many safeguards, in their first annual consignment sale, which should be of great value to the buying public.

With that intention in view each of the nine consignors have stated in their application blanks the number of colts sired by each stallion of a serviceable age as well as the colts foaled by mares of a breeding age. Thus all animals offered, except the young stock, are proven breeders, a factor well worthy of note.

To insure soundness in each animal, all consignments have been limited to sound stock only and to still further provide the buyer an opportunity of being certain of his choice in this respect, a representative of the veterinary staff of the University of California will be in attendance on sale day to advise any intending purchaser as to the soundness of any or all animals.

The main reason for securing such a veterinarian was the recognized reliability of such men and their absolute fairness to buyers as well as sellers. This should be a great help, especially to those farmers who have long desired one or more purebred mares or stallions, but who have hesitated in making purchases on account of their small knowledge of soundness in horses.

With the above plan in operation, the long-talked-of increase of heavy horses on smaller farms should become a reality as he will be able to either buy or sell at breeder's prices plus the small commission incurred in advertising, auctioneer fees, etc.

President Wheatley informs us that there will be at least 20 head of the three breeds, Percherons, Belgians and Shires, that many applications already have been reported to him by the secretary. This includes both mares and stallions of various ages, thereby insuring buyers a good selection.

Work is now progressing nicely on the catalogue and as soon as it comes from the printer's hands a copy will be sent to anyone desiring same.

The directors are very much pleased with present prospects of the sale, pointing to the immense exportation of horses which has been made in the past months to the warring nations, with the subsequent lessening of available supply for farm and city use in this country. Then, too, the halting of all importations of breeding stock from warring nations is causing an undersupply of stallions of serviceable age, not only in California but in the entire United States. These, the directors claim, will furnish farmers an added incentive for purchasing liberally of the animals being offered in their sale.

The offerings will include the well known Belgian stallion, Noirhatt Docteur 43494 (4050), belonging to the Thomas Gibson Estate of Woodland. This horse has proved himself a very successful sire. West Bros. of Hamilton City will send a good lot of Belgians consisting of three stallions and two mares.

Prof. Jenkins of Palo Alto sends four of his best Percheron mares. The Parrott Investment Co. consigns three stallions, two of which were purchased in France by a member of the company and one was bred on the ranch at Chico. Single Percheron stallion consignments are sent by the Percheron Stock Co. of Elmira, the Winters Breeders' Association and by J. Notsuya of Napa.

In Shires, Major Oak 12631 (26,428) comes from the Dos Palos Shire Horse Co. and the Salvador Stock Farm of Napa sends Salvador Forrest King 13385, the champion Shire Stallion at California State Fair 1914 and a good mare with foal at foot, by Harboro Combination and in foal again by the same horse, also a good yearling filly by Harboro Combination.

All the horses will be at the University Farm, Davis, the day before the sale and can be inspected at that time.

VACCINATED HOGS TO EAT.

To the Editor: On Dec. 31 last I lost two hogs with what the local veterinarian said was cholera. As soon as I found the second hog was sick I removed all the well hogs to another pen and on Jan. 2 had them immunized; the dose given was 5 cc immunizing fluid to 50 pounds weight. I would like to know when I could kill them with perfect safety for bacon, lard, etc. The hogs have always been perfectly healthy. I have never been able to detect the slightest effect from the immunizing I mean no reaction. I at once burned the dead hogs and disinfected the pen.—C. W., Lakeport.

[Answered by Dr. H. B. Wintringham, Petaluma.]

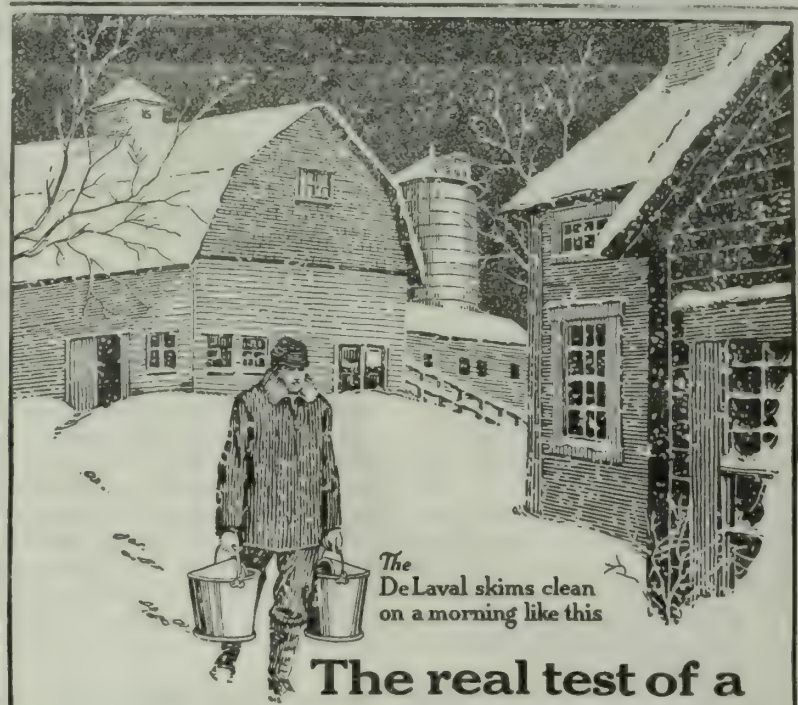
[The above strikes home to the writer rather personally, as he has bred pigs in this locality and also practiced as a veterinarian in Lakeport. It is with regret that he learns that a diagnosis of hog cholera has been made in Lake county. Up to one year ago he personally knows that no hog cholera had ever existed in the county. If cholera is now present it must have been brought in the past year. If the single method of vaccination was used, no harm will result; but if the simultaneous method of vaccination was given, you are now a focus of infection, which, unless strict measures are taken, will spread the disease throughout the county. In any case, the dosage of serum used on your hogs was too small to have done any good. The proper dosage is 20-25 c.c. per 100 lbs. live weight. No reaction would have been noted if your pigs were vaccinated by the serum alone method. Hogs are all right to kill and use for meat 21 days after vaccination. At that time they have cleared up and will pass the government inspection at abattoirs. Your veterinarian should have reported this case to the State Veterinarian to comply with the law, and we will take the matter up immediately with that office.]

FEEDING SMUTTY BARLEY.

To the Editor: Will you kindly answer through your good paper what effect will barley that has quite a little smut in it, so that when it is soaked it makes the water quite dark colored, have on hogs? Will it hurt them?—A Subscriber, Burrough.

[Naturally, the smutty grain will probably not be so nutritious as clean grain would be, but we believe you will be perfectly safe in feeding it to your hogs. In fact, we believe this to be a general practice among many grain growers, as it is the most profitable source of disposing of their smutty barley, as a rule.—Editors]

Workmanship and methods used in manufacturing dairy products influence quality and yield.



The real test of a cream separator

SKIMMING cold milk, or milk from stripper cows, or both, is the real test of a cream separator. If your separator is small, necessitating a long run, it's still harder to skim clean in cold weather.

The De Laval is the only cream separator that can be depended upon to do good work under such conditions.

That is largely because of the exclusive patented "split wing" feeding device in the De Laval bowl.

This delivers the incoming milk into the separating bowl between the discs beyond the cream wall so that there is no remixing of the cream with whole milk, as in the bowls of all other separators.

For this reason the De Laval will skim clean under the very hardest conditions, whereas other machines which may do fairly good skimming under favorable summer conditions are the worst kind of "cream thieves" in winter.

A De Laval catalog, to be had for the asking, will explain fully why the De Laval can be relied upon to do good work under any or all conditions, or the local De Laval agent will be glad to explain to you this and other reasons for De Laval superiority.

De Laval Dairy Supply Company, SAN FRANCISCO SEATTLE

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

GRANDSONS OF TILLY ALCARTRA

At Prices Within Reach of Every Breeder and Dairyman.

A GRANDSON OF TILLY ALCARTRA.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year.. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 **Williams, Cal.**

"THE NAME GIBSON INSURES QUALITY."

Poland China Hogs

Waukeen Stock Farm

offers for sale some young boars almost old enough for service; also a few choice gilts. Bred for size and quick maturity.

Quality first consideration.

EQUITABLE PRICES.

CHAS. N. ODELL, Prop. MODESTO, CAL.

Veterinary Queries.

[Answered by Dr. H. B. Wintringham, graduate of San Francisco Veterinary College.]

DOG IN TROUBLE.

To the Editor: I wonder if you would be able to tell me what to do for my pet dog. I think he has some kind of skin disease. His skin is very red, like fire; and he is itching and scratching all the time; has holes on his back and tail. The horse doctor here in town told me that it was fleas, but the dog has not had one flea the last two or three months. I used sheep dip and mange cure and everything I could think of, so my last hope is if you could tell me what to do.—Mrs. M. A. M., Livermore.

[The following treatment carefully carried out will cure your dog. Internally give one ounce castor oil and one ounce syrup of Buckthorn mixed together. After this purgative has acted, get one-half ounce Fowlers Solution and give five drops of this twice daily until gone. The above doses are for dogs weighing about 40 pounds; doses in proportion for other weights. Externally give dog a good bath in hot soap and water, using a brush and being sure to scrub off all scabs and scales. Then immerse animal in a lime sulphur dip for five minutes. This is composed of lime eight parts, sulphur 24 parts and water 100 parts. Your druggist can make this for you. Repeat the bath and immersion in the sulphur dip three times at intervals of ten days. After the bath, thoroughly dry the animal and apply and work in thoroughly all over the skin the following, which your druggist can make up for you: Oil tar, one ounce; flowers of sulphur, one ounce; Oil cajuput, one ounce and Neutral Oil, enough to make one quart. Keep dog on a light diet.]

MAMMITIS AGAIN.

To the Editor: As you seem to be the repository of all the sad tidings your subscribers chance to possess from guineas to goats, from hogs to elephants, please listen to mine. Bought a Jersey cow this summer, fat and fine; small flow of milk extremely rich; nearly all cream, even on dry feed. Four months ago overslept one hour Sunday morning and cow's milk was considerably lumpy. On three other occasions when milking out of regular hours, milk was bad. Took two days to clear up. Six weeks ago milk became bitter and small lumpy particles appeared in milk constantly. Grass becoming better, milk flow increased and bitterness also increased. Period of lactation probably nine months, maybe eleven. Cow will freshen within the next thirty days. Have tried unsuccessfully to dry her up for last ten days. What may the trouble be, and, should it occur when she freshens, what shall I do about it? One teat flows double the milk any other, and it made most of the trouble, but not all of it.—W. S. C., Sultana.

[Your cow has mammitis or garget. It would be advisable to call in your nearest graduate veterinarian to treat this trouble.]

INFECTIOUS ABORTION.

To the Editor: I have a Jersey cow; got her in Oct., 1913, and was to calf in March, 1914, but lost it in December, 1913, and didn't clean very good. I bred her in June, 1914, (had to take her three times before she caught), and was to calf in March, 1915, but lost it February 1, 1915, and hasn't cleaned any yet. I would like to ask if there is anything to give her to make her clean good. She eats good and was dry about 10 days before she lost calf this year. Is there anything to give her after she has gone about five months so she won't lose it again. It looks to me as if she was weak in the womb.—J. S. L., Winton.

[Your cow has infectious abortion. There is no drug which will make a cow clean. Clean her out as described in article, "Infectious Abortion of Cattle," which appeared in this paper Jan. 9th. You might try the methylene blue treatment when she is safe in calf again. Give one ounce of methylene blue for six consecutive days, then skip one week and give six one-ounce doses every other day. Have had some good results from this treatment given in this way.]

BEET SYRUP FOR HOGS.

To the Editor: Is sugar beet syrup injurious to hogs if fed in too larger quantities and how much would make a balanced ration fed to 50-pound hogs, cooked with alfalfa, potatoes and barley? Is sugar beet syrup injurious to brood sows?—Subscriber.

[Answered by J. M. Bomberger, Modesto.]

[I have fed cane molasses to hogs very successfully during the past three years; but have fed no beet molasses. Beet molasses is said to be injurious when fed in large quantities (Sweden Expt. Sta. Rec. Vol. 7.) because of it containing a large percent of alakaline minerals. A small amount may be fed in skim milk to hogs; but animals in advanced pregnancy should be allowed but a very small amount. (Hollrung). The mixture of alfalfa, potatoes, barley and beet molasses would be decidedly short of protein, especially for growing hogs

I would advise you to try the following mixture: 10 lbs. alfalfa (meal or hay) 40 lbs. potatoes; 6 lbs. molasses. Then to supply the required amount of protein you should add either 60 pounds of skim milk or 10 pounds of cocoanut meal or five lbs. of tankage. The potatoes only will be benefited by cooking. The addition of five or ten pounds of barley would perhaps improve the above mixture; but would hardly be profitable at present value of barley.]

WHAT IS TANKAGE?

To the Editor: We have read in your paper about people feeding tankage and would like to know the meaning of the word.—Subscriber. Marysville.

[This is a by-product of large meat packing establishments and is made of scraps and trimmings from meat and fat, hair and other residue from the plant. After cooking or steaming for several hours in pressure tanks, all existing disease germs are destroyed, the grease being drawn off and the greater part of the moisture either pressed out or evaporated. After processing it resembles dark wheat shorts and is usually sold in 100-pound sacks. Packers maintain that it will keep indefinitely under fairly good storage conditions. It is rich in protein and therefore used chiefly as a substitute for skim milk, it being especially recommended for young pigs. Its use has been limited in this State by the small supply available.—Editors.]

First Annual Consignment Sale

OF REGISTERED

Percheron-Shire-Belgian

Horses

To Be Held at the

UNIVERSITY FARM, DAVIS, CAL.

Feb. 24, 1915

SALE COMMENCES AT 1 P. M.

This sale has been inaugurated by the Draft Horse Breeders' Association, and is the first step towards the development of a better market for pure-bred draft horses in California. It will be an exceptional sale in many respects, but particularly in the effort which is being made to protect the buyer.

Free Examination by Veterinarian

In the first place, the rules laid down by the Association bar all unsound horses from the sale, and every breeding animal is accompanied by a signed statement from the consignor, showing clearly the horse's breeding ability. There will also be in attendance at the sale a member of the University of California's Veterinary Staff, who will examine any horse upon request.

From Breeder to Buyer Direct

These precautions will make the sale a perfectly safe place to buy a horse, even for the inexperienced, and by bringing to a centrally located place, a large selection of stallions and mares of the three-mentioned breeds, the buyer is given an opportunity for comparison and choice, which is not often available and it will certainly be a good chance to buy either a stallion or a mare at breeder's prices.

Horses will be on grounds one day before sale for inspection. See names of consignors in another column of this issue. Catalogs sent on application to

J. L. THOMPSON

Sec'y Draft Horse Breeders Ass'n.

WM. HIGGINBOTHAM, Auctioneer

UNIVERSITY FARM, DAVIS, CAL.

With the Live Stock Men

[We shall be glad to publish personal items boiled down, concerning the doings of western stock growers. Let us hear from you.]

DAIRYING.

Henry King of Sonoma county recently imported three purebred Ayrshire heifers from Oregon.

Two carloads of butter have been shipped from Chicago to England and negotiations are on for more.

Dairy Inspector S. T. Watson reports the dairy ranches of Marin county in first-class condition.

Fred Howard has taken charge of the Shafter Ranch of Marin county and is tearing down all of the old buildings and replacing them with modern equipment.

San Joaquin county Farm Adviser Lyons proposes to convince his dairy constituents that they will make money by selling 25 per cent of their dairy cows for beef. This won't be hard, for steps are being taken to form a cow testing association.

The Penn Valley Creamery Ass'n. is producing about 100,000 pounds of butter annually from 500 cows, and hopes shortly to increase the output because irrigation water has been cheapened. That will add not only to the milk, but also to the butterfat by permitting more tame forage to be grown.

The California Jersey Breeders' Association met at Modesto last week and partly decided to maintain a Jersey view herd of ten or twelve cows at the Panama-Pacific all the next year. This would make a total of about 40 head necessary because they would have to be moved to Petaluma occasionally to keep them in good condition.

CATTLE AND SHEEP.

J. D. Biddle of Kings county has imported six carloads of steers and forty of sheep from Arizona to eat up the surplus hay.

About a thousand Arizona goats are grazing the Eldorado national forest, browsing on manzanita and other brush that cattle do not eat.

N. M. Moore of Sonoma county, who used to handle about 2000 sheep, claims that he had to quit because the coyotes took the profits from his flock. He believes that the county should pay a bounty of $20 for each coyote killed.

Kansas and Oklahoma have been quarantined against the shipment of livestock into California without the shippers first getting a permit from the California State Veterinarian. This is on account of the foot and mouth disease. The Government has quarantined four Kansas counties.

The Nevada State Sheep Commission reports that there is very little scab in the flocks of the State. This report shows that there are about 284,000 sheep in Elko county; 175,000 in Humboldt and 153,000 in Washoe county. The total number of the sheep in the State is about 902,000, valued at over $1,800,000.

HORSES AND SWINE.

A Merced county swine breeders' association is being considered to coordinate the local associations that have been organized at Merced, Livingston, Gustine, Dos Palos, etc.

J. M. Robinson of Sebastopol has shipped three purebred Berkshires to E. W. Whipple of Mendocino county; one to Mr. Helman of Santa Rosa and one to J. J. Hale of Sebastopol.

A bunch of Sonoma county farmers have recently bought the three-year-old black Percheron stallion, Laos. This horse won fourth prize in a class of 68 three-year-olds at the Percheron Show of France last July.

A Kings county swine breeders' association is in the making. At a meeting held last week the leading swine breeders spoke in favor of such an organization for the purpose of taking action against tuberculosis and cholera among Kings county hogs.

The people of Tulare county think that the reported 15,000 horses and mules, which have been shipped to the Hawaiian Islands within two months, are destined for the European countries, in spite of the denials of the buyers. About 31 head were recently bought around Visalia by Caton & Karr.

The Irish Government gives its Dept. of Agr. authority either to segregate diseased animals or have them slaughtered. If they are slaughtered and the post-mortem shows that they were diseased, the Government pays the owner one-half of the value. If the post-mortem shows that the animals were not diseased, the Government refunds the total value.

Visalia and Tulare county high school agricultural clubs are enrolling students in a hog-raising contest, the winners of which will take a trip to Washington next fall as the winners did last fall. Twenty-one students are enrolled in Visalia and fifteen at Tulare. Purebred hogs only will be used and the students who make the most money will be the winners. It is hoped to combine the agricultural clubs of several high schools in buying hogs for the contests in order to get as much reduction in price as possible.

MISCELLANEOUS.

J. M. Beck of Paso Robles recently sold a 6500-acre ranch to E. C. Freeman of Redondo. The new owner will raise stock on the ranch.

C. A. Norcross, the Agricultural Commissioner of Nevada, estimates that forage enough is raised there to support 500,000 hogs; 50,000 dairy cows; 150,000 beef cattle and 500,000 sheep.

Whenever a majority of the users of any national forest organize and ask the Forest Service to do so, the Forest Service will put high grade breeding animals on the range and refuse permits to scrub males.

Receipts at the Portland Union Stock Yards for the week ending Feb. 4 were 931 cattle, 3530 hogs, and 1907 sheep. Cattle topped the market and sold readily at $8; hogs rose 50c during the week and sold at $7.25. There have been good demands for sheep, the best lambs being quoted at $7.75.

Our readers will be interested in the statement about the potash situation in the advertisement on page 210.

Harness is like a leather boot—if you don't keep it oiled, it rots. Moisture that works into the pores of your harness robs tugs, straps and breechings of the strength they need to give you good long service.

EUREKA HARNESS OIL

keeps the pores of the leather filled with highly waterproof oils—keeps your harness soft, pliable, strong. Have your harness man dip your harness occasionally, or apply it yourself by hand. Harness costs money. It doesn't pay to neglect it.

Standard Oil Company (California)

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

FOR SALE—One mammoth Jack and fourteen mules. Jack Tompkins, Sunnyvale, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

SACRIFICE. REGISTERED JERSEYS—9 cows and heifers. One bull imported in Dam. Noble of Oakland breeding. Bull worth price of herd. This stock all show stuff and prize winners. Price, $1,800, one-third cash. Box 31, Davis, Calif.

TEN REGISTERED HOLSTEIN COWS for sale. Young and more with big records. Also a few well-bred heifers and bulls up to nine months old. K. W. Abbott, Milpitas, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Con, Corcoran, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland. Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder F. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

[illegible] MEACHAM, Petaluma, California, breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. R. Cunningham, Box J, Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty. 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. R. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bemberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Lava, Inyo county, Cal.

IMPERIAL STOCK FARM BERKSHIRES.—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in state. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto

Feeding Infant Calves.

To the Editor: What is the best feed for infant calves without milk? —J. M. L., Ontario.

[The only substitute for milk for calf feeding, which we have heard of, is hay tea made from boiling early cut hay. This method is seldom used and cannot be recommended, in view of the fact that most experience shows skim milk to be superior and not nearly so much trouble. For infant calves, the following method should prove more satisfactory: For the first two or three days, the calf may be allowed to run with its mother, although many dairymen prefer to start feeding it from a pail at the beginning, as they claim it is less trouble to teach the calf to drink. In any event, the calf should get the first milk or colostrum, which is necessary in starting the digestive functions. After two or three weeks the skim milk may be added to the ration gradually; at the same time adding some fine concentrates such as linseed oil meal, low grade flour or corn meal, made into a jelly by boiling and reducing the amount of whole milk. This is advisable while the stomach is small and incapable of utilizing coarser feeds. As soon as possible, however, the concentrates should be changed to barley or other grains with or without a little linseed oil meal fed dry in a convenient feed box.—Editors.]

ALFALFA BAD FOR RABBITS.

To the Editor: Noting your answer to a query about bloated rabbits, I wish to say that alfalfa, green or dry, is not good for old rabbits, with or without water; and it will kill young ones. It acts injuriously on the kidneys, especially at six weeks of age, about weaning time. One neighbor of mine lost 100 in about two weeks; another lost $200 worth in one week. They had a fine start with about 1000, but had to go out of the business. There is no excuse except ignorance for using alfalfa, as it is very little, if any, lower priced than tame oat hay.

EUGENE R. CROLEY.

Fruitvale.

REGISTERING POLAND-CHINAS.

To the Editor: Please let me know: the address of the Standard Poland-China Record Association, the price of registering a purebred hog, the usual course of procedure between buyer and seller of purebred hogs. Can the seller make a price for registering $5.00 extra for each hog?—J. H. C., Richfield.

[Answered by Pres't. A. M. Henry, California Swine Breeders' Association, Farmington.]

[I cannot give the address of the Standard Record Association as I have mislaid the paper that had it in it, but if Mr. Cleary simply wants to record a pedigree he can record it in the National Poland-China Record Association, A. M. Brown sec., Winchester, Indiana; or the American Poland-China Record Association W. M. McFadden, Sec'y, Chicago.

The fee for recording pedigrees is one dollar for non-stockholders and fifty cents for stockholders in either of the companies.

The seller of a purebred hog gives a pedigree to the buyer and this pedigree is eligible to be recorded in either of the three companies, no matter upon which company's pedigree blanks it may be written. Each of the three companies follow this rule.

The seller can overcharge the buyer for having the pedigree recorded the same as he could overcharge the buyer for the value of the hog if the buyer will allow it. The buyer could demand the pedigree, and it is my opinion that the seller could be legally forced to furnish it, the same as he would have to deliver the hog to the buyer. But this is a legal point that could only be satisfactorily answered by one versed in the law. When the buyer gets the pedigree he could have it recorded in any of the three companies upon making the request and paying the fee of one dollar.]

Young or growing animals, cows, sheep, and poultry, require a larger proportion of protein in their feed than full-grown, fattening, or working animals.

A heavy brood sow is more apt to kill her young by rolling on them than a lighter one. Take care to see that the former kind are provided with a railing around their house to give the little fellows a chance to get out of her way.

Are you patronizing the breeders who advertise with us? They have the cream of the livestock being offered in the State and are helping us give you the biggest two cents' worth of reading matter on the market each week.

Watch for dodder in your alfalfa seed.

Copro

Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

Pure Cocoanut Oil Cake Meal

An Economical and Palatable Food For Dairy Cows, Hogs and Poultry

The thorough digestive qualities of the protein in Copro assures a high nourishing value and a low percentage of waste. Mixed with farm products, Copro provides a perfectly balanced ration at the minimum of cost.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B

PACIFIC OIL & LEAD WORKS

Manufacturers

155 Townsend Street San Francisco, Cal.

America's Leading Horse Importers

Dunham-McLaughlin Company

OAKLAND, CAL.

The photograph in this display is of the Percheron Stallion MIROIR (108418) 105295, rising three years old; weight 2050.

MIROIR was considered in France last summer the best colt of his age that was being shipped to America. His markings are identical with those of the stallion MEMBRON, the First Prize winning Two-year-old at the Great Percheron Show at Nogent, 1913.

IF YOU WANT THE BEST LET US HEAR FROM YOU.

Dunham-McLaughlin Company

EMERYVILLE RACE TRACK, OAKLAND, CAL.

Dairyman Starts War on Us.

To the Editor: I am much interested in the dairy articles that appear in the Rural Press, and especially in those articles that advise the dairyman to use the Babcock test and scales and the tuberculin test. According to most of the estimates that are given in those articles, the Babcock test would reduce our herds from 10 per cent to 25 per cent, and the tuberculin test would make a further reduction of from 15 per cent to 50 per cent on its first application and probably 5 per cent afterwards at each semi-annual test. Now the problem that confronts me is: How long could a person remain in the dairy business, assuming that those figures are correct, if he is trying to pay for a farm, support a family, and meet the continually increasing tax levy? Suppose he starts with 20 cows, the Babcock test would take out four. Then applying the tuberculin test, he might have 11 left. From those 11 he may raise 5 heifer calves that in two years would be ready to take the place of some that were tested out, only they must pass the two tests above referred to. Of course, this would not be a serious matter to a writer, who can get a dollar a word for the articles he submits to publications. I've heard of those writers, as I've heard of 1000 pounds of butter per annum cows. That may be above the average, but one who advises killing a cow because she does not produce an income above the average certainly must get above the average price for the article he writes. But we dairymen don't enjoy that source of income. So if those who have written so much about the Babcock test and the tuberculin test will assume that we have learned that lesson, and will now teach us how to cause our best cows to always produce heifer calves that will be immune to tuberculosis and above the average producers in quantity of butter fat, I am sure they will have earned the everlasting gratitude of all the dairymen of the State and Nation.—C. R. W., Hanford.

[Probably you expected us to retreat from your fierce onslaught and calmly surrender our arms to the robber cows. If so, your conclusion is wrong, as the publisher has furnished us with an arsenal of ammunition in the form of "dollar words" with which we expect to make the warring European nations look like amateurs. Therefore, it is probable that the siege, which was started in these columns many years ago against poor cows, will be continued on the slightest pretext. As you have not only taken up the cause of the thief cow, but also stepped on our contributing editor's toes, we consider it a right of war to throw a few explosive shells into your theory of cowdom, again showing you the folly of not testing. Consequently, throw up good breastworks unless you would be converted or routed from a weak position. Our audience of over 20,000 readers will be kept fully posted as to the outcome, as no censors will be permitted to ply their occupation on our side of the battle line.

In the first place, you ask us to assume that you have learned your lesson about testing, yet in the same paragraph you ask how to breed calves that will be above the average cow in production of butter fat and that are immune from tuberculosis.

Notwithstanding your contention to the contrary, you have not learned your first lesson in testing, as is evidenced by this last question, as a large part of the testing, both for butterfat and tuberculosis, is done with an eye to solving the very things which are still vague in your mind and which you say writers would secure the everlasting gratitude of dairymen by solving.

Assuming that you have 20 cows which have been selected from various herds with utmost care as to their type and conformation, but without a health certificate or a record of their performance. These cows are taken home and fed alfalfa hay, the general practice of dairymen who do not test, as you will admit. You do your own milking and find that Spot is a whale of a producer, giving six gallons of milk a day, while Bess gives but three gallons. Both cows are fresh, and while Bess gives richer looking milk than Spot, you are certain that Spot's excess quantity will more than make up for the poor quality.

The end of the month comes and with it the creamery man's check, who, by the way, has found that the only sure way for him to know how much fat you have delivered to his driver is through the tester and scales, and it is upon that basis that you are paid. If you are as good a business man as you would have us believe, you know about what amount of hay has been fed, what it could have been sold for in the open market, and what the interest on your investment in cows, stables and utensils is, together with the amount due you for your work at the going price of farm wages.

After checking these amounts up and comparing them with your cream check, skim milk and calves, you will, provided your herd is an average one for the State, find that there is something radically wrong in the producing end of the herd. Surely that discrepancy is not due to Spot and the other cows of her kind which have been so generous at the pail; therefore it must be Bess and her kind that are raising the rumpus.

Well, give them another chance and see what happens next month. Conditions do not improve. Spot is still doing well, together with a few others in the herd. If you only had an entire herd of her kind the balance at the end of the month would be on the right side of the ledger. About that time some other farmer decides he wants a few more cows, and offers a fair price for Bess and her kind. In the meantime you find another bunch that are for sale, so you sell what you believe are your poor cows to the other fellow and replace them with another purchase, for it is necessary that you have 20 head, no matter what their quality, to keep up the payments on the ranch, pay the increasing taxes and support your family.

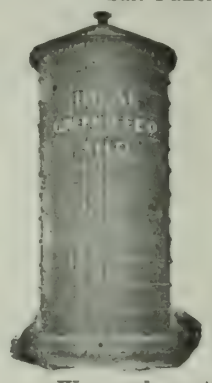
Next month the cream check is no better, perhaps a little smaller, as the cows are farther along in their lactation period and even Spot is falling off some in her milk flow.

What Those Who Know Say About

Ideal Green Feed Silos

San Luis Obispo, Jan. 28, 1915.

DE LAVAL DAIRY SUPPLY CO.,
San Fancisco, Cal.



Gentlemen:—

We are anxious to tell you of the good results we are having since erecting an Ideal Green Feed Silo. The corn we put in is coming out perfect silage, no waste and good to the very edges.

This amount of feed, for as you know we erected a silo of two hundred tons capacity, is going to practically double the income of our dairy.

We raise a great amount of feed in the shape of corn on a comparatively small acreage for the silo, giving the extra land to raise grain, thus cutting the expense of mill feeds to a minimum.

We can honestly recommend this Ideal Green Feed Silo to any dairyman and firmly believe a silo will prove very beneficial and remunerative to our coast dairymen. It is an insurance policy that makes its own payments and pays the amount of the policy in a short time besides.

Sincerely,
SINSHEIMER BROS.

AN IDEAL GREEN FEED SILO WILL DO AS MUCH FOR YOU.

Write for special Circular B.

De Laval Dairy Supply Co.

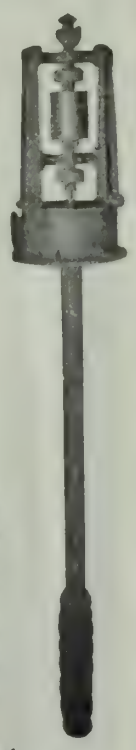
SAN FRANCISCO, SEATTLE.

Everything for the Dairy.

No Pit

is required with the

Krogh Deep Well Turbine Pumps



For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company

SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

Stock Buyer

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

Oak Grove BERKSHIRES

Cholera Immune.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL.

OAK GROVE DAIRY FARM.
H. G. ARMSTRONG, Prop.
Woodland, Cal.

HORSE OWNERS! USE

GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O

HOWARD CATTLE COMPANY

BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Circular containing 100 mechanical movements mailed free.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENT AGENCY
PATENTS
915 Chronicle Bldg.

And so it goes from bad to worse and you decide that nobody loves a dairyman, and anyway it is not what it has been cracked up to be by those dollar-a-word contributors to the Pacific Rural Press.

As no better means of earning a livelihood is in sight, however, you breed the cows as fast as they come in heat to a "thoroughbred" bull. No, he hasn't any registration papers, but he is a good looker and you got him at just about beef brice from a neighbor friend of yours who could not use him on account of inbreeding. His calves look fine to you and several of the heifer calves are picked as likely looking individuals. You furnish them with feed for a year and decide they are big enough to breed. Again a "thoroughbred" bull is used, not purebred or registered, and finally they come fresh.

They're beauties, you think, but some way or other the cream check doesn't improve, although taxes, payments on land and living expenses continue just the same. And so you go on, year after year, reading of others' accomplishments in the dairy business, through the columns of the Rural Press for which you have paid a big dollar a year, and finally jump on its contributors for being so thick-headed as to think that a dairyman can afford to test and weed out his poor cows.

That's one picture, the kind that invariably results from a daubing of colors such as you advocate. Now let us paint up the other canvas with another one, the kind that you may see on farms in every dairy section of California where testing has been pursued, in fact on many ranches within a radius of a few miles of Hanford.

In this case you buy the same cows, only you buy them with the understanding that they must pass the tuberculin test, on which account the seller will perhaps require a somewhat higher price. You have used your same judgment of conformation, there being no cow testing association's records to go by, and are well satisfied with the looks of the stock purchased.

You next go to the dairy supply merchant and invest $12 or $15 in scales and a Babcock tester, for it is assumed that testing and weighing of the milk is a part of the dairy work. The first milking you weigh each cow's milk and take a sample of it in a small bottle. The weight is credited opposite the cow's name on a card which you have tacked on the wall, with space allowed for 31 days. The same procedure is gone through with the next milking, the weight being added to that of the previous milking as shown on the record sheet and the sample is mixed with the previous milking.

You find another Spot in the herd, one whose milk for the two milkings runs far above the other cows' in quantity, also a Bess whose production of milk is low. That doesn't satisfy you, however, as it isn't skim milk you are wanting but fat, so you test the two cows' milk. "Well," you think, "if that test was made right old Spot is certainly one grand old faker," for very likely you have discovered that she is giving you a smaller amount of fat than Bess, after all. That, however, does not mean that you should sell her right off the bat, for it is just possible that she will be a more persistent milker, and that by the end of the year she will have produced you more fat than Bess. Only religious testing and weighing of the milk will tell this, so you continue with your scales and tester at regular intervals.

Perhaps at the end of the year, or less if you are an experienced dairyman, you find that both cows have produced well above the estimated cost of maintenance, which is 150 pounds of fat, in which case both are worth keeping unless you have better ones to take their places. On the other hand, suppose Spot produces less in dollars and cents than your books show it has cost to maintain her, and Bess shows a satisfactory margin of profit for her year's work. In the first case you are, by all known standards of business, a loser by having that Spot cow in the herd, while the latter named cow has aided you in paying the various bills that are now worrying you so badly. From a cream check basis, then, you can't afford to longer keep the poor producer, although there may be some reason not above taken into consideration, such as a rundown condition when she was purchased, that hindered her from doing her best, which may alter the case.

As we have said before, that testing has not only provided you with an opportunity of telling the profitable from the unprofitable cows in your herd, but (and this seems to be unknown to you, although it is as old as testing itself) you know which heifers are worth raising, one of the fundamental principles of animal husbandry being that like begets like. Unfortunately, the dam alone is not entirely responsible for the quality of the calf, so the question of the right sire enters.

That neighbor friend of yours has by this time another thoroughbred bull which he will sell at beef prices, but you have already decided to use a purebred bull this time, one having ancestors on each side with satisfactory authenticated milk records, maybe some of his grandams being one of those 1,000-pound cows you refer to. The sticking point is that his owner wants about twice what he would bring for beef, but we have started on the quality basis, so by selling the cow that run you in the hole for beef, and adding the cost of the inferior bull, you buy the purebred and registered animal.

In about two years your heifers begin to freshen, that is, those that are out of your highest producing cows, the others having been sold long ago to the butcher. The result is your cream check looks better and so does the dairy business, for you have learned that, after all, the financial success of a dairy depends upon whether your cows are profitable, more than it does upon the number you keep, and that to keep the herd profitable you must cull out those who are making you keep them and substitute in their place, either by outside purchases or by proper breeding, cows that will keep you.

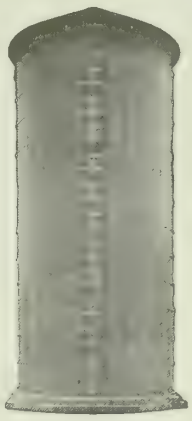
No allusion has been made in the above to the matter of feeding, yet that is of great importance and can only be carried on in a "know why" manner through testing. Maybe that is a pretty general statement and does not prove much to you. We will save our ammunition on that score, as well as on testing for tuberculosis, till our next charge on the enemy next week. In the meantime get out your dirigibles, buzz wagons and other conveyances of rapid retreat, for since starting this charge we have received reinforcements from the rear.—Editors.]

Two of the famous Dexter Cattle, known as "the poor man's friend," have been given to the Panama-Pacific International Exposition by the Marchioness of Conyngham, of Slane Castle, County Meath, Ireland. They are small black animals less than 40 inches tall but renowned as high producers of good quality and on very small feed. They may be an answer to the high cost of living question.

E. B. McFarland of San Mateo county has sold four Ayrshire bulls and five heifers, totaling about $1750.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

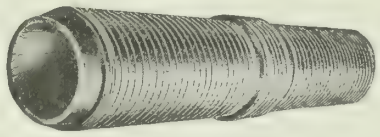
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

English Shire Stallion

FOR SALE
CHEAP

Pure bred, 3 years old, dark bay, heavy bone, stripe in face, weight 1820, good action.

S. E. RAILSBACK,
HANFORD, CAL.

RHOADES & RHOADES
EXPERT LIVE
STOCK AUCTIONEERS

Sales conducted in all parts of California and adjoining States. Write for dates and terms. Twenty-five years' experience.

1501-3-5 SO. MAIN ST., LOS ANGELES.

Durocs Cholera Immuned
and
GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.

ED. E. JOHNSON, TURLOCK, CAL.

TAMWORTHS

The Big Red Bacon and Block Hog. Send for prices and circulars.

COTTLE & HOBSON CO.,
Amsterdam, Cal.

WHY?

Is Napa, the best place to buy
DRAFT STALLIONS.

BECAUSE

Salvador Stock Farm always has high-class stallions for sale.

BECAUSE

You can be sure of getting full value for your money.

BECAUSE

Our stallions always make good.

BECAUSE

Of the reputation of the Salvador Stock Farm for square dealing, and of the fact that we are permanently located and are always ready to stand behind all guarantees.

For full particulars address

Henry Wheatley
Napa, Cal.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by E. T. Lindley]

The two inferior eggs discussed in this installment cause much loss in storage and are responsible for considerable of the seven million dollar loss. When perfectly fresh, these eggs are difficult to detect and during the spring rush frequently pass inspection, particularly when cased for storage in the country near the point of production. If over three days old, however, the water-washed egg can usually be distinguished, but the moldy variety cannot, as a rule, be detected until about three weeks after it has received the injury that causes its final destruction.

Water Washed Egg. Figure 7 represents the view before the candle of a water washed egg two weeks old, which was, when taken from the nest, a number one or perfect egg, except that it was soiled or marked by the hen's muddy feet. This egg was not simply wiped with a damp cloth, but was given a thorough washing. When this method of cleansing is employed the eggs, after washing, are placed on trays or a table or other flat surface to drain. This causes all other parts to dry more quickly than the point of contact with the tray or table and it is at this point that it "spots" and where deterioration begins, either in or out of storage. This spot is simply a spawn of mold just inside on the shell, at first about the size of a pin head, but which grows until within two or three months it becomes what is known as a black rot. The result is the same with either a fertile or infertile egg. The entire inside of the shell becomes black and the contents are also partly or entirely colored, while the odor is indescribable. This rot differs from that caused by washing in sour milk. It seems that each variety of bad eggs has a little way of rotting all its own. Another peculiarity: while the sour milk washed egg spoils more rapidly in storage, this water washed egg goes bad quicker when not stored. When either washed or wiped, this egg is inferior for frying or poaching even when only two weeks old.

Figure 7—Wa[illegible] egg Two weeks Old. Every Pore Magnified.

The illustration—figure 7—does not show the porous state of the shell; it seems impossible, in simple black and white, to picture all of the peculiarities of these eggs. However, in real life—or death— every pore in the shell of this water washed egg seems magnified and is readily distinguished.

Had this egg been simply wiped with a damp cloth, it would not spot as it does when washed, but would, at the same age, two weeks, show the same evaporation. This shrinkage would increase rapidly until in about four months the contents would occupy only half of the shell, and while not rotten, it would be of little value.

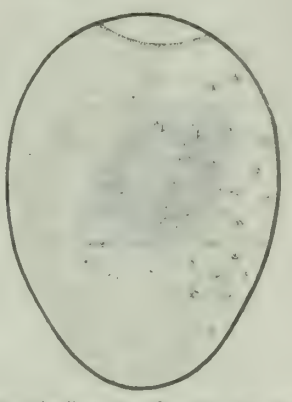


Figure 8—Moldy Egg, Caused by Wet Nest.

Moldy Egg.—Figure 8 represents the view before the candle of an egg that is beginning to mold. In the course of time this grows until it completely destroys the egg, but as illustrated it is about one month old and in the first stages of deterioration. Much cold storage loss is due to this defect. This mold is usually caused by a wet nest, but it may be the result of shipping in a case containing wet fillers and at times the packer fails to thoroughly dry his cases and fillers before storing. On the other hand, splendid eggs perfectly packed may become moldy through improper warehousing. Perhaps the plant is not perfect or if a well designed and equipped establishment, the damage may be the result of careless operation.

Proper Cold Storage Will Help.—I believe that with improvement in the quality of eggs by the producer, coupled with better methods of storage under the supervision of the State, to insure against transgressions by the careless or unscrupulous, cold storage is the one great economic factor in the whole game of eggproduction and distribution. It is the only system it is practical to use that will keep up the price of eggs in the season of greatest production and keep the cost to the consumer within bounds during the fall and winter, thus insuring a more constant use of eggs by the public and result in a mutual benefit to both producer and consumer.

Wicked Cold Storage Men.—In the estimation of the average person, the cold storage warehouse man is a very "bad" man. We admit he has many faults and that he should be reformed. This reformation, however, can only be accomplished through some practical and far-reaching method because under present conditions he cannot, as a

FREE BOOK

Raising Calves without milk.
Everything you need for stock and poultry raising Write today
F. F. SMITH & CO.,
1006 J St., Sacramento.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2¼c per word

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs C. M. Smythe, Route 3 Stockton.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

LEAST SAID, SOONEST READ—Quality and price—good-will and satisfaction. Baby chicks. Hatching eggs from pure-bred, hardy, well-mated stock. Rhode Island Reds, Black Minorcas, White Leghorns. Circular with prices will interest you—Free. Roofden Poultry Ranch, Campbell, Cal

MAKE MONEY with our superb White Orpingtons, Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

FOR SALE -On March 12th, we will have 1500 choice White Leghorn pullets, three months of age to sell. Price, $7.50 per dozen. In lots to suit. Order now. Must Hatch Incubator Co., 419 Seventh St., Petaluma, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. R. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks R. 2 Petaluma Cal.

FOR SALE—2000 White Leghorn baby chicks on February 16th, in lots to suit. Price $10.00 per hundred. Sent C. O. D. Order now. Must Hatch Incubator Co., 419 Seventh St., Petaluma, Calif.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

BUFF ORPINGTON DUCKS—The only dual purpose duck. Large as the Pekin. Can outlay the Runner. Lay at five months. Drakes, Eggs, Baby Ducks. Ferris Poultry Ranch, R. 2, 144D, Pomona, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tusper, Ceres, Calif.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery 273 Meridian Rad. San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. I. W. Clark, Petaluma Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Soquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wychoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

THOROUGHBRED Single-comb White Leghorn Eggs for hatching that will improve your flock, descendants of D. W. Young's strain. Hens 220 egg type. Jay Maxwell, Madera, Cal.

WHITE ORPINGTONS, ANCONAS.—Eggs from specially selected Hoganized breeders. Settings, $2 and $1.50. Quantities also. Cockerels for sale. H. Lechten, Newark, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee St. Helena, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

EGGS AND TRIOS—White Muscovy (Whispering) Ducks, Buff and Barred Rocks, Anconas, Black Langshans. Eggs: Toulouse Geese, Pearl Guineas. Barred Rock Cockerels, $5.00. Andalusian pullets, $1.50. New Zealand Does. 1344 Jefferson St., Santa Clara, Cal.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

WINTER LAYERS from Walter Hogal's White Leghorns, selected and bred by Hogan system. Eggs $6 per 100; chicks, $12. John H. Barber, Verde Farm, Livermore.

DIABLO WHITE ROCKS—EGGS FOR HATCHING Special exhibition matings, $7.50 per 15; utility, $3 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale, Fleming Ave., San Jose, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

BLUE RIBBON White Wyandottes. First prize-winners Santa Ana, Orange and Los Angeles. Eggs for sale. Brown Park Nursery, Fullerton, Cal.

BUFF LEGHORNS Prize-winning, trap-nested, 250 egg strain. Eggs and chicks. Price list free. Amos Rossler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W. Stawetski, San Jose, Cal., R. 2.

NO S. C. WHITE LEGHORN day-old Chicks or Hatching Eggs are too good for you. That is why you want them from J. H. Swann, R 3, Chico, Cal.

WM. LARM'S Rhode Island Red Yards moved to 3854 39th Ave., Oakland, Cal. Winners at leading California shows. Hatching Eggs and Stock.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winner of two specials, two firsts and one second Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

BARRED ROCKS—R. I. Reds, Black Minorcas. Winners wherever shown. Cameron Bros., 689 Vine St., Sacramento, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suitz, 378 Bandini Ave., Riverside, Cal.

DAY-OLD CHICKS—Hoganizing Egg Machines. We are booking orders for spring delivery. H. & F. Mortensen, Suisun, Cal.

TRAPNESTED LEGHORNS, White and Buff Stock eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

THOROUGHBRED English White Leghorn Cockerels from $2 to $3. David Rueck, R. 4, Box 53F, San Jose, Cal.

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL Address Wm. A. French, 545 W. Park St., Stockton, Cal

CUP WINNERS—White Indian Runner Ducks and Eggs. G. Buker, 2004 Bancroft Ave., San Francisco.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

LANGSHANS—Best on coast. Stock, settings booked now. Lohr, 689 Kansas St., San Francisco.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

RHODE ISLAND REDS—Fine young cockerels for sale. J. D. McCormack, Rio Vista, Cal.

BARRED ROCK COCKERELS, nine months old. A. A. Trueblood, Sacramento, Cal

reaching method because under rule, be "good" and continue in business. It should be remembered that there is keen competition in this line of warehousing and that the lowest rate and not superior service influences nearly all those who put goods in cold storage. There is at present little praise and probably no profit for the careful and conscientious operator, and as a further discouragement he is constantly "stung" for losses and censured for damage that is primarily the fault of the producer and handler.

It costs more to store eggs properly because they should always be kept in a chamber used exclusively for that purpose. Apples, onions, fish and many things too numerous to mention, if stored with eggs, will flavor them and often injure them otherwise. The cases should not be piled up nearly to the ceiling, but there should be several feet of space between eggs and ceiling. Number one eggs are better if stored in an even temperature somewhat above freezing, while weak or inferior grades require a temperature of about thirty-two to prevent rapid falling off in quality.

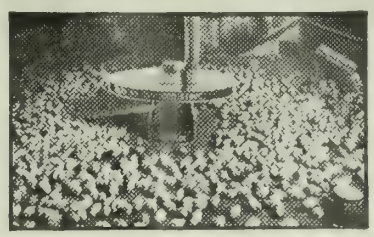
How Canada Does It.—The three countries that stand at the head in efficiency in respect to the proper handling of cold storage goods are in the order of merit, Denmark, New Zealand and Canada, but they are so nearly equal there is very little in favor of one over the other.

The Canadian Government provides a subsidy, which is given to plants built and equipped with the approval of Dairy and Cold Storage Commissioner, John A. Ruddick, under whose supervision all cold storage plants of Canada are operated.

Time Limit Not Necessary.—In a recent report made to the Minister of Agriculture and intended to supply information for guidance of the Legislature of the Dominion in debating proposed amendments to the present laws, Mr. Ruddick states: "Suggestions have been made, on the grounds of public health, to fix a time limit for certain goods to be held in cold storage. The writer has never been able to see any justification for such a proposal for the reason that the condition of the goods coming out of cold storage bears very little relation to the length of the storage period. The condition of the goods when placed in storage has more to do with their condition when removed than anything else."

These statements are by a man who has made Canadian cold storage conditions practically the best in the world.

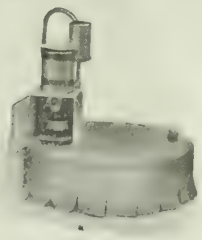
In our next installment we will discuss State supervision of the poultry industry in relation to the seven million dollar annual loss.



The Fresh Air Brooder Stove

THIS is our NEW SELF-VENTILATING BROODER STOVE. AUTOMATIC TO THE MINUTE. Economy's climax. No more crowding around the stove at night. HEAT EQUAL in all parts of stove room. Petaluma's severest critics pronounce this new wonder the peer of all brooding systems. Bank and our personal guarantee always. Get our latest catalogue. We can help YOU. We ship direct to the user.

Fresh Air Brooder Stove Factory
J. E. KRESKY,
307 Wash. St., Petaluma, Cal.



"It's the Chicks You Raise That Count."

THE VICTOR BROODER RAISES EVERY ONE

Our Brooder is perfect; so is our Incubator. Send for free catalogue.

THE VICTOR INCUBATOR CO.,
Decoto, Alameda Co., Cal.

HOPLAND STOCK FARM, Hopland

Sanitary Conditions perfect. Largest Poultry Farm in California.

Hatching Eggs—S. C. W. Leghorns ..... $ 5.00 per 100
Hatching Eggs—White Plymouth Rocks ..... $10.00 per 100
Baby Chicks—S. C. W. Leghorns ..... $10.50 per 100
Baby Chicks—White Plymouth Rocks ..... $15.00 per 100

Incubator Capacity increased this year to 50,000.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

Poultry for Profit

[Written for PACIFIC RURAL PRESS
By Mrs. Susan Swaysgood, Pomona.]

Fruit Bad Feed.—Questions have been accumulating, so I will devote my space to answering them this week. The first one is from a subscriber who asks: "Are chopped up green apples good for hens? Will they prevent them laying? Are plums, pears, grapes, and raisins good for hens? What would be the right proportion for about seventy-five hens?" All acid fruits, of which are those mentioned, except raisins, should not be fed as a ration. If these things are left for the hens to eat or leave as they please, and sufficient food given, they will not eat enough to hurt them, but if you serve a certain quantity of these things and thus force the hens to eat them or nothing, they will eat them, but the egg crop will diminish very noticeably. In the molting season when the hens are not laying a little acid is good, but not too much. [The tannin of raisin seeds also stops egg laying.—Ed.]

Pen for 25.—Another query is: "How big a pen do I need for 25 hens?" If you intend to have a yard, a pen or house 8x10 would be plenty large enough for 25 hens to roost and lay in, but if no yard is to be had you would need at least a 10x12 house.

Ganders from Geese.—"What are the external means of telling geese from ganders?" Go among the flock and the ganders will stretch out their necks and hiss at you; also their head feathers are brighter than those on the heads of geese, the voice is hoarser, and the body is slim, not so deep in the abdomen as a goose.

Duck Failure and Why.—The next is a letter from a Washington subscriber, who has tried duck raising and found it unprofitable. He says: "When I read your article about raising ducks at small expense and with little room it made me smile, because I thought of my own experience, which I will tell you to make you smile. In July, 1912, I bought 7 young Peking ducks, weighing 21 pounds, or 3 pounds each on an average. I paid $2.75 for them, the market price being 14 cents a pound. They had an insatiable appetite, were always screaming for food, and caused lots of trouble with their habit of dirtying all drinking water. I cleaned out and filled their trough many times a day, fed them with shorts and bran mash, gave them all the territory to roam over that they could want, but they would not go over 100 feet from their troughs. When I had been troubled this way three months I concluded to dispose of them. I weighed them and found they had gained just one pound each after eating 160 pounds of shorts and 180 pounds of bran. The price had gone down to 10 cents a pound, so I killed them and my wife canned the meat, but that was the most expensive meat we ever ate, costing 29 cents a pound besides labor and annoyance." Now this letter, written in a kindly spirit, giving a man's actual experience, is helpful to many others. And yet the ducks were not to blame for his loss or the trouble they gave; it all came of his not knowing how. In the first place, his ducks may have been stunted before he got them; next he should have confined them to a certain territory so that they could not have fouled all the water; third, if he wanted to kill them for green duck they should have been allowed water only when they were fed And last, but not least, the ducks were not fed right, neither were they fed enough. The fact that they screamed was evidence that they were starved. Ducks eat a lot of food, but they will eat coarse food, boiled vegetables that are too small for table use, small potatoes, turnips, beets, cabbage or anything well boiled. Pour off the bulk of the water, and mix in bran, corn meal, shorts, and don't ever forget the main thing—beef scrap. It is meat that makes quick growth in ducks and geese, but ducks especially, and our friend does not even hint at any animal food he gave the ducks. His experience is that of everybody that tries to raise ducks as vegetarians. They are carnivorous and must have animal food to thrive. It is hard work to raise ducks, but if the game is played according to the natural law, there is big money in ducks, where the market is good. If there is no market, or an unreliable market, it is risky, but these things should be decided before making the venture.

A young girl wrote me last fall that ducks were selling in Sacramento for 18 cents a pound, and she had raised a nice flock according to my instructions.

The only way to make money with ducks, is to raise them yourself from the start. Once a duck gets stunted it is a hard matter to get them started again, and if our friend had had any experience with ducks he would have known that they were stunted, and have let them alone. Twelve weeks is the limit to keep young ducks. From then on they lose weight until fully mature. But if you force them and have a fair market I guarantee ducks to make as good a profit as any stock.

Forty per cent of the Florida citrus crop is reported marketed.

Eggs Wanted

Egg Producers! Egg Shippers!
STOP! LOOK! LISTEN!

Highest prices paid for clean fresh eggs.

Address
E. F. ZUERN
Wholesale Produce
Butter-Cheese-Eggs-Poultry
354 Fourth St., Oakland, Cal.

GET THE BEST
For Your Baby Chicks.

Coulson's POULTRY FOODS

SPECIAL CHICK FOOD

Write for book "Chickens" to
COULSON CO., Petaluma, Cal.

Send for our booklet
"White Leghorn BABY CHICKS"
FROM HEALTHY HAPPY HENS
and that helpful pamphlet,
"FEEDING CHICKS"
Free on request.
Must Hatch Incubator Co., (Inc.)
419 Seventh St., Petaluma, Cal.

MORE EGGS
BETTER THAN THE BEST BELF SCRAPS
PACIFIC PIONEER
AVAILABLE PROTEIN FISH MEAT MEAL FOR POULTRY
SEND FOR SAMPLE AND PRICES
WESTERN TALLOW CO.
40 BEALE ST.
SAN FRANCISCO CAL.
CHEAPER TO FEED
NO FISHY FLAVOR

The Home Circle

THE RUNAWAY SNAIL.

Once there lived a funny little Snail,
Two short horns, a stubby little tail.
"Oh," said the Snail to himself one day,
"Let us see what happens if I run away!"

Forth he started, quickly as he could,
Creeping, crawling, through the mossy wood.
"Oh, what a joy it has been to roam!
Surely I must be many miles from home!"

Then he turned his head and looked around.
What do you think the silly fellow found?
There was his shell like a peddler's pack,
He had run away with his house on his back!

—From the Presbyterian.

COMRADES.

"Shall we ask him to play ball with us?" asked John Keyes, motioning toward a strange boy who was eagerly watching their game.

The other boys shook their heads decidedly.

"He's too good to go to school with us," Joe Dalton declared. "Most likely he'd be too stuck-up to play ball, even if he knew how, which he probably doesn't."

The boy in question was Maurice Miller, son of a well-to-do widow who had recently purchased the finest house in the village. Maurice had had a serious illness the year before, from which he had not yet fully recovered, and his mother wanted him to have the benefit of country air. Consequently he did not go to school He was thirteen years old, but so small for his age that he was seldom thought to be more than eleven.

There was no game during the noon-hour that day. Boys and girls alike were talking excitedly about something that had nappened that morning.

"It'll be weeks anyway, maybe months, before he can walk again, father says."

Marion Martin, the doctor's blue-eyed daughter, was speaking in the authoritative tone of one who knew all about the case.

"Father is going to take care of him for nothing," she went on, "because it was in getting Baby Brown's kitten out of a tree that he fell and hurt his back."

"That'll help some," Joe Dalton remarked.

They all shuddered at the thought of Tom Edson lying helpless—lively, merry Tom, with the laughing brown eyes, and the hair that would curl in spite of all his efforts to make it straight.

"Standing here talking won't help matters," John Keyes reminded them. "Its a case where we ought to do something. I'm going to take the washings back and forth for his mother until Tom's well."

Handsome well-dressed John Keyes, acting as Widow Edson's laundry carrier! The other boys tried to gulp down their surprise.

"I'll take him my dessert once a week," said Nora Walker. "His mother doesn't have much time for fancy cooking."

"So'll I! So'll I!" chorused so many voices that Tom's supply of dainties was promptly assured.

"There are games that a fellow can play even if he's in bed," said Joe, thoughtfully, his mind on the winter when he had had scarlet fever. "I'll hunt up some of mine and go over and play with Tom."

This evoked another chorus of "So'll I!"

"Why not draw lots and have certain days?" Marion proposed. "If we go just as it happens, there might be a lot of us one day and none at all the next.'

So lots were drawn and each boy and girl had a regular time for their visits.

Joe and John were still discussing the matter when they walked home from school that afternoon. Their way led past Maurice Miller's new home.

To the boys' surprise he hailed them.

"I've been thinking about that boy who hurt his back this morning." Maurice began a little shyly. "It's going to be pretty lonesome for him."

"We've all agreed to go to see him and take him things," Joe replied, rather stiffly.

He felt that this was a matter that concerned the boys of the school, and not one for a stranger to mix in. Shy though he was, Maurice was too much in earnest to be so easily rebuffed.

"I thought you boys might like to get out a paper for him," he began, "one that would give him all the school news. I have a printing-press that is large enough to print a small paper."

"A little press of your own?" Joe interposed eagerly.

"Sure," Maurice nodded. "Come on in and I'll show you how it works."

"You'll have no trouble about getting help to print that paper," said John, their inpection ended. "All the boys'll be crazy to run this thing. I'd like to have a try at it myself."

"Why not get out a paper right now?" proposed Maurice, plainly delighted at their interest. "Tell me what happened at school to-day and I'll show you how to set the type."

At first the boys could think of no news.

"He'd like to know what the lessons were about," Maurice suggested. "Maybe he'll try to keep up with his school work. Who was absent besides him? What did you play at recess? Did you have any visitors?"

News items now came faster than type could be set. Soon the little paper was printed.

"I'm going to Tom's on my way home, so I'll take it right along," said John, after they had carefully inspected the finished sheet.

When John and Joe came to help print the paper next day, half a dozen boys accompanied them. They brought more than enough news to fill such an edition as had been printed the day before.

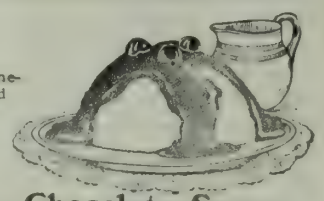
"My, but Tom was pleased!" John reported. "He wanted to come and see the press right away."

"I'll take it over to-morrow and show it to him," Maurice promised.

"Teacher wanted to know if it would be too much trouble to print an extra copy or two every day," said Joe. "She thought it would be a good plan to send one to any other pupil who was sick."

"It is no trouble to print a dozen

One egg; one cupful milk; one teaspoonful corn-starch; one-half cupful sugar; two teaspoonfuls of Ghirardelli's Ground Chocolate; one teaspoonful vanilla. Scald milk and add the corn-starch which has been dissolved in a little of the cold milk; beat egg and add to the mixture with the sugar, chocolate and vanilla.

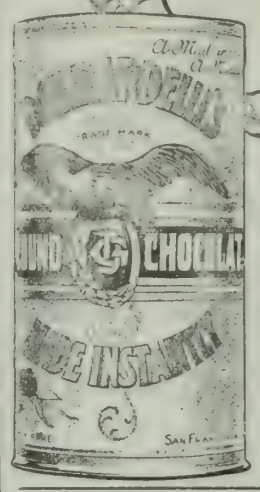


Chocolate Sauce

There is nothing that adds so much to a pudding, blanc-mange, custard or cake as a delightful chocolate sauce made with

Ghirardelli's
Ground Chocolate

The rich flavor of this most palatable, most convenient, most economical form of chocolate has made it the standby of good cooks for over sixty years.



As a nourishing, healthful, economical beverage for daily use Ghirardelli's Ground Chocolate is pre-eminent.

Its healthful purity is retained in hermetically sealed tins.

D. GHIRARDELLI CO.
San Francisco Since 1852 California

The Strength of
STILETTO

Protect your pocket by using to the utmost the full protective strength of that word STILETTO

It is stamped on countless things you buy—Tools, Cutlery, Garden Implements, Farm Implements, Paints, Hardware—and everything so stamped is absolutely the very best of its kind—it is the stamp of Quality.

STILETTO is to merchandise what the mint mark is to a coin—it is the sovereign symbol of value—a guarantee of worth.

In all towns, large and small, wherever good goods are sold, you will find

STILETTO

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

copies," said Maurice, "once we get the type set."

"How about Saturdays?" asked Joe.

"There won't be any school news Saturdays," Maurice answered, "but we can get out a story and sporting paper."

"Who'd write the stories?" demanded Joe, who hated the very thought of composing anything.

"I will," answered Maurice, flushing a bit, "unless some of you fellows want to."

"Not so's you'd notice it!" laughed John. "I'd rather do things than write 'em any day."

"So would I, if I could." was Maurice's sober response.

"What is there that you can't do?" Joe questioned wonderingly. "You've got more things than all of us boys put together, and nothing to do but use 'em.

"I'd give every last one of 'em," Maurice answered earnestly, "just to be big and strong like you and play and go to school with other boys."

There was a moment's silence, then Joe burst out,—

"And we thought you were proud!"

"Why?"

Maurice asked the question in such simple wonderment that Joe answered promptly, "Beacuse you never went to school or anything."

"That's the doctor's fault," Maurice explained. "He says I'm not strong enough yet. But I tell you what, it's lonesome business to study and play alone all day."

"So that's why, you thought Tom would be lonesome!" John exclaimed.

"I'd been there myself," Maurice assented. "And there's another thing that I ought to tell you boys. Of course I thought that Tom would like the paper, but that wasn't the only reason I proposed to print it. You fellows never paid any attention to me, and I wanted to have some of you stop here and get acquainted."

Maurice's mother thought that it was his interest in his new printing-press; the doctor credited it to the outdoor life that he had prescribed for his young patient. Maurice knew that it was his joy in the companionship of other boys that made him well enough to start school the next term, when Tom Edson, too, came back.—Mary Gilbert, in Northern Christian Advocate.

SENDING A KITCHEN TO SAN FRANCISCO.

A complete kitchen with a real stove, refrigerator, sink, work-table and other necessaries is being sent by the Department of Agriculture to San Francisco for the fair. This kitchen is not a "model" in the sense that every housewife is to try to make her own as nearly like it as possible, but is rather a composite of many possible model kitchens which is designed to illustrate various essential principles of convenient kitchen arrangement. The American housewife, for whose special benefit the model has been constructed, must judge from it what appliances and improvements in arrangement will best fit her peculiar household needs—and those of her purse.

One general idea emphasized by the department's San Francisco-bound kitchen is that the size of the ordinary kitchen should be small rather than large if the room is to be used only for the preparation of the meals. It should be as compact as possible to save traveling back and forth. The stove, table, and sink should be as near together as is convenient, and the distances to supplies and the dining room or pantry should be short. On the floor of the model room the distances most commonly traveled in preparing and serving meals are indicated by straight lines.

"The fewer ornaments, the better in a housewife's workshop" is the text of another lesson of this exhibit. Corners are rounded; surfaces are plain; there are as few moldings as possible to catch dirt which must be removed with so much effort. One feature is a table with legs that may be raised or lowered to suit the height of the worker.

The refrigerator, as it stands, would never in the world recommend itself to any thrifty housewife, for one part of it is lined with solid porcelain, another with enameled steel, another with zinc painted with enamel paint, and another with unpainted zinc. However, this refrigerator preaches a sermon of its own, for the advantages and disadvantages of each particular lining are explained in labels attached. Each woman who reads may look for what suits her own refrigerator, and housewives from the North or from the South, from a high, dry region or a low, moist region may each decide which feature is most adaptable for her own use and pocketbook.

A stew kettle is shown in several common materials in the model kitchen, but no particular make is recommended. The aim is to show sauce pans or kettles made of steel, aluminum, enamel-ware, copper, and earthenware, and descriptive labels explain how each material excels in its own way, and its disadvantages.

On the walls of the model are shown samples of the more common floor coverings and wall finishes with labels setting forth the relative merits and drawbacks of each. Linoleum and oil cloth have their strong points, and so have tinted, painted and undressed wall surfaces. Varnished wall paper is good for some purposes, and unvarnished for others.

LEGISLATIVE HOUSE-CLEANING.

While the war is on and there is a lull in business, all legislative bodies should take an inventory of the statute books and wipe off all extravagant and useless laws. A good house-cleaning is needed and economies can be instituted here and there that will patch the clothes of indigent children, rest tired mothers and lift mortgages from despondent homes.—Peter Radford.

THE HIGH COST OF CONQUEST.

If a conqueror wants tall men to fight for him he gets them, and they die for him. But whether he wins or loses, he cannot expect the next generation to be so tall; and they are not. Napoleon only three generations ago wanted and used the biggest and strongest men, and they fought and died for him. Later, Michelet, the great French historian, declared that by his wars Napoleon had taken almost five inches from the stature of the French people. Observers in France to-day are noting how small are the French soldiers compared with the German and the British.—Dr. C. W. Saleeby, in The Youth's Companion.

Copyright 1915
R. J. Reynolds Tobacco Co.

Get Next To This Inside Stuff

There are thousands of men, pipe-stung and tongue-sore, who love a pipe, but have had to chuck it because the tobaccos they've tried have left their tongues as tender as though they'd been chewed. You fellows who have bitten at and been bitten by tobacco full of rough edges come on in and get next to the joy of smoking fragrant tobacco that's had its teeth pulled. The goodness of

PRINCE ALBERT
the national joy smoke

is all in the tobacco and the wonderful patented process that takes out the bite, leaving a cool, comfortable, free-burning, fluffy smoke that you can hit as hard and as often as you feel that impulse. Meanwhile Mr. Tongue lolls around as happy as a clam at high tide. When we say we control this patented process exclusively and that no one else can use it, we're handing you strictly inside stuff. There isn't another tobacco in the world just like good old P. A. There never can be.

So, if you've canned that good old jimmy pipe, get it out and give it a new lease of life.

You can buy P. A. at any store that sells tobacco, either in the tidy red tin, 10c; the toppy red bag, 5c; in pound and half-pound tin humidors; or in the crystal-glass P. A. humidor containing one pound, the dandiest kind of a container for home and office use.

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and New

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

BURN OIL

SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO.,
Pasadena, Cal.

TEACHING PAYS

Teachers Receive From $70 to $150 Per Month and Have a Pleasant Occupation - Free Catalog

PREPARE AT

WESTERN NORMAL
STOCKTON, CAL.

Blake, Moffitt & Towne

Dealers In PAPER

37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Feb. 10, 1915.

WHEAT.

The local market again shows a general advance of a dollar a ton, and foreign buying is still active in outside markets, though the upward tendency seems hardly as strong as it has been.

Cal. Club, Ctl.	$2.40@2.45
Forty-fold	2.50@2.55
Northern Bluestem	2.55@2.60
Northern Club	2.40@2.45
Northern Red	2.45@2.60

BARLEY.

The speculative market is dull and easier, and the spot grain is hardly as strong as last week, $1.60 being about the best price that can be had. Offerings here have been light, however, and there is quite an active demand.

Brewing & Shipping	$1.60@1.62½
Choice feed, per ctl	1.55@1.60

OATS.

No further advance is noted here, but the market holds quite firm, corresponding to the high prices for other grain. Some export business is reported in the north, considerably reducing the supply, though offerings here have been ample so far.

Red feed	$1.60@1.65
Seed	1.80@1.90
White	2.00@2.05

CORN.

Prices stand as for several weeks past. Business in all lines is fairly active, as a great deal of corn is being fed in place of other grains, the cost of which is getting nearly prohibitive. Values are accordingly well maintained.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

BEANS.

No change has been made in local quotations this week, but every thing is firmly held, with continued activity on the part of buyers, both for export and eastern markets. This section is being called upon for supplies to an unusually large extent this year, imports from other quarters being curtailed: and the trade is looking for a very close cleanup during the summer. Reports from the south indicate that the new acreage in limas and blackeyes will be even larger than last year, and the soil is getting in fine shape for planting.

(On Wharf.)

Bayos, Cal., per ctl	$5.25@5.50
Blackeyes	5.00@5.50
Cranberry Beans	4.25@4.50
Horse Beans	4.00@4.50
Small Whites	5.25@5.50
Large Whites	5.00@5.25
Pink	4.25@4.75
Limas	5.50@5.65
Red Kidneys	5.50@6.00
Mexican Reds	5.00@5.50

SEEDS.

Nothing new has developed in the seed market, all values standing as for some time past, with little activity.

Alfalfa	15 @16 c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Weather conditions have interfered with shipments to this market, and the week's arrivals show considerable curtailment. Dealers say, however, that offerings have been ample for all current needs, demand as well as supply being restricted by the rain. Offerings in the country are large, with increasing desire to sell, and it is said that stocks at a few producing centers are more than this market can absorb before the new crop comes in. A large sale was closed at Hollister recently, at the reported price of $7, and good-sized shipments are coming from there every day. Alfalfa is unchanged.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

Oilcake meal is now coming in for a stronger demand, and the local mill is quoting a flat price of $40 per ton. Cocoanut cake is also a little higher, and rolled oats are up $1 per ton. Aside from this there is no change. The advance in prices has tended to curtail the demand in some lines.

per ton	$19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	40.00
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	35.00@36.00

VEGETABLES.

The week opened with a fairly active market, but the trade has since fallen back into a rather quiet condition. A little asparagus appeared a couple of weeks ago, but none has come in recently, though considerable stock is expected as soon as the weather settles. Local rhubarb is doing a little better, though southern stock is easier. Tomatoes are slightly lower, with liberal shipments from both Los Angeles and Imperial, most of it in poor shape. Bell and chili peppers are both firmer, and peas show a sharp advance. Delta celery shows a narrower range, with better prices for ordinary lots. Lettuce is easier, with large supplies both from southern and nearby points, though there has been a good demand in this line.

Mushrooms, lb.	5 @10 c
Peas, lb.	15 @20 c
Peppers, Bell, lb.	10 @15 c
Chili, lb.	5 @ 7 c
Carrots, per sack	50 c
Tomatoes, crate	75 @ 1.75
Celery, doz.	25 @40 c
do, crate	$1.50@ 2.25
Sprouts, lb.	2½@ 3 c
Lettuce, crate, So.	75 @ 1.00
Rhubarb, box	1.00@ 1.65
Cucumbers, doz.	75 @ 2.00

POTATOES AND ONIONS.

Everything in this line is rather quiet at present. River potatoes are a little easier, with little moving from the river district, while good sized shipments are coming in from the north. Sweets also are easier.

Potatoes, Oregon, ctl.	$1.60@1.70
Salinas, ctl	2.00@2.10
River Burbanks, ctl.	.90@1.20
Sweet Potatoes, ctl.	1.50@1.70
Onions, yellow, sack	80 @90 c
Garlic, per lb	19 @ 20c

POULTRY.

Prices for local stock show no change whatever. There has been quite a brisk demand for the last few days, and everything of attractive quality is readily cleaned up. Broilers are very firm, hens showing less strength than anything else. Turkeys receive little attention. Ordinary squabs will hardly bring over $2.25, but some fancy stock still moves at the top quotation.

Live Turkeys, lb	18 @20 c
do, dressed	20 @23 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb	18 @19 c
Small Hens, per lb	17 @18 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb.	9 @10 c

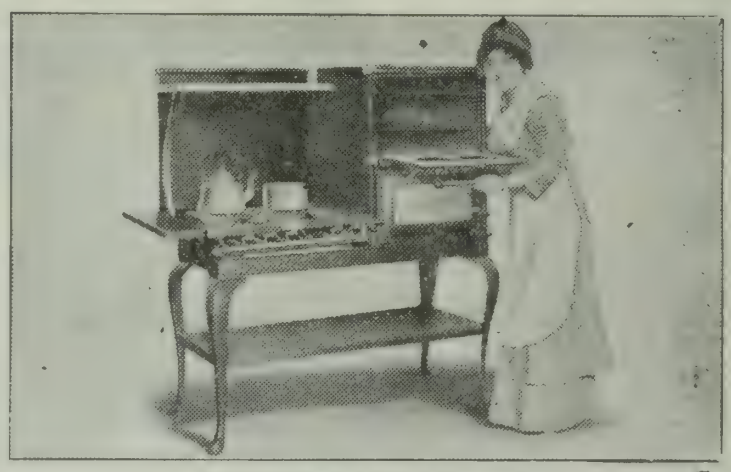
BUTTER

Extras have made a gradual recovery from the low point reached last week, as there is a good active local demand, and arrivals of this grade are light. This market is now above Los Angeles, but all offerings here are readily absorbed. Lower grades, however, are rather easy.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	26½	27	27½	27½	28½	28½
Prime	25	25	25	25	25	25
Firsts	24	24	24	24	24	24

The
California Almond Growers' Exchange
is a non-profit, co-operative, marketing agency.
The Growers composing the organization invite the co-operation and support of those not members.
For full information, address the main office,
SACRAMENTO, CALIFORNIA.

Panama Pacific 1915 Exposition
Does Your Wife Have the "Utility Smile"?
If not, Install
A Utility Gas Generator
And thus make your own Gas
FOR LIGHTING, HEATING OR COOKING.



ECONOMY AND SAFETY.
800 cubic feet of Utility Gas for the price of One Gallon of Ordinary Motor Gasoline.
Visit Our Exhibit in the Machinery Palace and Our Model Home at the Fair.
Or Write for Particulars To
The Utility Gas Appliance and Sales Co.
340 Sansome Street, San Francisco.

EGGS.

Slight changes have occurred every day for the last week, closing 1c below the last quotation for extras. Supplies of pullets are liberal, and extras also are arriving rather freely, though an occasional shortage causes a temporary advance.

	Thu.	Fri.	Sat	Mon	Tu.	Wed.
Extra	23	23½	22½	23½	24	22½
Sel. Pul.	20½	20½	20	21	21	20

CHEESE.

Both flats and Y. A.'s have recovered ½c this week, with slightly lighter offerings. Monterey cheese is in good supply and brings lower prices.

Fancy California Flats, per lb.	14c
New Young America, fancy	14c
Monterey Cheese	13@14c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	27	27	27	27	27	27
Eggs	24	22½	22½	24	25	26½
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14

DECIDUOUS FRUITS.

With nothing offered but apples and a few pears, the market is uninteresting, especially as there is hardly enough business to establish definite values. The local demand occasionally takes a little spurt, but not enough to make any impression on the supply.

Apples, Newtown Pippin	50@$1.00
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, bx.	1.25@1.50

DRIED FRUITS.

Evaporated apples continue to lead the market in point of firmness, with a top price of 6c. The only other quotable change for the week is in figs, Calimyrnas being higher, while common white varieties are easier. There is more or less inquiry for peaches all the time, but offerings are still largely in excess of the demand, and prices show little strength. In fact, it is almost impossible to move anything but first-class stock. Some packers quote as high as 4c, but there is not much fruit that will bring over 3½c anywhere. Apricots are closely cleaned up and quiet, and prunes are firmly held, with offerings light and pretty well concentrated. The New York Journal of Commerce says:

On the spot continued buying of prunes is reported by distributors in the Middle Western and New England States, as they can still buy here to better advantage than on the Coast. This demand is giving local receivers an opportunity to dispose of surplus holdings bought when the Coast market was on a lower basis and helps materially to support the market for spot goods when local buyers appear.

There is nothing doing in apricots, so far as sales to the eastern trade for shipment from the Coast are concerned, and the jobbing demand for spot stock is light. Coast holders, however, are firm in their views. Peaches are reported to be advancing in the primary market under an active demand, though buyers in this section seem to be placing few orders for forward shipment. Spot trade in peaches here is light and on the hand-to-mouth order.

Raisins are still inactive here, little demand for loose or seeded muscatels or seedless varieties being reported. Nevertheless the market on the Coast has a firm tone and the prices here are held steadily up to previous quotations.

Evap. Apples, 1914	5½@6 c

Apricots, 1914	6	@9 c
Figs: White, 1914	3	@3½c
Black	2½	@2¾c
Calimyrna	5	@6 c
Prunes, 4-size basis, '14	5½	@6¼c
Peaches, new	3	@4 c
Pears	6	@8 c
Raisins (in sweatbox):		
Loose Muscatels	4	@4½c
Seedless Sultanas		5 c

CITRUS FRUITS.

The orange markets are still dragging, owing to some poor fruit being offered, but the rains for the past two weeks have kept growers from picking much fruit, so that the markets ought soon to be clear and better prices prevail. Prices for navel oranges on the eastern auctions average from $1.85 to $2.60 per box, while the best lemons are bringing as high as $3 per box.

Shipments from southern California are averaging less than 75 cars per day, and the total so far this season is less than 4,400 cars as against about 5,000 cars to the same date last year. Tulare and Butte counties are still sending out a few straggling cars—but the crop in those sections is about all marketed.

There was a very fair movement of oranges at San Francisco the first of the week, but since then business has been very dull, weather conditions being unfavorable for active trading. Prices show no change. Grapefruit and lemons are moving about as usual at this season, with liberal offerings of ordinary stock.

Tangerines, small box	75c	@1.75
Grapefruit, seedless, bx.	1.50	@2.75
Lemons, box	1.50	@2.50

NUTS.

Almonds have been marked down, as the old prices were entirely nominal. Nonpareils are said to be well cleaned up, and other grades are moving off fairly well at about the appearing quotations, allowance being made for difference in quality. There is little new in California walnuts, most of the desirable stock being cleaned up, while off-grade nuts, coming in competition with the Oriental, find little demand.

Almonds, 1914 crop:	
IXL	16½c
Ne Plus Ultra	15½c
Drakes	14 c
Texas, Prolific	14 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

HONEY.

Efforts have lately been made to find a market for honey in the east, but with little success, and the local market is extremely quiet. Offerings of large lots are reported in all parts of the country, and with liberal accumulations already here, dealers are not anxious to take any further supplies.

Water White, comb	10	@12 c
Light Amber	8	@10 c
Water White, extracted	6½	@ 7 c
Light Amber	5	@ 5½c
Dark		3½c

LIVE STOCK.

The local market shows little new feature. There is a good demand for feeders in some parts of the country, and a good many cattle are coming in from nearby states, as the ranges are getting into fine shape.

Steers: No. 1	7	@ 7¼c
No. 2	6¾	@ 7 c
Cows and Heifers: No. 1	6	@ 6½c
No. 2	5½	@ 5¾c
Bulls and stags	4	@ 6 c
Calves: Light	9	@ 9½c
Medium	8½	@ 9 c
Heavy	7	@ 8 c
Hogs: Grain-fed:		
225 to 300 lbs		6¾c
100 to 225		7¼c
Prime Wethers	6½	@ 6¾c
Ewes	5¼	@ 5¾c
Yearling Lambs	7½	@ 7¾c

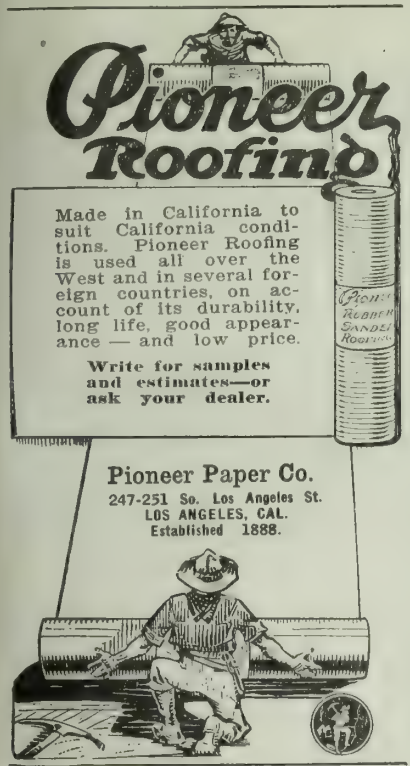
DRESSED MEATS.

Steers	10¾	@11½c
Veal, large	13½	@14 c
Small	15	@15½c
Prime Wethers	6½	@ 7 c
Ewes	5½	@ 6 c
Suckling Lambs	13½	@14 c
Dressed Hogs	11½	@12 c

Publisher's Department

The office force of the Rural Press is rejoicing with our readers over the fine outlook for crops the coming season. We are already enjoying increasing business occasioned by the prospects. Every department of the office and field force is working to the limit in order to keep up with the increase. Book orders are coming to us in constantly increasing numbers, advertising is gaining steadily and subscriptions are being entered faster than ever before. Last week we added 239 new subscribers to our list in spite of the heavy storms throughout the state.

Before this issue is off the press we expect to be forwarding the first copies of our new book, "California Flower Gardens, Trees, Shrubs and Vines," by Prof. E. J. Wickson, to those who have favored us with advance orders. This new book will be handsomely printed and well bound. Flower lovers will find in it a wealth of information covering every detail of garden work and in a very practical and readable way. The price is $1.50 per copy, postpaid.



Paint Without Oil

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

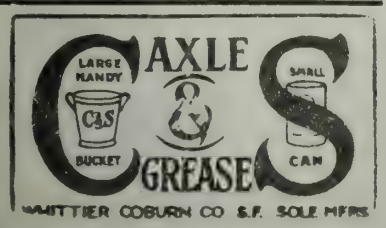
A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manuf'r., 262 North St., Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today

Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.



Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco

Classified Advertisement

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms P. O. Box 97, Salinas, Cal.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

COUNTY SECTIONAL MAPS—showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

FOR SALE—Three mountain ranches in Calaveras county Apply A. M. Davis, Esmeralda, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

NEW FORD AUTO with chauffeur (owner) to hire on ranch. Man is willing worker (no milking). J. M. Hilbish, care Y. M. C. A., Sacramento.

FOR SALE—Gasoline Tractor Well-Drilling Machine. Fully equipped. First-class condition. Mrs. M. E. Guerrier, Gilroy, Cal.

SNAP.—$3750 cash, balance terms. 551 acres, house, barn, cattle, hogs, chickens, tools. Sam Rex, Middletown, Cal.

THIRD AND LAST CALL for a chance to get a pure Fox Terrier Pup. Write C. R. Fontana, Box 464, Dixon, Cal.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

WANTED

REAL ESTATE WANTED—We have parties that want farms and ranches, improved and unimproved. If you want to sell or exchange your place list your property with us at once for quick results. Write for listing blank and other information. John E. Drendel Company, Inc., 212 Hearst Bldg., San Francisco.

POSITION WANTED on Dairy or Stock Farm by married man. Good feeder. Expert on raising stock. Will guarantee satisfaction. Box 41, Pacific Rural Press.

OPPORTUNITY WANTED—Rice culture or dairying on shares by energetic Japanese. Agricultural College graduate. Box 30, this office.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

YOUNG MAN wishes position on ranch. Can operate tractor. Address E. S., 2811 Grove St., Berkeley.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

THOROUGHBRED RABBITS—Sweepstakes Fresno, Modesto, Porterville. White Orpington chickens won all over Valley. Marshall's Parkside Place, R. 7, 246, Fresno.

SPECIAL SALE of thoroughbred Belgian Hares. Write for prices. Ford Bros., Rabbit Yards, St. Helena, Cal.

TREES AND NURSERY STOCK

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand. For early orders, $40 per 1000. Wagner's $80 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

MISSION OLIVE TREES—Will be two years old next March. To be absolutely sure of getting Missions, I only propagate from my own trees, raised thirty years ago. Also cuttings from same trees for sale. W. A. Hayne, Box 461, Marysville.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Riviera, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

HIMALAYA BERRIES may be planted soon. They bear tremendously anywhere in California and the berries can't be beaten. Write R. E. Hodges, 315 Underwood Bldg., San Francisco, for plants direct from grower.

WALNUT TREES—Eureka and El Monte varieties a specialty; also Franquette and Placentia. Write for prices and description of stock. Personal inspection invited. Eureka Walnut Nursery, Montebello, Cal.

VALENCIA AND NAVEL organe trees, ⅝ inch and and up, 50c each, delivered at depot. The buds come from the famous Chapman ranch. Call or address S. D. Winters, R. 2, Box 53, Anaheim, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. R. Marshall's Nurseries, Santa Ana, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

FOR SALE—Choice, well-rooted grape vines. Thompson's Seedless, Emperor and Malaga. $15 per thousand. Special prices in larger quantities. R. L. Foster, R. D. 2, Modesto.

GRAFTED WALNUTS—Citrus. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SUDAN GRASS SEED guaranteed grown Santa Clara county without irrigation, free from Johnson and all weed seeds. 3½ lbs, $2.50, postpaid. G. W. Lane, Morganhill.

SECURE PRESENT PRICES by cash deposit now with Spring orders for Citrus Trees, and Spineless Cactus Robinson Citrus Nurseries, San Dimas, Cal. (Mention Rural Press.)

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

RHUBARB—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong one-year plants. Currier Bulb Co., Seabright, Cal.

FOR SALE—3,500 Eureka Lemons, one year buds raised in frostless belt. Trees first-class shape. T. W. Johnson, R. D. No. 2, Box 118, Orange, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

KUDZU—Great forage plant. Fastest grower known. Lifelong, ever-increasing hay and pasture plant. Write J. L. Lawson, San Jose, Cal.

STRAWBERRY—Famous Ettersbury 80. Strong plants, 20 for 50c, $2.00 per hundred, postpaid. F. Ogden, 1940 82nd Ave., Oakland.

FOR SALE—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

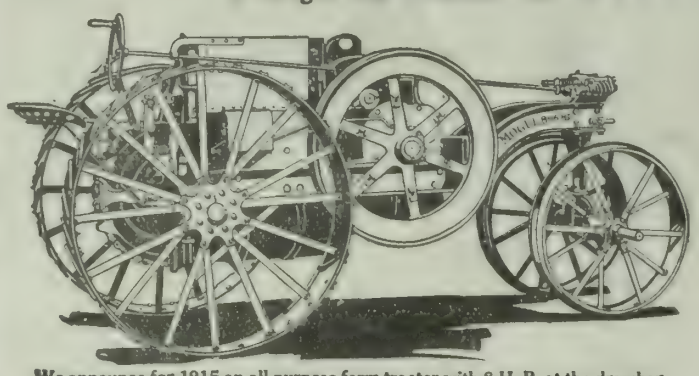
BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

STRAWBERRY PLANTS, "Dollar" variety. Close-out price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

Our New Year's Announcement
A Mogul Oil Tractor for $675



We announce for 1915 an all-purpose farm tractor with 8-H. P. at the drawbar and 16 on the belt—Mogul 8-16

A Small-Farm Tractor for all Farm Work

THIS new Mogul 8-16 tractor has power to do the work of eight horses.

Being a four-wheeled, all-purpose tractor, you can use it every working day.

It will do all the plowing, disking and seeding.

It will draw manure spreaders, wagons, hay loaders, mowers or binders.

It will run a corn sheller, feed grinder, small shredder, thresher or ensilage cutter.

Any farmer can buy this new Mogul 8-16 tractor for **$675.00, cash, f. o. b. Chicago.**

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8-16 tractor can be sold.

If you want to use a Mogul small-farm tractor for spring work, your order should be placed now with the I H C local dealer.

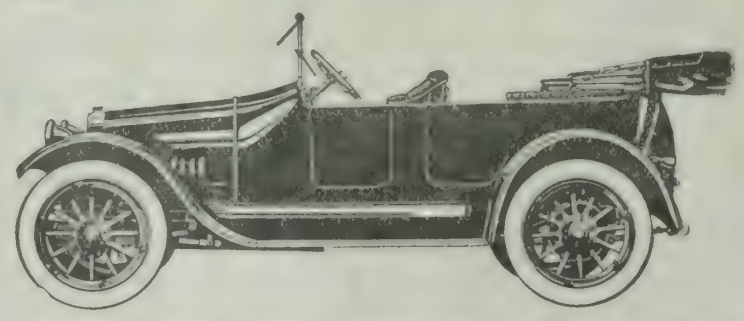
Write us for full information.

International Harvester Company of America
(INCORPORATED)

Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



To see, to ride in, to drive, will convince the most skeptical of the MITCHELL superiority. "Light weight, but safety first."

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. First and St. James Sts., San Jose.

THE ELECTRIC WAY

From San Francisco and Oakland to and through the Sacramento Valley.

Look Up the Rate On All Your Freight. Train Schedules Designed For Busy Travelers.

Oakland, Antioch and Eastern Railway

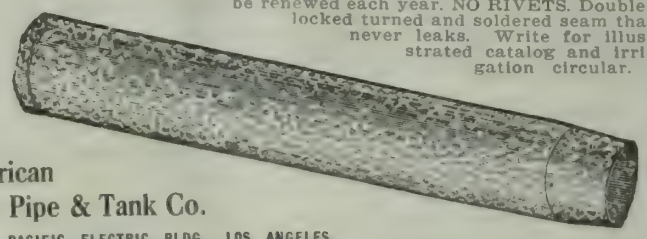
Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.

TICKET OFFICES:

Key Route Ferry, In S. F., Sutter 2339 — Fortieth and Shafter Ave., In Oakland Piedmont 870 — Third and I Streets, In Sacramento Main 261

WATER THE EARTH
through
"American"
Surface Irrigation Pipe

Increase your production 50 to 100% each year by using a surface irrigation system. AMERICAN Surface Irrigation Pipe lasts you a lifetime and does not have to be renewed each year. NO RIVETS. Double-locked turned and soldered seam that never leaks. Write for illustrated catalog and irrigation circular.



American Steel Pipe & Tank Co.

354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES
BRANCH, 1228 "H" STREET, FRESNO.

"I Saved $400.00 on My House and Barn by Buying Building Material from the Whiting-Mead Commercial Co."

This is an actual statement made by one of our customers. You can do the same. You can save from $25.00 to $40.00 on every hundred dollars' worth of building material you need by buying direct from us. We cut out the dealer's profit. If you are going to build or repair a house, barn or auto shed—study these prices carefully and be sure to send coupon below for our Big Free Catalog.

THIS SPECIAL STEEL ENAMEL BATHTUB
A wonderful bargain! Made of finest galvanized 24-gauge steel. Outside finished with a rich Sky-blue enamel, bronze trimmed. Price only $8.00

Others larger in size at $8.50, $9, $10. Just the thing for your house.

Low Down Enamel Steel Range Combination $12.50
Low Down Cabinet Chalet Range Combination $16.00
Egg Vulcanizer $10.00
Second Hand Range Special Bargain $1.00
Best Quality Paint $3.75
Standard Home Paint, high class ..... $1.50 per gal.
Best Quality Roof Paint ..... 50c per gal.
Standard Roof Paint, red, green, gray ..... 85c per gal.
Shingle Stain, made from best quality linseed oil ..... 50c per gal.
Installing in Paint, Wall Tints, Brushes, etc., at big savings to you. Write for catalog.
ROOFING PAPER $1.25
—2-ply only $1.50 per roll. Cement and nails ready to lay included in above price. Send for free sample.

WIRE FENCING at Half Price—per rod 35c

Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition. 47 inches high, 20 rods to the roll. This is just about half price. Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED BARB WIRE—per roll of 80 rods $1.75

Our Light Wire Special, slightly water stained in shipping otherwise in perfect condition.

Special heavy galvanized "Waukegan" barb wire, 80 rods to reel, weighing 100 to 125 lbs., sells $2.75 per 100. Going fast! Don't miss this opportunity.

Lowest price yet on CORRUGATED GALVANIZED IRON—per hundred square feet $3.55

Just as good Corrugated galvanized iron, [illegible] and won't last [illegible] price.

WALLBOARD

[illegible] on the market; made of 3 layers of moisture-proof fibre, [illegible] each sheet of cream [illegible]

Covered also center than plaster or lumber, and [illegible] of fire hum $19.00

This is a $30.00 Value.

Special—NAILS—in 100-lb. kegs—per keg $2.20

This is an unequaled price for 20, 30, 40, 50 and 60 penny common nails. We also carry all sizes and finishes at $2.20 per 100 lbs.

LUMBER, SASH AND DOORS — Lowest Prices on Rough and Finished Lumber

[illegible] inch Redwood as low as $12.00 per [illegible] 10 ft. lengths 8 to 18 ft., going at $15.00 per [illegible] galvanized all metal frame skylights glazed with [illegible] glass, suitable for hot-houses, roofs, etc., crated, $12.00 each.

Two-light double hung windows 1⅜ in. thick, best quality American window glass, all sizes 60c

No. 1 Colonial Door Selected Kiln-Dried Oregon Pine — all stock sizes - $1.50 up.

Second Hand Building Material

At Wreckage Prices!

Carried only by Whiting Wrecking Co.

You can buy anything in the Building Material line second-hand, at one-half to two-thirds less than the price of new material. We do 95 per cent of all the wrecking done in Southern California.

Wonderful bargains! Be sure to write for estimates on anything in second-hand Building Material to the

Whiting Wrecking Co.
8th & San Pedro Sts.
Los Angeles, Cal.

Send Coupon for **THIS FREE** Catalog tells you how to save many dollars

Whiting-Mead Commercial Co.
9th & Maple Ave.
Los Angeles, Cal.

P.R.P.

WHITING-MEAD COMMERCIAL CO.
9th and Maple Ave., Los Angeles, Cal. Gentlemen: Please send me your Free Catalog at once.

Name.....
Address.....

Send in for our FREE estimate of cost on any building job

Readjustment of Draft Horse Breeding Starts at Davis, February 24th

Vol. LXXXIX—No. 8 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, February 20, 1915 LOS ANGELES

State Library 7-1-16

The Opportunity for Horses.

[Written for PACIFIC RURAL PRESS.]

Men and horses are a great deal alike in some respects, they all have a place in life, but many pass their usefulness before the right groove is found and others never do land in the position from which they could do the greatest good for the universe.

Horses differ from men in that they are not their own masters, and are not therefore responsible for the misfits among their number. These amount to thousands in this as well as other States, the result therefrom not only being a discredit to their race, but also creating a financial loss to their owners —men.

For countless generations, this placing of the horse in the wrong place has been practiced on a large scale in farm operations, and from there spread to the city user, the cause being a lack of systematic selection of breeding animals as well as a disposition on the part of everyone to make every horse sale a horse trade, the gainer thereof winking at this ability to drive a good bargain.

That system flourished till competition entered the field—competition, whose energies were directed in a businesslike manner toward finding the needs of each user of power and then setting out to supply those needs in the most efficient manner. It is needless to point out here the name of this competitor; for mechanical power is familiar to everyone nowadays. Sometimes it is true this competition has introduced misfits, but in the main their headway has been largely attributable to putting a small power unit where small power was needed and a large unit where the load was heaviest.

A Team of Percheron Mares on Kaiser Bros.' Ranch in Butte County, that Qualify for the General Purpose Class.

Importations of Pure-Bred Horses Have Stopped, Opening a Big Market for the California Breeder.

The seriousness of the situation has been gradually felt by breeders of horses, not the buyers; but instead of readjusting the industry on a similar footing to that of their competitor, the majority of horses have been sold in the old "gypsy" way of trade.

Fortunately for the horse, agricultural conditions in California are constantly changing, from the large farm to one of more moderate size, where the horse rules supreme; and will, according to past experiences, always be the chief reliance for farm power. The city demand for big, sound horses is still of great importance, as is evidenced by the fact that there are more horses in San Francisco today than there were seven years ago. These facts indicate that, instead of the future being dimmed by mechanical competition, the outlook for more horses has never been better.

This is conditional, however, upon a readjustment, which will insure buyers satisfaction. We can no longer expect to fool the buyer and at the same time command his respect of the goods offered. No other business where competition enters has been able successfully to advance with such principles; neither can the horse.

"But where to find an outlet for the undesirable types for farm and city use," has been the cry in previous years. "Show us a way to dispose of our misfits at an even break and we'll go the other road with you."

In the last seven months a horrible massacre has been going on in Europe. The end is not in sight, more's the pity! but with this unlooked-for catastrophe has arisen a new way out for the well-meaning horseman. It is to afford him a market for a class of horses he has been overburdened with, the kind that are largely responsible for inefficiency on the farm, varying in weight from 850 to 1200 pounds and mostly geldings which cannot aid in improving either the size or quality of our future horse.

Thirty-eight thousand of these horses have been going abroad each month from this country, according to reliable estimates, and

(Continued on page 247.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., February 16, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.40	32.12	28.58	58°	36°
Red Bluff...	1.64	24.36	15.99	62	36
Sacramento.	1.06	10.73	12.65	60	40
S. Francisco.	1.37	18.48	14.87	62	46
San Jose...	.80	15.40	10.66	64	38
Fresno.....	.30	7.51	5.97	68	40
Indep'nd'nce	.02	2.26	5.86	56	26
S. L. Obispo.	1.22	19.21	12.55	70	40
Los Angeles.	.80	12.94	9.90	68	44
San Diego..	1.46	11.73	6.41	62	44

The Week.

The figures higher up in this column show that it has been raining during the week—gently and most soakingly, and the soil is mellow to the very bottom of it: in fact, some experiences cause people to doubt if there is any bottom. We have knocked about a good deal during the week on the railways, with an eye outwards for the landscape and an ear inward for the conversation of the farmers who throng in at rural stations, as though the steam-heated cars were being run up and down the State as quick clothes-driers for water-soaked citizens. We notice that when a particularly wet bunch gets in, and the heat begins to work so that every man begins to steam-out, like a hot biscuit on a frosty morning, conversation is apt to be very free and picturesque. We got a particularly juicy refreshment from a bunch which climbed onto the train the other day in one of our largest coast valleys, bound for the county-seat, to attend a law-suit and lay in a supply of community gossip which would last them all summer. Some way, they fell to talking about tractors, not about the great amount of summer and fall work which is being cheaply done with them. That is becoming so well known that there is little interest in talking about it. The chat all ran to winter performances of tractors. One man told of a big tractor, battle-ship size, which a neighbor of his bought, got off the cars, got along the county road through the gate of a field, started forward, and as soon as the outfit struck off the delta of hard ground, which the stock had tramped down well just inside the gate, the tractor shot into the soft loam up to the axles and stayed there. The rains began again gently, and the soil becoming more and more mellow, the tractor slowly subsided and the narrator closed his account with the statement: "As I cum along by thar this mornin', the smokestack looked like a snubbin'-post—an' nuthin' else in sight." Another man told of two tractors going along the county road; when one of them pulled off a little to let a loaded team pass, it went plump into the earth. The other tractor tried to pull its partner out and went off into the earth on the other side, and there they stood like a couple of Arctic whales, wintering on a California mudflat.

Not All Detraction.

We are, of course, afraid that telling these very new farming experiences will make the tractor people mad for awhile, but we have to take the risk of that. We must bring to public attention this newly discovered evidence of the depth and mellowness of California soils. There are few places in the world, probably, where large tractors will go out of sight on well-moistened uplands. It looks as though the manufacturers of large tractors would need to furnish floating dry-docks to their California customers.

But what we have seen during the last week is not all detraction. We have seen large tractors in trouble, but we have also seen small tractors in no more danger on moist loose ground than a robin is in pulling worms from a newly spaded garden-bed. Speaking of birds, that is just the way one of those work-destroyers, the small tractors, impresses us. At the same time that the large tractors were out of commission, the small ones were plowing three-gangs' width of disks on spongy, new-breaking, which would have been too wet to touch had it not been for the grass roots and gravel. They surely did go like birds, scorning the surface, and they so small that it made a tall man look silly riding on their tail feathers and directing their movements.

Pulling the Leg of the State.

But all the aforesaid tractorial things become trivial when one considers the drawing machinery which it is now proposed to attach to the leg of the State. On another page of this issue are the essential parts of the "land-settlement act," prepared by the University committee, and which, with other proposed laws, now rests during the bifurcative recess of the Legislature of 1915. The agricultural drama which is thus pending is really a trilogy in that it is in three separate parts, but it is not a trilogy, because all the parts are not complete in themselves. Thus the act (fully given in our issue of January 30), providing for a Secretary of Agriculture, to knock out existing commissions on agricultural specialties, is the first trilogic part, and it will stand by itself, if enacted; but the second part (fully given in our issue of February 13), providing for rural credit, cannot stand if the Secretary of Agriculture falls down: and the land-settlement act (given in this issue) leans upon both the preceding propositions. The reason for this is clear. Operation of rural credit and of land-settlement by the State requires an authorized executive administrator, clad in the panoply of the State. Perhaps it could be provided by creating another State commission, but the State has now more commissions than it has domicile for, and there is a widespread conviction that with fewer commissions the State could get more credit—rural and otherwise—but we are not arguing that question now.

Probably the reader can get from the essentials of the bill on another page, that the motive of the State in such legislation would be to help qualified farmers to get land to make homes and crops upon. The bill declares its own motive, and the reasons for it, in Section 11, which we give in full. From other sections it is plain that the purpose is not to establish on land people who are weary of having other businesses or of having none. Section 14 shows that an applicant must have agricultural training and experience, and that he must have some money, either in his own pocket or some other, to enable him to start in getting something out of the land. Those who may apprehend that this is an act for the benefit of Weary Willies, or for Smart Alecs generally, may thus see that it has no such purpose. It is to get to the land those who know how to use land and who are now unable to get farms to make their own, because of the prohibitive prices, terms and interest rates. Of course, in the past, such men could get land from Uncle Sam, but Uncle Sam's gift-stock is now becoming rocky, remote, arid, vertical, or at an altitude where the climate only allows the growth of a few iron-clad plants. Therefore, the idle land, in private ownership, must be made available for beginning farmers, who have plenty of practical knowledge, good characters, a little money, but no land, and it is necessary that they should have the land so that their work will pay for it. And it really appears that the State alone can make all these things "meet up," as the phrase is.

Why Should the State Be Pulled?

We confess to some qualms of conscience over the question. It is natural for one who can remember how people went West and built themselves homes and farms and bank accounts, spanking teams and Sunday carriages, and all that sort of thing, to wonder why the American spirit cannot continue to do such things and advance the State by individual or organized private enterprise. Certainly the last word has not yet been said on that side of the question, for we have plenty of readers who have done this in the past, or who are doing it at this moment; and there is a business question, which would hold in the public mind about every other human activity but farming, why should such masterful people be taxed to promote competition in their own line of production? The public does not admit that view, because it is always afraid of being hungry, and its view of the farmer is that of a man who picks up nature's gifts without particular effort—more favored than a miner, because these gifts are always on or near the surface of the ground. And the farmer does not angrily resent this view because he is the most good-natured man in the world and the most generous. He is perfectly willing to be taxed to educate everybody, and when it comes to helping other people to get land to go into competition with his land, he only smiles and says: "The poor man wants a bit of land: give it to him and I will help him pay for it." This is the traditional attitude of the American farmer toward the land and toward his fellow-men. Why will it not continue to build up the country?

It seems to us that it is a little this way: It is not so easy to start men on farms as it was; it takes more capital to fit the land for modern farming; it costs more to operate the crop, and,

though prices have risen, the margin is less than it used to be. A man cannot start his son or his neighbor's son on the back-end of his farm as it was formerly done. Not only has he less spare money, relatively, than his father had, but the requirement of financing the land is actually much greater, and he really cannot start his son or his daughter's young man as he was himself started—even if he has the land—which is a much smaller factor in the problem than it used to be, in some ways. And what has come of it?

The business of farming the farmers has arisen. All the sharks which usually swam in waters full of wild-cat mines and other good things with which they coaxed people to "come in: the water's fine," have really become amphibious and spend most of their time ashore, catching people in realty traps and getting away with them thereby. Improving land by irrigation has carried more water to the stock-owners than to the land; misrepresentation has run riot and extortion has been active. Dealing in real estate, which ought to be as honorable a business as it is fundamental, and even now is, when conducted with knowledge and conscience, has become almost a by-word because of the prevalence of deception. And so it comes about that the owner of a tract, who would like to populate it, gets little for his land, and the induced population gets nothing for its money—that is, nothing which will enable them to make good with their investment. And so, because of this, too often, ignorant, greedy and conscienceless intervention between the owner who desires to sell and the man who needs to buy, there is a great gulf fixed, through which no more profit can come to either seller or buyer than there came drops of comfort to the parched tongue of Dives in the parable.

Can the State Do It?

That has to be tried here for a demonstration, of course, but much is doing elsewhere and is coming through promisingly. There were grand exemplars abroad and many prosperous communities appearing from under which the bottom has perhaps fallen, through the war, directly or indirectly. There are promising developments in the same line in Ireland, in Canada, in Australia. In all these places, as well as on the continent of Europe, good results have come when States have lent their credit to financing farms, with economical and honest improvement charges and with intelligent discrimination in choosing among the applicants for the land. The owners have received fair wholesale prices for land which they had not the capital to develop, and the qualified buyers have bought retail parcels thereof at prices on which the land, fairly handled, would pay good profit—more than enough for good living, installments on the principal and fair interest on deferred payments. But to do this the purchaser must not only have the land; he must have capital for stock that will pay for more than it eats; seed that will come back manyfold and tools that make tillage effective and reasonable in cost, and, in many cases, water which wets the land rather than whets the teeth of the developer.

We believe that the proposed plan will work to wide advantage. Many land-owners, being warned by recent observation of mishaps in land development, have offered their land for State improvement and subdivision. Financiers have freely expressed their confidence that such bonds as contemplated would be widely welcome as both individual and institutional investments. As for qualified takers for the land, at such prices and terms as such State improvement and subdivision promise, there is no doubt of them. There is an army of farm-born and farm-school-trained young men who are awaiting to entrench themselves in such certified California lands and other armies within acceptable age limits who are now working for wages and would soon accumulate something if the inducement of getting ownership on such land were outheld to them.

This is a concrete matter, which our farmers should think about in all its bearings, and about which they should give the Governor's committee their conclusions, either through these columns or otherwise.

Queries and Replies

Querists must give name and address.

Trimming-Up Olive Trees.

To the Editor: Should the foliage and branches of an olive tree be left low to the ground, or should they be pruned up from the lower trunk, so as to give room for plowing around the trunk of the tree? If this method applies to the olive tree, why not to the orange?—O. R., Sacramento.

Olive trees should be grown low with short trunks well shaded by the foliage, but there should be under-pruning enough to keep the foliage and fruit clear of the ground. When this is done it will be possible to work the soil under the tree so that it shall not bake and crack, but it is not necessary to trim up high enough to run the team under the branches—extension disks or harrows will reach in far enough. This is the right way to grow an orange tree also.

Importing Plants.

To the Editor: To whom should I apply for a permit to import plants from Great Britain?—H. B., Gilroy.

Apply to the State Horticultural Commissioner, Ferry Bldg., San Francisco, or to the Federal Horticultural Board at Washington, for an application blank. When you have received it, fill it out, send it to the Federal Horticultural Board and they will mail you a permit. The application requires a note of the class of stock desired to import, the time during which imports are wanted, the country and locality from which they are to come and the port of entry. No permit is needed for field vegetables, flower seeds, bedding plants and bulbs and flower plants.

Walnuts On or Near the Highway.

To the Editor: In planting English walnut trees bordering a ranch, should they be planted in the county road so as to make a narrow sidewalk, on the property line, or some feet inside the property so that cultivation may be practiced? The trees are to be planted along alfalfa fields. County road is four rods wide. —R. J. M., Lathrop.

We should plant them inside the property and far enough from the fence to give a good strip for cultivation with team or tractor. The trees will be worth but little probably with highway neglect, and you will get but very little of that, for presumbably what is on the highway is public property. Even if you have title to them it will be worth more than it yields to enforce it.

Weed-Killing in Cemeteries.

To the Editor: The ladies have formed an Improvement Club for the purpose of improving the cemetery in our country neighborhood. We find it very expensive trying to keep the weeds under control by hoeing, for every time we have a shower in the Spring the weeds come up thick as ever. I have been thinking perhaps some of the "weed destroyers" we see advertised might be used on the driveways and alleys to an advantage, and we could then easily keep the lots cleaned.—Reader, Colusa county.

The weed-killers sold by the seedsmen are effective. If you wish to use a good deal of it, you may make a good killer yourself by using this recipe: Dissolve one pound of caustic soda or potash lye, in 2 gallons of water; in this dissolve 2½ pounds of white arsenic; when this is dissolved, add water to make a total of 20 gallons; apply with spraying apparatus or a sprinkling pot. This is a killing solution, and is capable of being moved by surface flow of rainfall or by underground movement of water to which it may attain. Therefore there is an element of danger in it to adjacent vegetation which you may wish to preserve, and the material should be used in as small a quantity as will serve to kill the particular place to which application is made.

Cutting Back a Walnut.

To the Editor: Would you top a one-year grafted walnut tree if the tree had grown eight or ten feet tall the first year without showing any inclination to throw out laterals of its own accord? If I cut back to four and one-half feet and allow only three or four laterals at this height to form a top, could I look for a good strong tree of symmetrical shape?—E. O., Concord.

You can get a good tree that way if you wax the end and keep the water out of the pithy stem, but would prefer to let the tree alone It will branch this summer and we would prefer to have all the branches above four feet—keeping off all suckers and whitewashing the stem to prevent sunburn.

Irrigating Prunes.

To the Editor: When is it safe to irrigate prunes and when not? I have heard of whole crops ruined by the pits cracking and later dropping, which they claimed was due to irrigating at the wrong time.—C., Yuba City.

It is safe to irrigate prunes during the winter if the fall is running short. It is also safe to irrigate during the growing season if you find by digging about two feet that the ground is too dry below to enable the tree to make good fruit. It is not desirable to irrigate within three or four weeks of ripening. Before that you ought to be sure of moisture in the soil to finish the crop. It is safe to irrigate after picking if the leaves show you that tree is getting too dry to finish good fruit buds for the following year. When to irrigate depends upon the soil and the tree—not upon the calendar.

Sorghum in Coast Valleys.

To the Editor: I wish to inquire whether Egyptian corn or sorghum should do fairly well in this, the Pajaro Valley. It does not seem to be grown here. Will it do in this coast climate?—C. H., Watsonville.

The sorghums are relatively less valuable in the coast valleys because the conditions which make them most valuable in the interior valleys, viz.: resistance to heat and dry air, are not called into play. Probably Indian corn should be preferred with you.

Prepare to Graft Grapes.

[Written for PACIFIC RURAL PRESS.]

If you are thinking of grafting over your vineyard, it might be well to figure the cost in several ways before starting.

In the first place, the actual work of grafting costs about $25 per thousand vines on an average. A stake is required at each vine to support the new shoots; and at least one and one-half crops will be lost. Now, if you have a variety which is not paying, and if the prospects are that it will not pay in the future for very long, it is very probable that it will be best to graft it over unless the vines are under three years old, in which case, it might be better for several reasons to pull them up and replant. If you know of another variety which will very likely pay better two or three years from now than the one you have, an estimate of the extra profit per year will give you a basis for figuring how many years it will take that increased profit to make up the expense of grafting and the loss of crops. If the results satisfy you that the vines should be grafted over, go out into someone else's vineyard at once and select your scions from well-hardened wood. It is almost too late to get them now.

Selecting Heavy Scions. — Any canes whose buds are swelling or whose bark is at all loose are too far along for grafting and will scarcely give satisfaction. In selecting a cane for scions, make a sloping cut at the end of what you would use for the scion and note the condition of the wood. If it is heavy and solid, it will likely be a good scion. If you wish to make a more thorough test, get some iodine mixed with 75 per cent alcohol, one part by weight to 100. Apply some of this to the cut surface and if it turns black, the scion is full of starch and sugar, which are the reserve food material and will be first used in the production of new leaves on the scion. If it turns black in radiating lines and the cane seems otherwise sound and plump, it is because most of the reserve food is still in the roots and the scion will still be all right to use, because the stump it is to be grafted to will furnish it the necessary food. The cane which shows no discoloration from the iodine is likely to have been weakened by overbearing, disease, or otherwise, so that it will not make a good growth, if any at all.

It is most convenient to cut the scions into double lengths because they must be kept for a month or two in bundles of 50 to 100. Canes should be selected with the buds medium distances apart and of the plumpest apearance. If it is possible, they should be selected from vines which produced a good, but not overloaded crop last year. Two to five buds should be allowed for each scion, the longer ones to be grafted onto the largest and most vigorous vines. A two-bud scion on a vigorous, large stump will grow so riotously that it will be hard to shape.

Having bundled the scions in convenient quantities, put them into a cool, moist place, where they may be kept moist, but not too wet. Sawdust is the best packing because it drains well and will hold enough moisture to keep the scions in good condition. A dried-out scion may put forth a few shoots, but will never amount to anything. They will have to be stored a month or more in a well-drained place or in well-drained boxes until the sap begins to flow in the vines to be grafted. This may be told by the swelling of the buds, at which time grafting should commence, and it may continue until the shoots are several inches long. With different varieties, the grafting season lasts from January to May; but March is the best month for the early varieties or early sections and April for the later varieties and later sections. The heavy rains should be over when the grafting is done and the soil not too wet or puddly, because you won't want it to bake when heaped over the stump and scion.

Tools.—The tools required are an ordinary crescent-shaped saw, being careful not to get one in which the handle continues the crescent shape (the handle should be straight); a sharp budding knife or broad-bladed jack knife to cut the scions with, and a mallet. A "grafting tool" most convenient and most worth while if many vines are to be grafted, is made by flattening out the end of an old rasp or horseshoe file so that it looks like a hatchet, handle and all. The handle end should be only one-half to one inch broad and should be sharpened into a chisel shape.

Grafting.—The cleft graft is in general use for commercial California grapes. C. M. Fulkerth of Fresno county reports one job on 1,000 Malagas with better than 90 per cent success. When time to graft comes, the old vine is cut off several inches underground where the under bark is smooth and where the wood on one side at least appears straight grained. The dirt should be shoveled from around it, giving plenty of room to work, for standing on one's head is not conducive to good work or to good temper.

The scions should be tested a week before grafting to see whether they have been kept too wet or too dry. If too wet, the cut sections will show water soaked pith and the wood streaked or spotted black and the live bark loose and brownish. If too dry, the only test for the amateur is to keep one a week in warm, moist sawdust. If the buds have not started well by that time, the scions are of doubtful vitality and may perhaps better be thrown away. A day before using the scions it is well to stand them up in an inch of water. They must be kept moist, too, in the basket in which they are carried to the field.

With the stump cut off at bud swelling time, the pressure of sap from strong roots then forces so much water that it would drown the scion if inserted at once, so if the vines are noticed to be bleeding extensively they should be left alone for a day after cutting them off. By this time enough water has been bled out so that the scions will probably not be drowned.

Splitting the Stump. — Selecting part of the circumference where the bark is smooth when the outer bark has been scraped off and the grain of the wood seems straight, lay the hatchet edge of the grafting tool

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.
Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
Arbuckle, Colusa Co., Calif.
The only exclusive Alfalfa Seed Dealers in the West.

Martinez Nursery
Established 1884.

Offers the following varieties in strictly No. 1 Trees: 20,000 Bartlett Pears, 10,000 Apples (leading varieties), large stocks of Almonds and Apricots (leading varieties); also Autumn and Winter Pear, Plum, Prune and Peach Trees, Grape Vines, Ornamentals, etc. Price list on application.

THOMAS S. DUANE, Prop.
MARTINEZ, CAL.

across the edge of the circumference not quite horizontally. The back of the hatchet is then struck a little with the mallet, cutting the bark first about one-fourth of an inch downward and at the same time cutting the wood back half way across the stump perhaps one-eighth of an inch deep. The chisel end of the tool is then driven an inch deep vertically into the crack made by the hatchet and one or two inches back from the edge. It should be at least out of the way of the scion when it is placed.

Only one scion should be placed in grape roots not more than two inches in diameter; and care should be taken not to split the stump clear across since that weakens it so that it might not hold the scion tightly.

The scions may now be cut with a long slope, a little thicker on the outside than on the inside, and with no curve in sight when looked at from the outside. They should never be cut out until one is ready to open up the cleft in the stump, because if even the surface of the scion gets dry, there is hard luck coming for the grafter.

Now pry over on the grafting tool so as to open the split cleft of the smooth side of the vine and insert the scion. When the tool is removed, the vine itself squeezes the scion tightly and holds it in place without further bother. If it is too large a vine and the pressure is such that it smashes the scion, a little wedge of wood should be stuck into the crack to help bear the pressure. If the stump has been split clear across so that the pressure on the scion does not seem enough to hold it, it will be necesary to tie the stump with raffia; and perhaps later on, come back and cut the string.

With the scion inserted, there is no waxing to do on grapes, partly because of the vigorous sap flow. If wax could be applied thoroughly it would be a great help to the vine to survive the attacks of wood decay and fungus, which quite often shorten the lives of grafted vines; and it may be thought worth the expense to coat the stubs with some moisture-proof material.

However, most vineyardists simply cover the stub and scion with some pulverized soil, making a mound over it so that the scion will have no chance to dry out until it has sent out shoots and made a thorough union.

A stake is set beside the graft for the shoots, which will need support within a few weeks. This stake is a means of distinguishing the shoots of the scions from the suckers of the stump, which will come in bunches. When the scion has grown enough so that a reasonably strong union is secured, all the suckers from the stump should be immediately pulled up. If this is delayed too long, they will rob the scion and stunt it. If it is done too soon, the shoots from the graft may be injured by disturbing the dirt. If it is done at the right time, the suckers may be pulled away several at a time without seriously disturbing the lose dirt, and without harming the graft. They must be pulled off at their union with the stock because if pieces of them are left in the ground they will be a source of perennial trouble. If they are pulled off at their beginning for two or three years, they will be very little trouble thereafter. If allowed to grow too long, dormant buds are likely to be formed around their bases and this in future years will give trouble; so the new suckers should be religiously kept out while they are yet young enough to pull loose from the stump without much trouble. If the dirt over the stump at the time of pulling the first sucker is packed hard, it must be loosened in order to avoid loosening the graft.

With strong roots and long grafts, a few grapes may be gathered the first year and perhaps a half crop the next year.

MILDEW-RESISTANT GOOSEBERRIES.

To the Editor: I am undertaking gooseberry raising, using the Improved Champion variety. Is this resistant to mildew and if affected what is good for it and when should it be done? Do they need much irrigation and pruning? — E. T. S., Hollister.

[If the Improved Champion is better than its parent variety, it is mildew resistant. The bushes will need irrigation enough to keep the leaves in good shape and to provide the large amount of moisture used in the fruit unless your location is naturally well watered. The pruning consists in cutting out the oldest canes and any that are diseased, and removing all suckers before dormant buds are formed at their bases. Bush form is better than tree form because if borers get in there are other canes to take the place of the ones affected. For varieties susceptible to mildew, spray with Potassium Sulphide, ½ oz. per gallon of water, which will prevent the mildew and will not stain or poison the fruit. This should be applied as soon as the leaves open and once a month afterward as long as any signs shall appear.—Editors.]

Oil sprays stimulate the trees.

California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also descriptio n and methods of handling all varieties of vegetables grown here.

Price $2.00 Postpaid Anywhere.

Pacific Rural Press

Publishers.

525 Market St., San Francisco

SURPLUS TREES

AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of **Grape Vines.**
Fine supply of **Olive** and **Citrus** trees; also Grape Vines in **Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha,** etc., etc.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast. this spring, wire us (our expense) for quotations on If you will need some stock your orders.

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

Mission Olive Trees in our Nursery at Fresno, propagated from selected large Mission Trees.

A FEW LINES FROM OUR CUSTOMERS IN THE MORNING'S MAIL

Delano, Cal., Jan. 31, 1915.

Dear Sirs: Trees arrived and passed inspection. They are certainly fine trees, root systems perfect. Yours truly.

Watsonville, Cal., Jan. 25, 1915.

Kirkman Nurseries: Have just finished unloading the second car, and believe me, it's a pleasure to handle stock as well grown and clean as your stock comes. The root system simply cannot be equalled. I received a few pears from elsewhere last week, varieties which you did not have, and I am ashamed to offer them to my customers, or put them in same row with yours. Very truly,

Visalia, Cal., Jan. 28, 1915

Kirkman Nurseries, Fresno, Cal.

Gentlemen: Have received shipment of 350 prune trees on peach root, invoice No. 5400. The trees are in fine condition, and am enclosing P. O. money order for payment of same. Yours respectfully,

San Juan, Cal., Jan. 27, 1915.

Dear Sirs: I received the trees the 18th inst., and have planted the same, and I will say that I did not find one tree but what was in No. 1 condition in every way. Yours truly,

Santa Paula, Jan. 28, 1915.

Kirkman Nurseries, Fresno, Cal.

Gentlemen: I beg to enclose three orders for shipment at once; also my check for $500.00 upon my account. Have been very much pleased with the quality of stock received so far, and all the customers are well satisfied. Very truly yours,

Jan. 30, 1914.

Kirkman Nurseries, Fresno, Cal.

Gentlemen: * * * I am getting fine reports from the trees; all the inspectors in this and the surrounding counties are unanimous in saying that it is the finest stock that ever came through their inspection. I think you have this section roped and tied. Very truly yours,

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

Fair Oaks Oranges Gain Reputation

[Written for PACIFIC RURAL PRESS.]

Oranges, fifty carloads it is said, were shipped out of Fair Oaks immature this season under a certain brand, ostensibly for the "decorative market" for the holidays. But for some reason, after those oranges had "decorated" eastern homes awhile, there must have been an attempt to eat them. It killed the brand. Attempts to ship under the same brand later in the season when the oranges were really good to eat, resulted in loss to the same folks. These folks comprise possibly a quarter of the orange growers here, and many of them have belonged to the co-operative association, which is affiliated with the California Fruit Growers' Exchange. Part of the trouble is that outside buyers made tempting offers, and these folks deserted. One man with 14 acres sold 184 tons by contract at 80 cents a box to the company that shipped immature fruit. The buyers paid him at a loss for two carloads, and he is waiting for the rest. Others who consigned through this firm under its label are in a worse fix. Three cars of the brand mentioned stood several days on the tracks at Joplin, Mo,. without a buyer. These are good oranges, but they are wrapped in a brand that killed itself this past fall, because its early oranges wouldn't average a test of over 4 to 1.

In the season of 1913-14, some hundreds of carloads were shipped absolutely green under a Fair Oaks brand. For several years before, immature oranges have been biting the name of Fair Oaks in the East.

Refused to Ship Immaturely.—The Fair Oaks Fruit Co. this year agreed to ship no oranges sourer than the 8 to 1 test, in order to have the benefit of the Sunkist and Red Ball labeled wrappers of the State Fruit Growers' Exchange with which they are affiliated for oranges. About 75 per cent of Fair Oaks oranges are shipped thus co-operatively, all being pooled and shipped through the Exchange.

But the result of waiting for maturity has been that the crop, which is usually off by the holidays, is still largely on the trees. Packing began about the last week of January, and there are still many orchards yet only half-picked. Only one picking per tree seems necessary, though among those who are leaving the small and dirty ones to be picked and brushed later, is S. G. Andrus.

Due to the chance for fungi to enter abrasions of the skin, and because there is very little scale in this section, only an extremely small per cent will be brushed, and none will be washed.

Standard Oranges Paying.—While the erstwhile shippers of early immature oranges are losing money on those shipped later under the same brand, those shipping co-operatively, even so much later than usual, are making at least an even break. They don't hope to make money this season, according to Prof. Elmer Chase, who was until recently horticultural inspector for this section and is a member of the Fair Oaks Fruit Co. Still, they are shipping two or three cars a day (this is written Feb. 6) and markets are improving.

But they are establishing a reputation for Fair Oaks fruit, and they hope that reputation will make them some money next year. All fruit is up to test, and it is all jealously graded for quality and culled for defects. Five men grade the oranges that run slowly past them on a belt a foot wide, and woe is the last man if a poor orange gets past him while Secretary Hinsey is in sight. Owing to a recent big windstorm the fruit was whipped about so much that scarcely any brought in soon after would go into the "extra choice" grade necessary for use of Sunkist labels.

Mr. Chase says, also, that the crop has never been of better quality or color than this year, and seldom more of it. Being so late to maturity is a disadvantage both to Fair Oaks and to the other orange sections, but at the suggestion of Mr. Powell, a plan is on foot for university men with Mr. Chase to investigate means of hastening maturity in this section.

LEMONS IN SAN JOAQUIN

[Written for PACIFIC RURAL PRESS.]

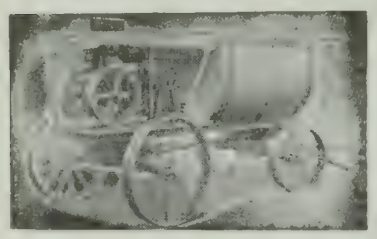
Two nine-year lemon trees in the yard of H. S. Fasig on the valley land of San Joaquin county have yielded already this season 15 forty pound lug boxes, four of which have been sold locally. The trees are still well loaded with the fruit, which is not picked and stored in the commercial way, but is still profitable. The tree on the north side of the house bears only half as much as that on the south side. A trouble to be overcome is that the fruit colors before it is sized.

NECTARINES DROP BADLY.

To the Editor: My Stanwick nectarine trees are in full bearing, bloom heavily every year, but the fruit does not stay on, dropping from the time they set until they get ripe.—U. J. C., Parlier.

[If the dropping has become a habit, the trees probably need water, or fertilizer, or more cultivation, or spraying if insects or disease are found. Such trouble on nectarines would seem to indicate weak fruit buds.—Editors.]

Hardie Sprayers

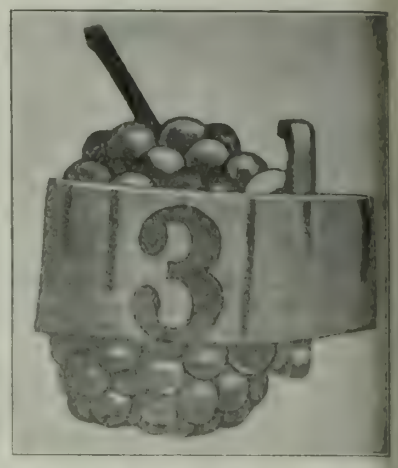


The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.
Write for Catalog.
THEO. POINDEXTER,
State Agent,
320 Market St., San Francisco

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

New MACATAWA Everbearing Blackberry

The MACATAWA originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless, very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.



The Macatawa is 3½ inches one way by 3¼ inches the other.

It begins blooming in the southern and coast States about February 15. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact, is the only berry in my 46 years' experience that is an everbearing variety.

Its habit is similar to that of the Eldorado, upright grower, needs no support, self-branching, and the bloom is almost semi-double, about the size of a silver dollar. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half-inch pieces.

These piece roots are sown in rows four inches deep, the rows two feet apart. They should be sown in the southern and coast States from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots, $10 per thousand: one year old plants, $1.50 per dozen, $10 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

Address All Orders to

Santa Cruz Bulb and Plant Co.
8 New Street, Santa Cruz, Cal.

WANTED AGENT to sell New Macatawa Everbearing Blackberry Plants. Some of our agents are making $10 to $25 a day. We allow a liberal discount on all sales made. Send for outfit now with references to Santa Cruz Bulb & Plant Co., No. 8 New St., Santa Cruz, Cal.

This Spray Hose Stands the Wear.

Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is

Bean High Pressure Spray Hose

Made to withstand high pressure and constructed especially to withstand the action of spray materials and to give long service. Costs no more than ordinary spray hose—but lasts twice as long. Write for prices. You can order from your dealer—or direct from us.

BEAN SPRAY PUMP CO.
211 West Julian St., San Jose, Cal.

Send us a List of your needs and get our Special Quotations

SPECIALTIES:
Deciduous Fruit Trees, Grape Vines,
Grafted Walnuts, Olive Trees,
Shade Trees of All Kinds, and Palms.

LARGE CATALOG, Full of Iinformation, mailed free. We give every one a square deal and their money's worth. Write us and make known your wants.

HONEST NURSERY STOCK FROM THE ROOTS UP

The FRESNO NURSERY CO. INC.
FRESNO, CALIF.

1915 To Be The Biggest Year in The 30 Years History of The Fancher Creek Nurseries

Every year since 1883, has seen a marked growth in the size of our stock, improvements in quality, together with greatly increased facilities for handling the business that has been so generously given us by our thousands of patrons all over the United States as well as in many foreign countries.

IN THE midst of an extra busy season we wish to pause just for a moment to express our hearty thanks to each and every patron of these Nurseries, for the generous support that you have given us during more than 30 active busy years. We have tried to merit every dollar's worth of business by giving in return the finest, strongest, truest stock that we could possibly grow, and you can be assured in the future of the same personal attention to orders that has proven so satisfactory in the past.

To meet the demands of this big season, which promises to be a most extraordinary year, and a most unusually favorable one for planters, we have grown the most magnificent stock, both in quality and completeness, that it has ever been our good fortune to possess.

Make this big year your big year—the foundation for your future profits—by planting all the trees or vines your resources will allow. But, be sure to plant Roeding's True Trees, if you wish best results.

Big Illustrated Catalog Free

If you haven't already received a copy of our 1915 catalog—write for it today. It contains brief descriptions and prices of all stock carried by us, consisting of over 2000 different varieties of citrus and deciduous fruit and ornamental trees, plants, vines and roses. We guarantee all stock sold to be true to name and our careful methods of shipping insure safe arrival at destination. Send us your list of what you expect to plant for special prices and suggestions.

Fancher Creek Nurseries

Incorporated

PAID UP CAPITAL $200,000.

GEO. C. ROEDING, Pres. & Manager.

Box 18——Fresno——Calif.

The illustrations on this page give but a slight idea of our packing yards and nurseries. Our facilities for serving our patrons are unexcelled.

Scaring and Poisoning Linnets.

To the Editor: I see by the Rural Press, Feb. 6, a subscriber of Gridley would like to know how to keep linnets out of his prune orchard. I tried it in my apricot orchard last year, and it worked all right. Make a scarecrow from an oblong Irish potato about 4 inches long. Stick wing feathers of a chicken, or any other such feathers, about three or four on each side of the potato for wings, and the same for the tail. Slope the tail feathers so it will look like a bird. Place a small flat stick in the opposite end of potato for a bill, to make it look as much like a hawk as possible. Now run a string about 20 inches long and a crooked piece of wire through the potato and fasten to a limb to the side of the tree in such a way that when the wind blows it will swing around. Put a potato hawk on each side of the tree. It worked like a charm for me.—N. Peterman, Willows.

To the Editor: In the Press of Feb. 6 I see a question about fighting linnets. When I lived near Los Angeles I was botherd with linnets eating the buds off my peach trees. I was living in town, but had several peach trees on my lot. I used to take some oranges, small ones are as good as any, cut them in two pieces, making two halves, take some strychnine, putting some in the half of the orange, cut off a limb about as large as a lead pencil, sharpening it; run it through the orange and it will stay there till it dries up. Put them over the orchard on every few trees and you will find the linnets lying on the ground. I never have found any other bird that had eaten the poison. It is a good deal cheaper than shooting them, and one can use his time doing something else.—E. Leatherman, Winton.

To the Editor: I see in Pacific Rural Press Feb. 6 a subscriber is asking how to fight linnets. A good way is to plant posts in the orchard and place a pan of poisoned water on each post so the linnets can light on the edge of the pan and take a drink. W. R. Davis, Atwater.

[Of course, in poisoning one runs the risk of killing many birds which it is desirable not to destroy.—Editors.]

DESIGN IN LANDSCAPE GARDENING.

[By John W. Gregg, Professor of Landscape Gardening and Floriculture in the University of California.]

[Note: "What are the fundamental principles of successful agriculture?" This is No. 5 of a series of articles answering that question. In these brief summaries different experts of the faculty of the College of Agriculture of the University of California have set forth succinctly the basic principles of their various specialties.]

Simplicity is the prime element in pure beauty, and in landscape design is the opposite of extravagance.

Intricacy is the soul of landscape and is the opposite of blankness.

Convenience produces a feeling of satisfaction by making every interesting feature comfortably accessible.

Compactness economizes space and labor, creates the appearance of order, and renders each feature a part of the combined whole.

Seclusion produces a feeling of ownership and privacy, and is in accord with good taste.

Snugness involves shelter, protection, warmth, shade, and a play of sun and shadow.

Unity adapts in a pleasing way the several parts of a design to the whole.

Blending artistically distributes plants and groups and other features of a design so as to do away with an extreme continuity of lines.

Symmetry preserves balance of parts.

Gradation permits a gentle transition of parts into others without conspicuous breaks or marked interference with harmony.

Richness produces a feeling and appearance of refinement by tasteful selection of all elements of design.

Variety adds refined spice, freshness, and power to a design.

Contrast seeks to distinguish the more important episodes and detached accessories without destroying harmony.

Finish demands good plant forms, cleanliness, and completeness.

Order produces a regularity and presents the appearance of substantialness, and denotes the production of a master mind.

UNIVERSITY EPITOMES.

Good Farming Principles.

[By Prof. John W. Gilmore, University of California.]

Soil preparation, tillage, drainage, a good supply of organic matter in the soil, and applications of mineral fertilizers, including lime, enhance the yield and the quality of the crops.

Crops and animals bred for high production and quality lessen the cost per unit of production.

Good crops and animals generally make for better men; they increase man's appreciation and broaden his sympathies.

Rotation of crops tends to promote the crop-producing power of the soil, to equalize labor distribution, to destroy pests, and to balance animal and crop production.

A legume should be grown upon land at least one year in every four.

The judicious use of mineral fertilizers combined with manures (both green and yard) will, under proper culture and tillage methods, maintain the crop-producing power of the soil.

With crop-producing power maintained, a proper balance between crops produced for sale and for feed, and animals fed, brings the largest returns per labor unit.

A proper balance should be maintained in each type of farming between building, implement and working livestock equipment and land area.

Location and receptivity of the market are factors to be considered in planning and executing a cropping system.

An adequate system of cost-accounting reveals the amounts and sources of income.

Maintenance of crop-producing power and maximum yields and quality per unit of labor expended should be the aim rather, than these maxima per unit of area.

Armstrong Nurseries
ESTABLISHED 1889

High Grade
Olive Trees

In fact, my olive trees are the best to be had—trees that will start right off and grow and give you highly satisfactory results from the day you plant them, and on through their entire period of productiveness.

You cannot afford to plant an olive tree of unknown origin.

My trees are scientifically propagated from the best-bearing trees in the State—trees of highest record of quality and productiveness.

Your order should be placed with me now soon, so that I may prune and otherwise prepare the trees for digging, shipping and transplanting to your orchard.

Write me, stating your requirements, and I will quote you my lowest prices on strictly first-class stock.

Ask for a free copy of my Booklet on the Olive and Its Culture.

Also, for a free copy of my 64-page illustrated Catalog and Price List of General Nursery Stock of highest quality.

JOHN S. ARMSTRONG, Prop.
406 Euclid Ave.
Ontario California

ESTABLISHED REX 1896

For Citrus Spraying
Rex Lime and Sulphur Solution
Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying
Rex Lime and Sulphur Solution
Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards
Rex Lime and Sulphur Solution
Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.
WRITE FOR BULLETINS.

California Rex Spray Co.
BENICIA, CALIFORNIA.

Quincunx Tree Planting.

[Written for PACIFIC RURAL PRESS.]

To get bigger crops in the early ears of an orchard, Rudolph Wiltz Santa Clara county advises plant-g by the quincunx system in not ss than 30-foot squares, for wal-uts especially.

One of the big troubles in many d orchards is that trees are too ose together and it is impossible persuade the owners to cut out lternate rows, because that would ave the rows unnecessarily wide part. The extra sunshine and air nd the extra expansion of the twigs ill produce more bearing surface nd might easily make up the dif-erence, yet it is hard to see it that ay and to cut out full bearing ees.

For this reason, the quincunx sys-m, which means that the orchard laid off in squares and a tree plant-d in the middle of each square, ems one of the best solutions.

As soon as the branches begin to terfere, a tree can always be taken t and sacrificed, gaining a much eeded amount of sunlight for all e trees without making ragged les in the orchard, and without king out so large a per cent that wouldn't be done.

In laying out the quincunx system, simple way is to stretch a wire ong one side of the field in a raight line, leaving room enough tside to drive the fruit wagons d to turn on in cultivation.

The stakes may be set at the re-ired distances along this wire; en to make a corner measure out 0 feet of the wire and roughen with a file at the 100 mark, at the foot mark and at the 60 foot ark, so that a string tied around ese points cannot slip. Be very curate in this as a mistake of an ch in 60 feet is likely to make a fference of several feet at the other le of the orchard, and the trees will out of line. Set a firm corner ake at the end of your first row, hich has already been staked out, d hook the measured 100 feet of re over it, spread it out to the 60 ot mark to about what seems to a right angle to the row already aked. With a piece of wood held rmly at the 60 foot mark, swing e wire so as to mark the part of circle in the ground, big enough you are sure it will include the act point you are after. Then ving round and set a firm stake 80 et from the corner, in the row al-ady staked for trees, jerking the re off from the corner stake and lling it down so as to hook it over e one last set, 80 feet from the rner. Then swing the wire towards e stake on the side you are trying find and with a stick of wood the 100 foot mark scratch a part-rcle that will cross the first part-rcle that was scratched in the dirt. he point where they cross is at a ght angle to the first line of stakes. hen the wire is stretched from the rner stake over this point in a raight line across the end, you ve a line at a direct right angle the first line of stakes; and are ady to continue the planting in uares.

To make this planting on the incunx system, use a wire that ill reach a little more than the agonal distance across square. Rasp with a file rough places for two string markers at the exact diagonal distance across the square. Find the center point between them. There a center string is to be fastened in the same way. With this wire, the center point of the quincunx system may be found simply by laying it diagonally across any square.

AVOIDING GUM DISEASE.

To the Editor: A gentleman who signs his name Clarence B. has asked me a few questions to be answered through the Pacific Rural Press, so that others may benefit as well as he.

One, What kind of seedlings would you advise planting?

Two, What is the best time to bud?

Three, How large should seedlings be before budding?

Four, What kind of buds would you advise putting in?

Five, What is the cause of gum disease and how can it be prevented?

I will answer your questions as a number of years of practical experience has taught me. The first and last questions I will answer in one. I prefer the sour stalk seedlings, as they are less subject to gum disease, the cause of which in most all cases is low planting (what I mean by low planting is where the tree has been planted below the main level of the ground), and in flat land where water stands around and on the root of the tree. Planting high and keeping water away from the tree is the best preventive.

The best time to bud citrus nursery stock is from the middle of Oct. to Nov 1 if the weather is favorable, which it most always is for fall budding; in the spring you have to be governed entirely by the condition of your trees. Just as soon as they begin to put out the spring growth you can commence budding, but it is not advisable to bud later than May 1, as your trees will not make growth enough for market the following year if budded later than the first of May.

A nice size for budding is ⅜ inches up. Bud should be inserted above the ground level, which can be regulated with the eye after one has had a little experience.

As to the kind of buds I would advise you to have a small variety, but of course have the most of the kind that is in most demand in your locality.

I have answered the gentleman to the best of my ability, but will say that in agriculture or horticulture, practical experience is in reality the only teacher.—J. M. Reeder, Tustin Packing Co.

APPLE SPURS BECOME TWIGS.

Alexander apple fruit spurs were induced to elongate into twigs by J. F. Sarmento after the trees had not been pruned for some years, by cutting the limbs back severely, like one would prune apricots. Pearmains, he says, may be pruned heavily because they do not tend to shoot out so much new growth as many other varieties.

It is not yet too late to spray with lime sulphur for scales and fungus diseases.

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely water tight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside leaving a perfectly smooth surface and making possible a water-tight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.

National Oil Engine

Mr. Rancher

Purchase an OIL ENGINE; don't spend your money on high-priced Fuels, when a NATIONAL will run successfully on 2½c Fuel.

Write California Distributor:

J. C. WIGHT

4927 BUDLONG AVE., LOS ANGELES, CAL.

Ornamental Trees

For Street, Sidewalk and Home Grounds.

Texas Umbrella	American Sycamore
American Elm	American Linden
Norway Maple	Carolina Poplar
Silver Maple	Mountain Ash
Ash Leaf Maple	Russian Mulberry
Catalpa	California Black Walnut

All varieties in 6 to 8, 8 to 10, and 10 to 12 ft. graded. Straight heavy trunks, require no staking.

Buttelands Nursery

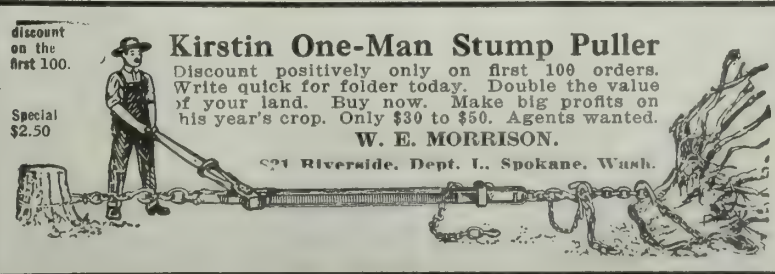
JOHN L. AMES, Mgr. LIVE OAK, CAL.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN, CALIFORNIA.



Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

521 Riverside, Dept. L, Spokane, Wash.

ALWAYS
Money Makers

IMPERIAL PRUNES, BLENHEIM and ROYAL APRICOTS, WALNUTS.

We have also on hand French prunes, almonds, cherries, peaches, and assorted fruit tree stock.

IMMENSE STOCK ORNAMENTALS.

Landscape Gardening a Specialty.

LEONARD COATES NURSERY CO. INC.
Morgan Hill, Calif.

Absolute Protection Against

FROST DAMAGE

BOLTON ORCHARD HEATERS

One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.

Write for our new booklet R. P.

The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

Irrigation Machinery

Pumps-- Motors--Engines

Pumping Plants Installed and Guaranteed for One Year.

Send for Our FREE 72-page book on "IRRIGATION."
Expert Engineers.

Three Stores to Serve You.

California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco.
81 S. Briar St., Lindsay.

AMERICAN PUMP CO.,
129 No. Los Angeles St.,
Los Angeles.

California Native Plants

Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.

THEODORE PAYNE,
845 Main St., Los Angeles, Cal.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.
NEWCASTLE, CAL.

Lime-Sulphur vs. Peach Curl Leaf

[Written for PACIFIC RURAL PRESS.]

Curl leaf and peach worm are two of the greatest troubles of San Joaquin county peach growers. Blight does not worry them except in a few very small locations.

Curl leaf is peculiar in the fleshy, convoluted, deformed shape it puts the peach leaves into, and in its limit of ten to twenty days a year in which it does its damage.

On the J. B. Cory ranch, which includes three or four hundred acres of peaches, they aim to spray for it every year. But sometimes a tree or a row is missed; and then on certain varieties, the curl leaf fungus makes things hideous when the leaves appear. Two rows were missed unintentionally, according to J. H. Davis, foreman of the ranch; the two rows lost all their leaves, while those next to them remained untouched. Fruit, however, which remains till the new crop of leaves, matures as if nothing had happened. The trouble is that if a large proportion of leaves drop, most of the fruit is likely to drop too.

Ordinarily they don't have much curl leaf because they have been been spraying ever since it appeared in this locality a good many years ago. It is for the same reason that blight, too, does not worry them, and the peach worm is kept from breeding. Mr. Davis thinks it is the winter lime sulphur spray that checks the worms, by cleaning off the moss and things that harbor worms and eggs.

The "winter spray" is applied while the trees are dormant. Mr. Davis believes January is the best month, for both the worms and leaf curl; though of course on that big orchard, the spraying is done when it can be. Later sprayings do not catch the worms so well.

The "spring spray" is applied for curl leaf. B. A. Towne aims to put it on just before and while the buds are starting growth, "showing the spring change." This seems to be entirely successful. For his winter spray he dilutes Rex lime-sulphur 11 to 1; the spring spray is the same but more diluted.

Some Varieties Resistant.—According to Mr. Davis, Crawfords and Muirs are practically immune—they ought to be sprayed anyhow to clean them up and keep off disease, but if any of the peaches must be neglected, these are the ones. It was so last year, and there was no curl leaf to speak of.

"But these Elbertas, they are the babies you have to spray or they would lose all their leaves. They are more susceptible here on this loamy valley land than most any other variety." Phillips, Lovell, Mother Porter are all very sensitive, Tuscans not so much, but they curl some.

"You don't know you've got curl leaf till you see the leaves curled, and then you can't do anything but hope the little fruit will hang on till the second crop of leaves comes. So you can't tell whether you need to spray until it is too late. We aim to spray them all every year," says Mr. Davis.

Home-Made Lime-Sulphur.—"But in this section we all make our own lime-sulphur. It is cheaper and we believe perhaps a little more effective, though it clogs the nozzles more, with the fine particles of ground limestone in the lime. We could get rid of that, I think, by allowing the cooked solution to stand in tanks a month or two, but we haven't the storage facilities."

Proportions Home Made.—For a "load" of 250 gallons spray, they use on the Cory ranch, 80 pounds of the best quicklime they can get, to avoid clogging nozzles. This costs about $2.00 per barrel of 200 pounds, but by the carload as they buy it costs $1.60 per barrel. Mr. Davis believes that a cheaper brand of sulphur is fully as good as the best, which is used in spraying for vine mildew. Sixty pounds of this is now used per "load," an increase this year of 20 pounds because Mr. Davis thinks it is better to have nearly as much sulphur as lime. Ten pounds of salt per 250 gallons of spray are used, solely to make it stick.

"I believe," says Mr. Davis, "that if the spray stays on the tree 24 hours, it has done its work, but I like to have it stay on as long as possible. We may omit the salt some time—but it doesn't cost much. It won't do, though, to spray in the rain or just before a rain. If you get caught, just go over the trees that weren't sprayed over 24 hours before, because you can't afford to lose your crop after taking all that trouble.

Most Curl on Top and Side Twigs.—"And you can't afford not to get the spray on every side of every twig. Most of the curl is among the top twigs and those on the thin sides of the trees. That is because the men don't hit every side of the twigs. They just pass over the scattering twigs with a sweep, to save spray. That don't save the spray. It wastes what you use. Better let a lot go to the ground than to leave the side of a twig unsprayed. I've noticed that the curl leaf spoils half of a leaf sometimes because it wasn't in the line of spray while the other half was. For this reason, you had better not spray while the wind is blowing, for you can't get a man to stand in that spray and do a thorough job on the lee side of the tree, and he can't do it right when the wind is blowing, without getting sprayed himself."

Where moisture is scarce set trees farther apart.

Kloeckner's

Choice Florida Sour Seed Bed Stock.
$10 per thousand.
F. D. Kloeckner
Phone Colo. 3183.
51 North Chester Ave., Pasadena, Cal.

TREES

Grown on Sandy Loam Soil

No Spike Roots.

Almonds on Almond and Peach Root.

All Varieties of Fruit Trees for sale.

Write for Special Prices.

Land for sale in large and small tracts on small terms. We plant and care for orchards and guarantee a stand of 95%.

Plenty of Water.

RIPON NURSERY AND IMPROVEMENT CO.
J. F. STUART, MGR.

SAN JOAQUIN NURSERY CO.

for all varieties of Home Grown
PEACH, APRICOT, GRAPE VINES.

Special Price on Royal Apricot.
1sts, $120 per thousand.
2nds, $80 per thousand.

Our Stock is The Best.

HANFORD YARDS,
Cor. Seventh and Reddington Sts.
STAND AT ARMONA.
K. YAMAMOTO, Prop. HARRY W. EBY, Mgr.
Hanford, Cal.

HIGH COST OF LIVING

It can be reduced by raising bigger crops and having more to sell. Also your labor and outlay can be made to pay much better by raising bigger crops and having more to sell.

Fertilizer is necessary, just as is the rain and sunshine. The sunshine warms the ground and starts the growth. The rain furnishes the moisture necessary to plant development. The fertilizer releases the life in the soil and makes it fertile.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Fertilizer of animal origin produces the most life, by returning to the soil that which was taken from it. GOLD BEAR fertilizer is animal fertilizer, made at our meat packing plant.

There is an interesting booklet on fertilizer, which we shall be glad to mail upon request.

Western Meat Company

704 Townsend, St.
San Francisco

Proposed Land Settlement Act.

We have several times alluded to a bill now before the Legislature (being Senate Bill 509, by Senator Brown) in which the University Rural Credit Committee submits a plan for State action and responsibility in preparing agricultural land for occupation by farmers in reasonable quantities on favorable terms. The following is an outline of this measure, which will be taken into consideration by the special committee named by Governor Johnson as announced on page 195 of our last issue:

Section 1. "For the purpose of carrying out the provisions of this act the secretary of agriculture, with the advice of the state engineer, the attorney general and the dean of the college of agriculture of the University of California and with the approval of the Governor, shall have authority, on behalf of the state, and in the manner hereinafter provided, to acquire agricultural lands in California that are susceptible of intensive cultivation and economical development and suitable for colonization, together with any water rights and rights of way necessary or desirable therefor, and to improve, subdivide, and sell such lands, with appurtenant water rights, to approved bona fide settlers under the conditions and in the manner provided in this act."

Section 2 provides that all costs of improvements shall be added to the selling price of the land.

Sections 3, 4, 5, 6, 7, 8, and 9 refer to the details of issuance and sale of 4½-per-cent land bonds to meet the cost of land in quantity and the cost of improvements to make the land farmable in subdivisions; to create a sinking fund by which bonds and interest are to be paid, etc. These are the details usual to such financial operations.

Section 10. "Whenever the secretary of agriculture shall decide that there is a legitimate demand for the purchase, improvement, and colonization of agricultural lands by the state under the provisions of this act, and he has after due investigation determined on a desirable tract or desirable tracts, and he has received an offer for the sale of such tract or tracts of land to the state, he shall refer the matter of the proposed purchase and of the price to be paid by the state therefor to the state engineer and the attorney general and the dean of the college of agriculture of the University of California for their advice, which shall be given in writing. The state engineer shall pass upon the availability of a water supply for irrigation, if such be necessary or desirable, upon the general feasibility of reclamation, irrigation, drainage, or other improvement works necessary or desirable for the lands proposed to be purchased, and upon the value of any rights of way or water rights necessary to be purchased in connection therewith. The attorney general shall pass upon the title to such lands and to such land as may be necessary or desirable to acquire for rights of way or other purposes in connection with any improvements made therefor, and also upon the validity of the title to any water rights it may be necessary to acquire. The dean of the college of agriculture shall pass upon the value for agricultural purposes of the land proposed to be purchased and upon the likelihood of successful settlement thereof in the manner proposed by the secretary of agriculture." (The balance of the section authorizes the purchase of said approved lands.)

Section 11 authorizes the sale of such lands at a fair price to cover first cost and cost of improvements, cost of sale, etc.

Section 12. "The primary purpose of this act being to encourage the settlement of farm lands in California under the conditions that will insure the success of the settlers, all lands sold under this act shall be disposed of in farm allotments of such size as shall in the opinion of the secretary of agriculture, with the advice of the dean of the college of agriculture of the University of California, best promote the development of successful farm homes."

Section 13 authorizes announcement of such lands for sale.

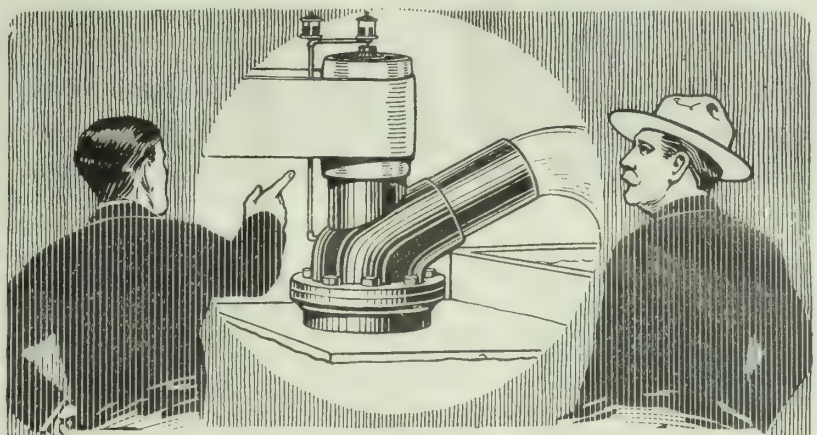
Section 14. "The secretary of agriculture shall have authority to prescribe rules and conditions under which application may be made for the purchase of land offered for sale under the provisions of this act; provided that no applicant shall be approved who is not at least twenty-one years of age and under forty-five years of age, and who shall not satisfy the secretary of agriculture as to his fitness through agricultural training and experience and financial resources successfully to cultivate and develop the allotment applied for."

Section 15. "Actual residence on the farm allotment applied for by the applicant or some member of his family shall commence within one year from the date of the approval of the application and shall continue for at least eight months in each calendar year for at least five years from the date of the approval of said application except prevented by illness." (Balance of section provides for waiving requirements under certain conditions.)

Section 16 requires that repayment for land shall be in installments to cover principal and interest in less than 35 years; that the interest shall be at such rate as the secretary of agriculture may indicate in his announcement of sale of the land, etc.

Section 17 relates to deeds from the state to purchasers who have complied with conditions, providing that no deed can be issued sooner than five years from the approval of

(Continued on page 255.)



The LAYNE & BOWLER is the only pump pumping from wells on the San Francisco Exposition grounds.

An inefficient water supply at the Exposition would cause an endless amount of trouble. The officials fortunately realized this and spared no pains in selecting the very best pumping system. As a result they installed **LAYNE & BOWLER PUMPS** to supply the Exposition with water. Wherever a thoroughly dependable system is required, you'll find the **LAYNE & BOWLER PUMP**.

Send today for our valuable Irrigation Booklet No. 25. Every rancher should have a copy. It's free.

Layne & Bowler Corporation

900-910 Santa Fe Ave., Los Angeles, Calif.

NOW IS THE TIME TO

FERTILIZE FRUIT TREES

Use the specially prepared MOCOCO Deciduous Fruit Fertilizer and increase the quantity and improve the quality of your fruit.

Mountain Copper Company

332 Pine Street, San Francisco.

Citrus Trees With Pedigrees

Guaranteed Stock—Grown by Americans.

LEMONS—GRAPE FRUIT—ORANGES.

These are unusually high-class trees. We want to close them out. Write for Special Prices.

C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

Plant Himalaya Berries Now

Grand as the mountains they came from. Finest eating, fresh or in jams and jellies. Great keepers. Bear tremendously. Make most from the land. Cover unsightly buildings. Treat the neighbors. Make a burglar-proof fence, too. Prices C. O. D. transportation prepaid direct from grower. Drop a card for prices to R. E. Hodges, 315 Underwood Bldg., San Francisco.

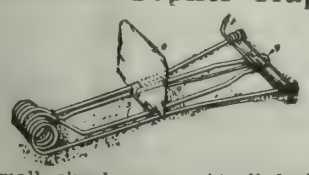
SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,

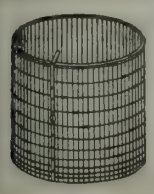
439 South Main Street. Los Angeles, California

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers.

Steel and Wood.

Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL.

GIANT WINTER **RHUBARB**

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

How to Make Charcoal.

To the Editor: How can I make charcoal from the willows on my place?—A. F. K., San Luis Obispo.

[Answered by U. S. Forest Service.]

Charcoal is the substance resulting after the alcohol, acids and tars have been removed from wood by distillation. It contains a very high percentage of carbon and has a high fuel value.

Willow and cottonwood charcoal are used in making gunpowder.

Charcoal is made either by slow combustion of the wood itself in the open air kilns or by distillation, using steam (wet distillation) or heat (dry distillation) in retorts. The distillation processes are more widely used at present than the open air method. The largest plant in the world is in America, and uses daily about 250 cords of wood, producing ten carloads of charcoal. Hardwoods are used almost wholly where charcoal is the main object of distillation.

In the distillation process the wood is placed in large retorts, and live steam applied. The acetic acid and alcohol are driven off in vapor form and condensed. They are by-products of the industry and the alcohol is separated by fractional distillation. The acetic acid liquor is treated with lime, forming the gray acetate of lime, which is dried and exported principally to Germany. The tar and tar oils are driven out of the wood and form a residue at the bottom of the retort; 35 cu. ft. of beech wood makes 242 lbs. of alcohol, 59 lbs. of acetate of lime, 13 lbs. of alcohol, and 55 lbs. of tar.

Kiln-made Charcoal.—The open air process of charcoal manufacture is a slow combustion process in which the by-products are not recovered. The facts for the following description of the process are taken from Dr. C. A. Schenck's text-book on logging and lumbering. The wood must be thoroughly seasoned and free from heavy knots. Only one species should be used at a time and the billets cut to equal length. The preparation of the site is the first requisite. The ground is leveled and hoed; stones and roots are removed and the center of the circle to be occupied by the kiln is raised about 10 inches higher than the circumference. The diameter of the circle is usually 15 to 30 feet. The best soil is loamy sand, which secures proper regulation of draft. The site should also be protected from wind, either from choice of site or by artificial construction of a wind shield. Chimney is erected in the center by placing the base of three or four poles of equal length about one foot from a center pole and fastened to the latter by withes. If the kiln is to be lighted from above, the chimney is cylindrical, and pyramidal, if lighted from below. The chimney is filled with inflammable material (dry twigs, leaves, charcoal, etc.) The kiln proper has a form like the small end of an egg and consists of two or more tiers of billets placed more or less vertically, big ends downward, the smallest pieces next to the chimney and circumference, and the largest pieces half way between. The tiers are topped by a cap of smaller billets placed slopingly. If the kiln is lighted from below a lighting channel is left on the lower tier of wood from the chimney to the circumference. This channel is filled with inflammable material. All irregularities, interstices, cracks, etc., on the surface should be stuffed with kindling. The whole surface of the kiln is covered with two draft layers to exclude or restrict the admission of air. The first layer is 3 to 9 inches thick and composed of green branches, grass, weeds, leaf mold, and moss. The outer layer, 2 to 6 inches thick, consists of earth, loam, charcoal dust, etc. If the kiln is lighted from below a belt a foot high is left around the bottom and later covered when the fire is well started. The lighting channel, whether a cylindrical chimney or lower channel, is closed when ignition is well started. The regulation of the draft is important and it can be restricted or increased by increasing the earth cover or punching holes in it. When the escaping smoke turns blue and transparent the charring process is complete. Care must be exercised in removing the coal so as to prevent flames from breaking out. The loss of weight in the charring process is 75 per cent. Two cords of hardwood yield one ton of charcoal.

The following suggestions will be found helpful:

(1) The kiln needs constant attention night and day, and loose turf should always be on hand to cover any cracks which may form.

(2) The object of the process is to char the wood without burning it, and hence after the fire is well started, the air supply is cut down, and is regulated so that the process keeps going without unnecessary combustion of the charcoal.

(3) The kiln should become completely cool before it is opened, since there is always danger that the charcoal will ignite when brought into contact with the air. Have plenty of water on hand to quench any fire that may start when the kiln is first opened.

The price of charcoal varies according to the locality, as markets are almost entirely local. Five to nine cents per bushel are the ordinary prices. Hardwood charcoal usually weighs about twenty pounds to the bushel.

The chief use for charcoal is for fuel, especially in metallurgical work and for smelting metal. It also serves as a filtering medium for water and other liquids and for a disinfectant in hospitals. It absorbs gases freely and removes offensive odors by absorption. Charcoal is also important as an insulation material. It is a poor conductor of heat and is used as packing within the walls of ice chests, refrigerators, cold storage plants, and ice houses.

Almonds need thirty feet between the trees for the sake of roots and air circulation. This is especially necessary where moisture is lacking.

Inspect all tree roots before planting. If any crown gall or root knot is shown, cut it out far back of all signs of it.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,

Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press.. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged, and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers

Price, $1.50, Postpaid.

525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED

Farms

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Prune Trees

A few hundred IMPERIAL and SUGAR on Myrobolan and Almond Roots, first class trees. Also IMPERIAL, SUGAR and FRENCH PRUNES on same roots, in the smaller sizes at BARGAIN PRICES.

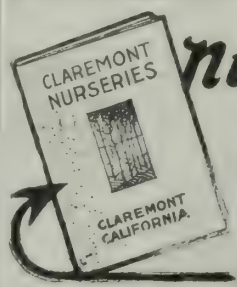
CHERRIES, BARTLETT PEARS, APPLES, CITRUS TREES, APRICOTS, ORNAMENTALS.

ROSES, GLADIOLI and DAHLIAS a Specialty.

Write for new Price Catalog.

Santa Clara Valley Nurseries

Max J. Crow, Prop. Gilroy, Cal.



Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.

1300 Indian Hill Blvd. . Claremont, Calif.

Second Hand PIPE Screw Casing

ALEXANDER PIPE COMPANY

254 No. Point Street, San Francisco, Cal.

501 Clarence St. Los Angeles, Cal.

What to Do With Apple Orchard.

To the Editor: Kindly advise me when to spray an old, rundown orchard that has never been sprayed and has had practically no attention whatever for the past several years. The orchard is located on river bottom land and has been bearing heavily with practically no attention other than plowing. Of late, a great many of the trees have been dying, the apple trees especially, and very few of the apples are free from worms. I would, therefore, be glad to have you advise me when to spray and what to use for the same.—C. G. K,. San Francisco.

[You must ascertain first how many things are involved in the unsatisfactory condition of the trees. There are probably ill conditions in the soil and cultivation, in the neglect of pruning and in the injuries by insect and fungus pests. Without knowing what these are, no one can give you an intelligent prescription. Some one must actually study the orchard to know what to do. The owner should make that study himself so as to get wise in apple growing. One of the best ways to start would be to write to George P. Weldon, Deputy Commissioner of Horticulture, Sacramento, and ask for a copy of his new pamphlet entitled "Apple Growing in California," that will show you some of the things which are probably wrong in your orchard, and you can start on a career of restoration. The horticultural commissioner of your county may be willing to visit your orchard and show you how to find things which are wrong.—Editors.]

RHUBARB FOR SEDIMENT.

To the Editor: Which will yie the most profit, Wagner's Crimson Rhubarb, Burbank's Crimson Winter, or Everready? Would the heavy, sediment soil of the Sacrmento river delta section be suitable for these plants? How much seed would be required for enough plants to set out six acres?—Mrs. C. T. W., Rio Vista.

[Mr. Wagner himself would tell you that the heavy, sediment soil is not suited to his Giant Crimson Rhubarb, which grows best on well-drained and rather sandy soil. Burbank's Crimson Winter is out of date. Luther Burbank himself has improved on this by production of the Giant Crimson Winter, which is a very good variety. We do not know the Everready, so cannot give advice. The Strawberry rhubarb of Alameda county, while not grown extensively elsewhere, is suited to heavy soils, but might not go well through a too hot summer climate. In planting seed for rhubarb there is practically always a great deal of trouble in getting it to germinate. The new plants in the seed bed are very prone to the disease called "damping off" also. Then when it does germinate and produces, you find a great deal of variation; for no seedling can be depended on to produce its parents' characteristics. Buying root crowns from regular dealers ought to insure your getting the variety you want and it also insures getting a good crop at a much earlier date than you could obtain by planting the seed. If you have not already grown a great deal of rhubarb in your section, it would be very well to plant not over one-fourth of an acre rather than six acres; because experiments with all kinds of fruits in sections where they have not been grown before are subject to great chances of disappointment. This means going out of business with many people and we would not like to see that happen to you.—Editors.]

UNIVERSITY EPITOMES.

Necessary Fruit Details.

[By Prof. A. V. Stubenrauch, University of California.]

The commercial orchard is a long-time investment; careful attention to important details of management is therefore cumulative in its effects.

The factors underlying successful orcharding are proper soil conditions, favorable climate, and accessible markets.

Accessible markets mean efficient transportation service. Efficient refrigerator transportation service renders distant markets relatively more accessible than less distant markets without efficient service for carrying fruits in sound condition.

Temperature, rainfall, and winds are the governing climatal features in the production of fruits and nuts.

The occurrence of late spring frosts is frequently the limiting factor in the successful production of a particular fruit.

Almonds and apricots bloom early; hence sites which are free from late spring frosts must be selected for these fruits.

Direct sunshine is necessary for successful fruitfulness.

Some unfavorable conditions preventing successful growth of trees: Shallow soil, hardpan near the surface, lack of drainage. presence of coarse gravel strata near the surface, presence of excessive alkali salts.

Thorough preparation of the soil is one of the elements of success in planting trees.

Cover crops improve the physical condition of both light and heavy soils.

A leguminous cover crop has the advantage of both improving the physical texture of the orchard soil and adding a valuable plant food, nitrogen, which it obtains from the atmosphere.

Thorough and deep tillage of orchard soils is an urgent necessity under California conditions of rainless summers.

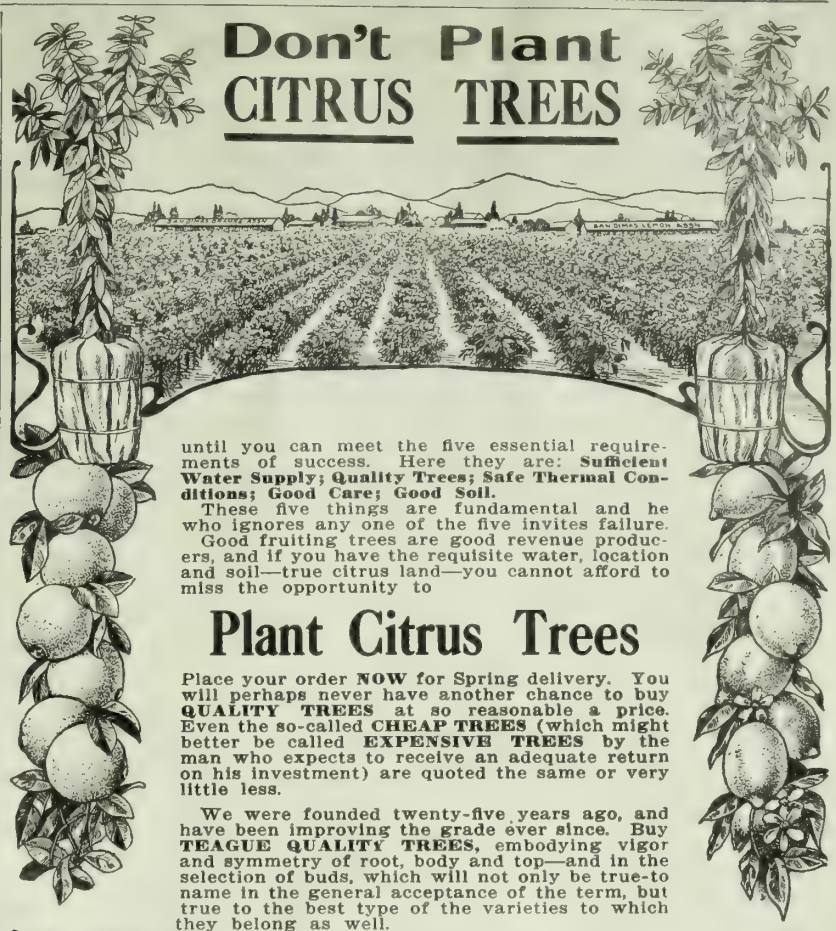
Early fall sowing of cover crops insures early growth and a maximum production of green stuff for plowing under in spring.

Cover crops can be profitably grown only during the winter rainy season in California; hence a crop which will thrive and grow during cool weather must be selected for this purpose.

Pruning is too important to be left to the caprices of ordinary farm labor.

The principles underlying the proper pruning of young trees are different from those governing the handling of bearing trees; in the one, the training of the tree is paramount while in the other the control or regulation of fruiting habits is the governing factor.

Oil sprays made too strong kill buds.



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Fruit Trees ! Fruit Trees!

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. Cor. First and Cedar Sts., Chico, Cal.

MAXWELL'S NURSERIES, Napa, Cal.
New booking orders for all varieties of nursery stock for next season's delivery.
French, Imperial, Sugar and Standard Prunes on All Roots.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
FIRST CLASS STOCK TRUE TO NAME.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. **If not for sale by your dealer, write us.**
TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, **San Francisco. Cal.**

Agricultural Review

CITRUS AND SEMI-TROPICAL.

A syndicate of southern California capitalists have purchased a section of land in Reche canyon and intend to plant same this coming spring to oranges and lemons

Prof. J. W. Nelson, in charge of the soil survey work of the University of California, intends to make a show orchard out of 20 acres of orange land east of Porterville.

It is reported from Tulare county that G. Frank Rossire, a recent arrival from Cuba, is leveling twenty acres of land there which he expects to plant to lemons this spring.

Orange growers of Butte county are planning to confer with Assemblyman B. B. Meek to discuss the question of standardizing the test recently suggested by the Government.

The Mills Orchard Company, owner of hundreds of acres of citrus orchards in Glenn county, will move their headquarters from Willows to Hamilton City in order to be nearer their work.

Many acres of lemons are being planted in Evergreen, Santa Clara county. There is plenty of water on the eastern side of the valley for irrigation and very little frost, so that experts in citrus culture claim that this section is destined to be one of the greatest lemon and orange producing centers of California.

Consular advices to the state department report that the European war has demoralized the market for Spanish oranges, England heretofore being the largest buyer of this fruit. There is little or no expectation that the United States will offer an outlet for the crop, owing to the fact that the market is controlled by California and Florida producers, on account of better packing.

DECIDUOUS FRUITS.

Los Molinos will have 60 acres of prunes planted this year, past successes having made prune raising in that district popular.

The County Horticultural Commissioner of El Dorado county estimates the orchard acreage in that county at 1636 acres in bearing and 1910 non-bearing.

Congressman Kent is working energetically to obtain legislation for the inspection of nursery stock and vegetables transported through the mails or by express.

Heavy tree planting is expected this season in San Joaquin county, especially of almonds, walnuts, and cling peaches. Offers of long-time contracts by the canneries have induced many to set out peaches.

While the dried fruit business is usually inactive during the month of January, it is reported that considerable business was done last month and that the general tendency is upward.

One of Clovis' residents has offered to erect a building that will cover the needs of a creamery, cannery, and cold storage plant and lease it for a fair rental to a company or individuals who will take the matter in hand and push it.

Twenty-eight thousand apricot trees will be planted in the Aromas district in Monterey county this spring on lands that were for years considered good only for cattle ranges. Experiments have shown that the climate and soil in this section are ideal for this fruit.

Last week Kingsburg peach growers met and signed up sufficient acreage to insure a co-operative cannery in that section. It remains now to select the site and draft by-laws, for which committees have been appointed. It is fully intended that the cannery be in operation to take charge of this year's crop.

OLIVES AND NUTS.

David Creighton of Durham, Butte county, has started planting twenty acres to almonds in that section.

Sutter county has added the pecan to its list of nuts grown for commercial purposes. One large orchard is to be set out at Tudor.

Almond trees are reported to be in bloom in Kings county, and judging from the appearance of the trees growers should harvest heavy crops.

Arbuckle will have 1500 more acres to almonds this year than last, or a total of about 100,000 trees. Last week one firm had fifty men at work planting.

Walnut growing on an extensive scale will be undertaken this summer in the Oakdale district of Stanislaus county. Thousands of trees have been ordered and are now being planted of the Eureka and Franquette varieties.

The olive production of California for 1914 is placed at 27,500 tons; gross value, $2,750,000. The prospects are that 10,000 acres will be planted this year and that one-fifth of the non-bearing acreage will come into bearing.

GRAPES AND SMALL FRUITS.

April 30 has been named for the 1915 Raisin Day.

The Fulton Grape Growers' Protective Association has temporarily disbanded.

Last week the Farmers' Union Packing Co. of Dinuba closed a successful season, having packed and shipped 4,000,000 pounds of fruits of various varieties. Those in charge state that the prospects for the coming season are even brighter.

Dinuba grape growers are to be given demonstrations and lectures on Feb. 26 and 27 on viticulture by members of the University of California. Interesting and instructive lectures will take place and practical demonstrations will be given on vineyards close to the town.

The annual meeting of the California Associated Raisin Co. was held last week and directors of the Association re-elected as follows: W. M. Giffin, president; Jas. Madden, vice-president and general manager; Hector Burness, H. H. Welsh, A. G. Robinson, A. G. Wishon and H. Graff,

"All Rusted Out in Five or Six Years"

"WHY didn't I buy pure iron instead of common galvanized steel? It would have cost me a little more, but it would have been all right now, and I wouldn't have had to put on a new roof in the middle of haying time. I bought pure iron

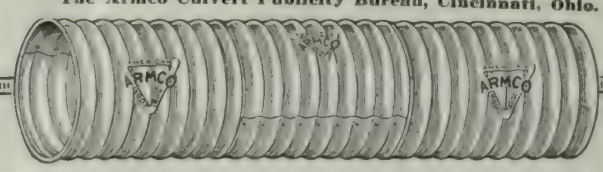
ARMCO AMERICAN INGOT IRON CULVERTS

for the county; and they've been in the ground longer than that roof's been up, and they're about as good as new."

Pure Iron for Long Service

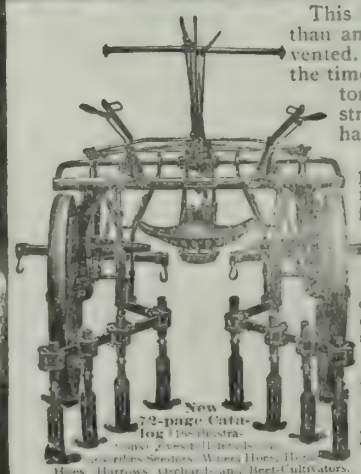
The rapid rusting of modern sheet metals is familiar to every practical man. The remedy consists in duplicating the qualities of the pure, even and carefully made iron of a hundred years ago. The material of Armco Culverts is iron in which the total of impurities has been reduced to less than one-sixth of one per cent. and which has received the utmost care in every detail of its manufacture. These culverts have proven themselves Convenient, Reliable and Lasting.

There is a manufacturer in your vicinity. Write him or The Armco Culvert Publicity Bureau, Cincinnati, Ohio.



No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS.
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground High Grade
Shield Brand
Phosphate Rock
The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

Planet Jr. Cultivator



This No. 76 gives bigger, better results than any other one-row cultivator ever invented. It is a combination of the best of the time-tested principles of earlier cultivators into one simple, strongly constructed, easily handled machine that has no equal anywhere.

It cultivates, plows, and hills corn, potatoes, or similar crops 28 to 48 inches apart. No wood used except for break pins.

Built for thorough work and real, lasting [illegible] Its superior construction of [illegible] accurately fitting parts, [illegible] levers, and variety of cultivating attachments make it yield big dividends year after year in time and labor saved and increased production.

Andrew Gleim, Wheelersburg, Ohio, writes: "I think the No. 76 Planet Jr. is the best cultivator on the market today. [illegible] potatoes this cultivator is worth a half-dozen other makes."

New 72-page Catalog [illegible] Hoes, Harrows, Orchard and Beet Cultivators. It is free. Send postal now.

S L ALLEN & CO
Box 1203F Philadelphia Pa
We carry stock in San Francisco and Los Angeles. Agencies in all principal [illegible]

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. Mailed Free.

C.C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Morse's Seeds, both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.

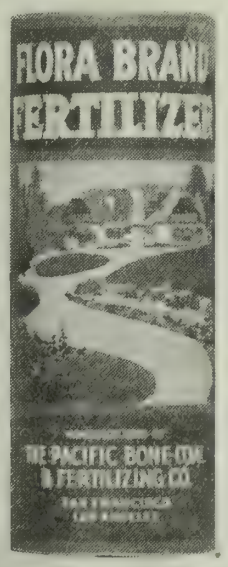
OUR FRANQUETTE
and
SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St.,
San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO.,
258 Market St., San Francisco.
CALIFORNIA SEED CO.,
151 Market St., San Francisco.
SUNSET NURSERY CO.,
92 41st St., Oakland.
VALLANCE BROS.,
31 Glen Ave., Oakland.

Beautify Your Home
FLORA FERTILIZER



spread on the lawn and around the flowers. For your spring planting of berries and vegetables — just the thing.

A 5-lb. can enough to cover a lawn of 200 square feet. At your seed store or florist's — 50c, or sent direct by parcels post, to any address in California—60c. Send money order, check or coin.

Write us for our prices on complete fertilizers, Nitrate of Soda, Bone Meal, Potash Salts, Superphosphate, etc.

Pac. Bone, Coal & Fertilizing Co.
203 Clunie Bldg., San Francisco.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Lime, Air-Slacked

Good for Sour or Stiff Soil—Alfalfa, cover crops, beans, peas and crops in general.
H. B. MATTHEWS, Soil Chemist and Fertilizer Dealer
733 Merchants Ex. Bldg., San Francisco

directors. Reports of officers showed that the strength and credit of the association has steadily increased, that wide-spread advertising has been given raisins, and that the 1914 crop is selling rapidly.

GRAIN AND FIELD CROPS.

Lima beans from Ventura and Santa Barbara are being shipped to Europe.

San Francisco capitalists and Biggs growers have formed a company to engage in the growing, selling, and milling of rice in Butte county.

Two Yuba county men have recently leased 283 acres of land near Marysville to plant to beans this spring.

Yolo county expects to plant nearly three times as much wheat this year as last, while the barley crop will be less.

About 160 acres of land in Solano county west of Dixon has been checked and in readiness for the planting of rice.

Last week the Spreckels Sugar Co. signed up nearly four hundred acres in the Oakdale district of Stanislaus, and the ground is now being made ready for planting.

The Federal authorities have recently seized seventy-five carloads of oats intended for export, because they were found to be adulterated within the meaning of the pure food and drugs act.

Last week eight Aztec beans, estimated to be 3000 years old, were planted in a hothouse in the Capitol Park, where experiments as to their growth and hardihood will be carried on by the State Gardener.

A tract of over ten thousand acres will be planted to alfalfa this spring in Kings county. The work of leveling the land and constructing irrigating ditches is now under way. The owners intend to import beef cattle this fall.

There are 67,000 acres of cotton planted in Imperial county in the Calexico section this year. The Ivey Ranch near Calexico has the record of having produced two generations of cotton on the same soil, one bale having grown from the seed of the first one ginned in the year.

Last week Fresno tobacco growers met and launched a plan for the establishment of a tobacco manufacturing plant in that city, to be organized on a stock co-operative-like plan. The need of such an organization has been urgent, as it is reported that some growers have been holding their product for three years and must either dispose of it or allow it to ruin. A committee has been appointed to shape plans for organization and the growers have been urged to sign contracts agreeing to furnish the necessary amount of the product to make the plant possible.

MISCELLANEOUS.

A meeting of Farm Advisers has been held at Berkeley all last week.

Representatives of farmers' organizations met in Washington on Feb. 2 and formed the Rural Credit League of America.

The merchants and farmers of the Turlock district in Stanislaus county have formulated plans for the organization of the Turlock Growers' Association, a corporation for the co-operative buying and selling of melons, sweet potatoes and other products of that district.

KILMOL SQUIRLGOPHENE

Squirrels
Gophers

KILMOL
SQUIRLGOPHENE

WILL KILL' EM ALL

Waste Ball Method
or with
United States Destructor

Your Money Back
If Not Satisfactory

New Information

Result of Experiments that cost Uncle Sam over $100,000.00
It costs you nothing to learn the facts

A postal card today may save you hundreds of dollars this year
WRITE NOW—RIGHT NOW

HERBERT F. DUGAN
Dept. C
1170 Sutter Street San Francisco, Cal.

CONTROL BY SPRAYING WITH ZENO

San Jose Scale
Brown Apricot Scale
Scurvy Scale
Black Olive Scale
Oyster Shell Scale
Cottony Cushion Scale
Moss
Pear Thrips
Red Spider
Aphis

Send for Catalog

Standard Chemical Co.
Foot of 12th Avenue
OAKLAND, CAL.

Pomona Deep Well PUMPS

For deep lifts as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Built and sold in California over 12 years. Hundreds of buyers will tell you they are always reliable and economical. Let us tell you why.

Write for Catalog 104
with valuable information
on irrigation.

Pomona Mfg. Co., Pomona, Cal.
LOS ANGELES OFFICE, 930 INVESTMENT BLDG., 8th and BROADWAY.
Our "made right" irrigation valves are good, and not costly.

LIME FOR LAND

HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

Mechanical Power on the Farm.

GIVE PUMP SPECIFICATIONS.

[By P. E. Fuller, U. S. Dept. Agr.]

When submitting a proposition to the pump manufacturers, a rough sketch should be sent, showing the following data:

(1.) Gallons to be pumped per minute.

(2.) Vertical distance from point of discharge to water level when not pumping.

(3.) Amount of lowering of the water level when pumping.

(4.) Total length of discharge line.

(5.) Give character of water, i. e., clear or sandy?

(6.) Is there gas in the water?

(7.) If pump is to be driven with electric motor, give current characteristics. If direct current, give voltage. If alternating current, give phases, cycles, and voltage.

(8.) If pump is to be steam driven—is reciprocating engine or steam turbine desired? Give steam pressure, superheat, if any, condensing or non-condensing.

(9.) If pump is belt driven, give speed and diameter of driving pulley if possible.

As a general rule, for irrigation work the centrifugal type of pump is the cheapest, and most reliable pump to use. The only exception being in extreme cases, where the quantity of water is small in connection with a high pumping lift, or the diameter of the well is so small as to prevent the use of deep well turbines.

All centrifugal pumps consist of a runner or impeller rotating in a shell or casing. The water is drawn in at the suction and thrown out into the casing or receiving chamber that surrounds the runner, and from there it is forced out into the discharge pipe. This type of pump gives a continuous flow of water.

Where the distance from surface to water level is not over twenty-five feet a horizontal type of centrifugal pump is usually installed. When the depth of water is greater than twenty-five to thirty feet, a vertical centrifugal should be installed.

TRACTOR NEEDED FOR DRY FARMING.

[Written for PACIFIC RURAL PRESS.]

Dry farming 185 acres of nuts, fruit, etc., in Sacramento county at the summit of the surrounding country, J. F. Ricketts makes cultivation do for his crops what irrigation does for those who have water. He has found the soil in his heavier land so moist in October that he could ball it in his hands when taken from six inches below the surface. Of course, he had to go deeper than this in the lighter soils on the farm, but he has a fine 70-acre almond, besides 40 acres of black walnut seedlings and a home orchard, all raised by dry farming.

Getting the plowing done on the whole place at once just as soon as the water does not squeeze out on the surface of a handful of dirt, was his problem until he got a 30 H. P. tractor. With this he gets on his lighter soils first, and plows eight inches deep at the rate of 12 to 15 acres per day, using a six-disk plow with a harrow behind. On some of the soil he plows fully ten to twelve inches deep, as deep as his disk plow will go. The machine goes slower on heavier and, reducing the plowing as low as 10 acres some days. Twenty gallons of distillate per day are used, the total cost of all oil and grease being about $3.50 per day.

He doesn't use a moldboard plow because he likes a disk better. It turns over a furrow in such a way that tufts of the bur clover and filaree cover crop, which Mr. Ricketts always encourages through the winter, will be left out so they can go to seed. No other fertilizer is used on the place. By allowing some of the cover crop to seed each year he doesn't have to reseed it at all, and there is a dense stand of the mixture. This grows up sometimes knee high before he can get on to the land with the plow and it probably takes out a great deal of the water.. But the quick work in plowing saves a great deal more of the winter moisture than could otherwise be done. The plowing begins in February and is finished in March, the exact dates depending entirely on the suitability of the soil for plowing as regards moisture.

The rest of the cultivation simply consists of using a 10-foot double disk with his engine, dragging a light harrow behind it always. This is kept up until as late as the middle of July, which was the last cultivation he gave last year. Sometimes he quits cultivating in June, but he has disked the whole place six times, three in each direction.

To avoid running the machinery against the trees, every fall he hoes away the growth from a radius of a foot or sixteen inches around each tree. Then when the plow and disk are driven through the orchard there is no need of getting too close. Mr. Ricketts' son is what his father calls an expert driver and the appearance of the trees would indicate that he certainly has not done them any damage.

"I could not get along without my tractor and big tools," says Mr. Ricketts.

SPRAYING BEFORE PLANTING.

[Written for PACIFIC RURAL PRESS.]

Lime sulphuring trees just before planting is practiced by J. H. Davis, foreman of the J. B. Cory fruit ranch in San Joaquin county. "The county inspection of nursery stock is good, but in the nature of things, it would be easy to overlook one or two little individuals of pests that we don't want on our place. We are pretty sure to kill everything, fungus and insect, by spraying them now," says he.

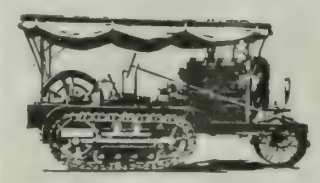
Six thousand prune and plum trees for planting in their Tokay vineyards were heeled in close together in February to await planting. With the Bean Power Sprayer, two men did a thorough job spraying the 6,000 trees with 30 gallons of "dope" (home-made lime sulphur) in 15 minutes, using Jumbo angle nozzles. They are sprayed before cutting the tops off, because the top ought not to be cut off until already to set the tree in its hole. Then the damaged roots are pruned and the top cut back accordingly.

Little Stories of Success

No. 3

Paul Talbott of Kings City ordered another Caterpillar last June. He already had two, but he found he needed another to farm his 4,000 acres. He knows tractors, too, as he tried a 100-h. p. round-wheel gas tractor first, and then went back to horses. Then he bought a steam tractor to run his stationary thresher and found it wouldn't steam on the short straw we had two years ago. Then he bought a Caterpillar. That Fall he ordered another one. This June he writes: "In the past two years these two Caterpillars have saved me about $16,000 over the old way of farming. I have now placed my order for a third one."

Mr. Talbott has proved for himself what a steady, powerful motor the Caterpillar has for belt work, as well as the saving of time and money in traction work.



CATERPILLAR

Reg U S Pat Off

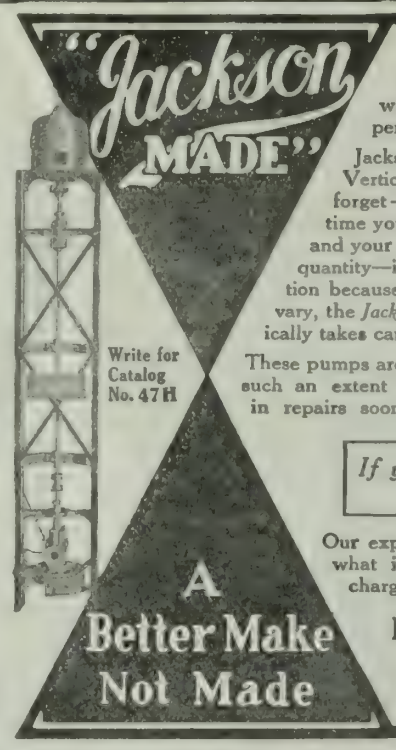
Don't say Caterpillar unles: you mean Holt!

THE HOLT MFG. CO.

(Incorporated)

Stockton San Francisco Los Angeles

Both Expositions — San Francisco and San Diego



"Jackson-Made" pumps are long-lived pumps. They do the work they were designed for—better, for a longer period, at a less cost, than other makes.

Jackson "Heavy Duty" direct connected Vertical Pumps are pumps that you can forget—they will never forget you. Any time you want water just throw in the switch and your "Jackson" will deliver the maximum quantity—it will need no attention after installation because no matter how much the head may vary, the *Jackson Patented Balancing Device* automatically takes care of the pressure.

These pumps are economical in the use of current to such an extent that this, combined with the saving in repairs soon pays the cost of installation.

If you need a pump you need a "Jackson."

Our expert engineers will aid you to select what is best for your use. There is no charge for this service.

Byron-Jackson Iron Works, Inc.

357-361 Market St., San Francisco, Cal.

212 N. Los Angeles St., Los Angeles, Cal.

WORKS: WEST BERKELEY, CAL

Cut down Your Irrigating Expense

The use of old or inefficient methods means an excessive outlay of money—to say nothing of the time, labor and land wasted. The up-to-date rancher and irrigator nowadays considers the

K-T IRRIGATION SYSTEM

a necessity for efficient ranching. It is a well-proven fact that this dependable system is the most practical and economical means of irrigation known. You cannot afford to take chances with obsolete or inferior methods.

Our Brown Book on Irrigation should be carefully read by every rancher. It's Free.

KELLAR-THOMASON CO.,

"Originators of the Valve System of Irrigating."

1234 East 28th St., Los Angeles.

(Ask Your Dealer or Contractor)

COSTS OF RUNNING STATE AUTOS.

[Written for PACIFIC RURAL PRESS.]

The Fish and Game Service of California furnishes motorcycles to those of its deputies who are selected to use them, and pays all the operating expenses, as reported by each deputy every month. The deputies who do not use motorcycles have their own automobiles, for the use of which $25 per month is allowed, which is supposed to cover depreciation and the cost of repairs.

There are a large number of makes of automobiles, including the Buick, Ford, and Hupmobile in the Service, and the gentlemen who provide them claim that $25 per month does not cover their repairs and depreciation, even in the level country around Sacramento. In addition to the $25, the cost of oil actually used is allowed, so that the Commission gets monthly reports on the costs of operation.

The Fish and Game Service is divided into four districts in California, and the figures quoted below are taken from the Sacramento district, which employs men to make trips wherever ordered, to patrol the game and fish country and prevent breaking of the laws.

The total mileage for 1914 by automobiles was 40,619. The total cost of oil, gas, light and ignition was $538.95, making the average cost for all makes of the machines having been used on all kinds of hill and valley roads, through all months of the year, 1 1-3 cents per mile. In the winter months motor travel in the high mountains is abandoned on account of the snow.

The total mileage of motorcycles in 1914 was 17,764. Since the State owns these machines, the total cost of up-keep and repairs is paid to the deputies besides the oil and gas. This amounted in 1914 to $354.36 or slightly less than two cents per mile. This includes repairs.

Euell Gray traveled 658 miles at a cost of $39 in July; C. A. Scroggs traveled 1055 miles at a cost of $19.90; Richard Squire traveled 575 miles at $7.40. In January, Mr. Gray traveled 213 miles at a cost for oil and up-keep of $2.40; Mr. Scroggs, 126 miles for $1.60; Mr. Squire, 250 miles for $5.40. G. J. Merritt traveled 160 miles for $4.30. All of these motorcycles are of the Indian make.

For the automobiles in January, W. J. Green traveled 279 miles at a cost for oil, gas, light, and ignition of $4.10; W. J. Moore, 338 miles at $7.60; E. D. Ricketts, 225 miles at $7.85; R. L. Sinkey, 1009 miles for $8.25. In March, Mr. Green traveled 702 miles for $9.92; Mr. Moore, 904 miles for $15.30; Mr. Ricketts, 1085 miles for $17.85; Mr. Sinkey, 878 miles for $7.50. In July, Mr. Green traveled 689 miles for $8.15; Mr. Moore, 614 miles for $11.52; Mr. Ricketts, 1222 miles for $14.25; Mr. Sinkey, 1080 miles for $11,25; Mr. Merritt, 1106 miles for $13.33.

These figures show a very economical operation charge for automobiles, and motorcycles. We think it will be of value to those of our readers who expect to invest.

TRACTION SAGE BRUSH CLEARING.

[Written for PACIFIC RURAL PRESS.]

With a steam tractor and a sagebrush outfit, a concern in Nevada has cleared the sagebrush from 18,000 acres, using the brush itself as fuel to keep up steam. The outfit consists of a roller to bend the brush down, cutters to dig it out, and a rake to collect it into winrows.

The roller is made of three iron cylinders about three feet in diameter and totaling seven feet wide. The digger consists of three heavy V shaped "weed cutters" which run underground, being supported on wheels hitched behind the roller. Trailing behind the digger is the rake, which is about 12 feet wide and runs on 7-foot wheels, it is shaped like an ordinary horse hay rake. In action, the teeth of this elephantine rake plow through the ground some inches deep. Brush cannot get into the wheels, for they are lined inside with sheet iron. The operator soon learns to dump at regular intervals.

BIG STEAM PUMP.

[Written for PACIFIC RURAL PRESS.]

A steam engine for irrigation is used on the J. B. Cory Ranch in San Joaquin county to irrigate about 800 acres. It develops 150 H. P., and runs a 15-inch centrifugal pump located on the bank of a river. The fuel for the engine is composed largely of the pruning brush from old stumps, etc., which are baled in the orchard and hauled to the engine. The water runs nearly two miles in open ditches to reach the farther side of the place; and in the irrigation season it keeps 16 to 18 men busy watching the water, preparing checks etc.

DEWEY, STRONG & CO.
PATENTS
Circular containing 100 mechanical movements mailed free.

Large Shipment of
Water Pipe
Received by Los Angeles Pipe Firm.
300,000 Feet Ready for Immediate Shipment.

The Adams Pipe Works of Los Angeles, which recently changed management, announces they have just received one of the largest shipments of Water Pipe received by any one firm in a single week. All sizes are included and all pipe absolutely guaranteed. Special prices on various sizes as follows: Riveted Dipped Pipe: 10-inch, 30c; 4-inch, 12c. Sandard Pipe: 8-inch, 45c; 6-inch, 35c; 5-inch, 30c; 4-inch, 25c; 3-inch, 15c; 2½-inch, 12½c; 2-inch, 7½c; 1½-inch, 6c; 1¼-inch, 5c; 1-inch, 4c; ½-inch, 2c. Tubing: 2-inch, 8½c. O. D. Casing: 10-inch, 70c; 8-inch, 45c; 4¾-inch, 22c; 4-inch, 17c; 3½-inch, 13½c; 3¼-inch, 13c; 3-inch, 12c.
Mail orders and quotations given prompt attention. **Adams Pipe Works**, 2025 Bay St., Los Angeles, Cal. Broadway 1264. F-1917. Night and Sunday phone, Vermont 1294.

SECOND HAND **PIPE**
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco

STUMP PULLERS
CALIFORNIA STUMP PULLER COMPANY
704 Bryant St., San Francisco

how much will plowing cost?

Let's do a little arithmetic.

With a piece of paper and a pencil, figure out what it costs to pull your plows each season.

Make a list of the following items and put your own figures opposite: number of horses used; their cost; cost of feed; cost of harness; number of men required to care for and drive them; their wages; horses disabled and cost of veterinary services. So much for maintenance.

THE YUBA BALL TREAD TRACTOR

For production from the horses, figuring their actual time spent in hauling the plows, list: number of hours in working day; number of working days in week. Deduct from that the number of minutes in an hour it is necessary to rest each team. The cost of the horses' time and that of the driver, who must also rest, even if he isn't tired, is a dead loss.

Pretty expensive, isn't it?

This booklet, entitled "The Yuba Ball Tread Tractor," shows a way to haul plows at only a fraction of that cost.

For the sake of convenience, use the coupon.

- - - - - - - - - - - - Cut Here - - - - - - - - - - - -

THE YUBA CONSTRUCTION CO.
433 California St., San Francisco
Dept. C 14

Gentlemen: Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor."

Name.....*P. O. Box*.....

Town.....*State*.....

Size of Farm.....*Acres.* *(Check main crop raised.)*

Fruit ..... *Rice* .....
Grapes..... *Alfalfa* .....
Grain ..... *Hops* .....
Hay ....

Breeding General Purpose Horses.

[Written for PACIFIC RURAL PRESS.]

Who will raise the heavy horse of the future, if our large land holdings continue to be subdivided into smaller diversified farms, is a question that has been talked pro and con by almost every horse breeder and buyer in California. Even when it was granted that they might be raised on the diversfied farm the next question was, "What will we do with them?"

As a matter of fact the cutting up of the large ranch will diminish our supply of heavy horses and the smaller farm will create a market for such horses which will be independent of the city market's influence, as soon as that class of farmers realize the importance of breeding and growing the horse best suited for motive power under their conditions. Anyway that is the experience of the Kaiser brothers on the fruit and dairy ranch which they manage in Butte county.

Of necessity, horse growing on this ranch is a side issue, but still an important one, due to the large amount of work that is dependent upon horse power and the fact that it depends largely upon the efficiency of these animals as to the amount of energy and time wasted in hauling, plowing, cultivating or other work about the ranch.

Two types are desirable on such a ranch, according to Messrs. Kaiser, the 1200 pound Percheron being preferable for the orchard work, due to their fine disposition, good action and ability to walk fast. These animals can usually be supplied from those colts which do not, for various reasons gain size and weight, even though they are all sired by the purebred Percheron stallion, which is partially owned by them. Like others who are raising horses, this size is not desired, but there is always a certain percentage of colts of inferior size and comformation; and in this case a profitable use has been found for them in the orchard work.

For the work on the dairy, such as hauling and cutting alfalfa or other work the heavier horse has been found better. In this case one weighing around 1,800 pounds is preferable. This is due to the fact that a horse of that size of Percheron breeding can walk right along with the big loads which are the rule in dairy work; and also on account of their disposition, which is a factor of considerable importance. Then too, any surplus of this type which may arise finds a ready market with city buyers who stand ready at all times to purchase such animals at prices far in excess of those received for smaller animals.

All mares on this place are bred at about three years of age, the colts being foaled in May on account of the spring pasture which is available at that time and the fact that there is less chance of colds or other sickness which might arise earlier in the year.

At six months old the colts are weaned and halter-broken, receiving from that time on a ration of grain hay and rolled barley, also pasture when available. When two years old they are broken to drive, although they are not required to haul anything except an empty wagon or cart.

At three years of age the colt is put to hard work, it being the rule however, never to overload and never to make the colt pull enough to become tired out, as otherwise it is liable to become balky. Another factor of importance is to start the colt working in cool weather only, as in this manner it gets used to the collar and is not nearly so apt to have collar galls later in life.

In feeding their work stock, alfalfa and grain hay together with rolled barley have been found the most satisfactory; and as with all other kinds of stock they have found it advisable to feed in plentiful quanities. Although only an averaged-sized ranch, this one may be said to be representative of the future farm in this State, and seems to be a good criterion of what we may expect future years to bring the horse breeding industry.

Belgian Stallion, Owned by Tom Gibson Estate and Consigned to Draft Horse Breeders' Sale at Davis.

The following appointments of Farm Advisers have been made: Henry A. Weinland in San Diego county; Jas. W. Mills, Solano county, and W. H. Hellemann, Glenn county.

Ira Barker Dalziel

Veterinary Dentist

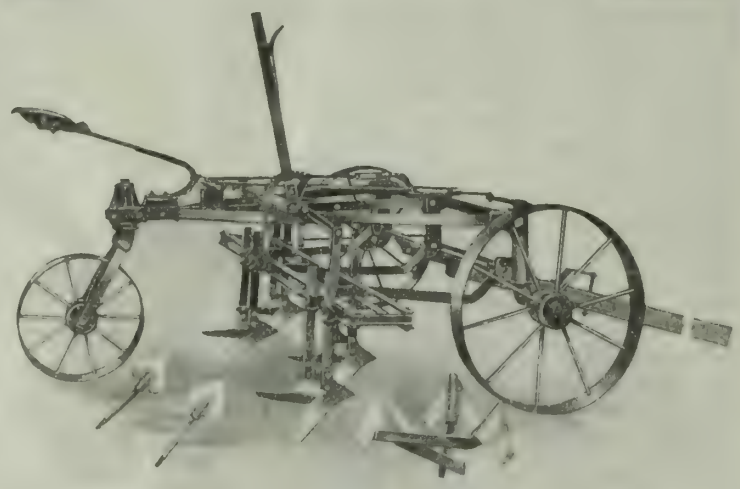
Telephone Market 2074.

530 Fulton St., San Francisco, Cal.

Killefer Beet and Bean Hoe Cultivator

Killefer Quality

Killefer Efficiency



Our 1915 model is made of the best material and is the strongest Beet and Bean Cultivator for sale on the Pacific Coast.

STRONG STATEMENTS?

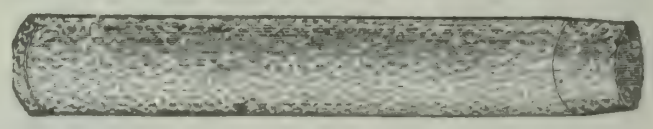
Yes, they ARE strong and we will back them up in every particular. The frame is made from one continuous piece of steel, trussed to the main castings, which support the front wheels. With no joints in the entire width of the frame, it is impossible to break or spring in the center and the wheels are always in line and under control.

The lower frame or tooth bar is from high carbon steel with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows, and is adjustable to conform to the weight of the driver. The foot control of the front wheel is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns.

An important item for the beet grower is that the sweeps, hoe steels, chisel points and all repair parts are carried in stock. You do not have to wait for them to be sent from the Eastern Manufacturer.

The Killefer Manufacturing Company

2221 SANTA FE AVENUE. LOS ANGELES, CAL.



Stands Highest

In the Estimation of All Orchardists and Ranchers

"American"

Surface Irrigation Pipe

Is made to last a lifetime. Of heavier sheet steel than any other, it has our famous double-locked seam that ever leaks.. NO RIVETS. We also make riveted underground pipe, and all fittings for irrigation systms. Write for illustrated catalog and irrigation circular.

American Steel Pipe and Tank Company

354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CALIF. Branch 1228 "H" Street, Fresno

Ask your horse. He knows the difference. If he could talk, he'd say—"use

MICA AXLE GREASE

It makes the heavy loads seem light." There's a reason for this — the ground mica does it. Makes the spindles smoother. Makes the grease go twice as far. Dealers everywhere.

Standard Oil Company (California)

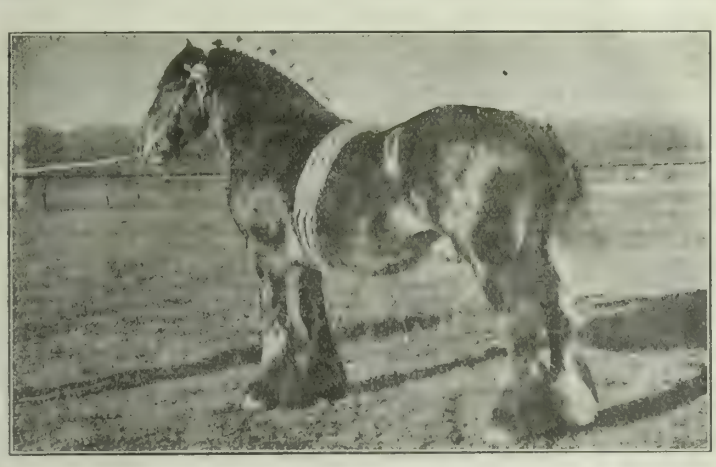
Drafters in Montezuma Hills.

[Written for PACIFIC RURAL PRESS.]

If you want to get a city horse buyer to talk long and loud about sound, heavy horses, ask him what kind of horses the farmers around Rio Vista raise. You'll soon find him an enthusiast on the subject and he can tell you almost to a T how many horses are sold from that section each year, also many other things of interest if you'll stay to listen.

One thing he'll harp on, especially if he was successful on his last trip out there, the bone and size that those farmers up there put into a horse. He'll also tell you right off the bat that the auto truck would be backed into the bay in a hurry if there were more horse-breeding districts like the Montezuma Hills. His version is that the farmer is to blame for the auto truck bugaboo.

Now you can look all over a railroad map and not find Rio Vista, neither can you locate the Montezuma Hills; and if you did, you would think them of minor importance from a horse-breeding standpoint. They are both in Solano county, bordering on the Sacramento river, the population there depending upon water transportation almost exclusively.



Salvador Forest King, Grand Champ. Shire at Cal. State Fair, 1914. Consigned to Draft Horse Breeders' Consignment Sale at Davis.

"That section," exclaims the horse buyer, "is overun with us fellows, and many a time I've contracted a year in advance for horses that suited me. Prices! Well, all I can say is, those farmers get the top as a general thing. Sure they are satisfied, why not? They don't need to worry about a market for their horses as long as they breed the right type and raise them right. Neither do other farming districts who will raise enough to make a trip by us profitable."

So from the buyers' version, the Montezuma Hills section ranks right up at the head of the heavy horse districts of the State, not on account of its size or location on the map, but because farmers there raise the right horses, and of equal importance, raise them in a community manner.

Some variation is naturally found in methods, but in the main those practiced by E. W. Westgate, Jr., of Rio Vista tell the tale of successful horse raising in the Montezuma Hills.

Raising grain as he does, he finds the 1500 pound horse the most satisfactory all round animal, although heavier horses are not objectionable at all, the brood mares here weighing from 1600 to 2000 pounds. Heavier work stock is, according to Mr. Westgate, much more desirable for the city trade, which willingly pay a higher price for that kind. Experience has shown that the most successful cross for such mares is a Shire stallion, weighing not less than 2000 pounds, and perfectly sound. This gives bone, action, and weight which the city horse must have.

Mr. Westgate's mares are bred at three years of age, the aim being to have them foal the latter part of February and March, as the hill grass is good then and the colt gets a good start before the feed becomes dry. Before turning onto the grass and directly after weaning them, they are placed in single stalls and fed alfalfa hay and a ration of bran and crushed oats.

At three years of age, they are broken to light work, not being anything that would be considered heavy work till they are four years old or a little better, at which time they are seasoned pretty well and can take a horse's place on the farm.

The ration fed all work horses on this ranch is composed of alfalfa and grain hay, crushed oats, and barley.

Naturally, breeding and feeding combine in qualifying the horse for the city trade and can only be attained by intelligent management. However, there is a factor which enters into this Rio Vista success with heavy horses that the buyer thinks a lot of. That is the hill pasture land, for he can spot a lowland horse in a minute by an examination of hoof and bone. Hill horses usually have sound legs and feet while the opposite is apt to be true with the horse raised on lower lands. "Montezuma horses have the size, action, and underpinning with which to stand up under the heavy loads and hard pavements. Guess I told you once before we buy all we can there," he remarked, as we left him looking at a fine, big gelding just brought in from the farm, that would soon be hauling heavy loads in the downtown wholesale district of San Francisco, where horses rule supreme.

Classified Advertisement

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything use these columns

LAND FOR SALE

FOR SALE—One of the finest and best improved alfalfa and dairy farms in Stanislaus County. 60 acres—3 miles from Modesto under irrigation ditch—all under cultivation. Beautiful, strictly modern 7-room bungalow, hardwood floors; fine, roomy, 4-room milkers' cottage; good home orchard; modern barn, concrete floors, accommodation for 50 cows; steam separator house; electric pumping plant; silo, etc.; everything up to date. This place is fully equipped with farming tools and implements, including hay loader, all dairy utensils necessary for a 50-cow dairy; is electrically lighted throughout; five minutes from school. Just the place you have been looking for, a beautiful home and a practical dairy farm in one. A bona fide bargain which will pay to investigate. The price is right. Terms. G. O. Hillier, 2900 Harper St., Berkeley.

FOR SALE—400 acres near Orosi, Tulare County. I offer tracts of 20 acres or more. If you will make improvements I will give you possession without paying one cent down on the land, and you need pay me nothing for three years except the interest and taxes. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops, which are in full bearing on all sides of this 400 acres Price $150.00 an acre. First payment 1918, balance in annual installments. Investigate now. Planting time soon here. W. P. McKee, 546 Title Insurance Building, Los Angeles.

FOR SALE—Honest goods. Quick sale. $2600 buys 20 acres good clay sediment soil 17 acres in oats, one acre check leveled, 2 acres orchard, olives, almonds, pear, apricots, apples, plums, quince and grapes Five 8x12 buildings on land. Near State highway. 2 miles from town limits in Maywood colony. And two lots with five-roomed house, four-horse barn, hay room eight tons, in Corning, close in. Sell all or part. No alkali. Level land. Well watered district. Owner, Edward I. Hiatt, Corning, Tehama Co., Cal.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms, P. O. Box 97 Salinas, Cal.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

COUNTY SECTIONAL MAPS—showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

WANTED to hear from owners of good fruit ranch, or irrigated land well adapted for fruit ranch Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

FOR SALE—Three mountain ranches in Calaveras county Apply A. M. Davis, Esmeralda, Cal.

BEES AND HONEY

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., Box 12, Nordhoff, Cal.

WANTED.

REAL ESTATE WANTED—We have parties that want farms and ranches, improved and unimproved. If you want to sell or exchange your place list your property with us at once for quick results. Write for listing blank and other information. John E. Drendel Company, Inc., 212 Hearst Bldg., San Francisco.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn

RANCH SUPERINTENDENT, experienced in developing and handling large tracts, desires location. References furnished. P. O. Box 1163, North Yakima, Wash.

OPPORTUNITY WANTED—Rice culture or dairying on shares by energetic Japanese. Agricultural College graduate. Box 30, this office.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand. For early orders, $40 per 1000. Wagner's $80 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka Wiltz, San Jose Mayette, Concord and other varieties Bartlett Pear on Blight Proof Root. Olives, fruit trees etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from 4 to 7 feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Calif.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts Ekstein Nurseries, Modesto, Cal.

QUALITY TREES—Burbank Cactus. Cash Nurseries, Sebastopol, Cal.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

HIMALAYA BERRIES may be planted soon. They bear tremendously anywhere in California and the berries can't be beaten. Write R. E. Hodges, 315 Underwood Bldg., San Francisco, for plants direct from grower.

VALENCIA AND NAVEL organe trees, ⅝ inch and and up, 50c each, delivered at depot. The buds come from the famous Chapman ranch. Call or address S. D. Winters, R. 2, Box 53, Anaheim, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. R. Marshall's Nurseries, Santa Ana, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

FOR SALE—Choice, well-rooted grape vines. Thompson's Seedless, Emperor and Malaga. $15 per thousand. Special prices in larger quantities. R. L. Foster, R. D. 2, Modesto.

GRAFTED WALNUTS—Citrus. All kinds of deciduous and onamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

SECURE PRESENT PRICES by cash deposit now with Spring orders for Citrus Trees, and Spineless Cactus Robinson Citrus Nurseries, San Dimas, Cal. (Mention Rural Press.)

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

FOR SALE—Several hundred choice Eureka Walnut trees on Northern black root. Sizes from four to ten. Prices reasonable. James F. Gooch, Riviera, Cal.

RHUBARB—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong one-year plants. Currier Bulb Co., Seabright, Cal.

FOR SALE—3,500 Eureka Lemons, one year buds raised in frostless belt. Trees first-class shape. T. W. Johnson, R. D. No. 2, Box 118, Orange, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

FOR SALE—200 fine 2-year-old Valencia Orange Trees. Fred E. Peterson, of Southern California Music Co., 332 So. Broadway, Los Angeles, Cal.

SOUDAN GRASS—Send for circular, free sample seed and lowest possible prices. Will take produce. Address C. Ullery, Lubbock, Texas.

KUDZU—Great forage plant. Fastest grower known. Lifelong, ever-increasing hay and pasture plant. Write J. L. Lawson, San Jose, Cal.

STRAWBERRY—Famous Ettersbury 80. Strong plants, 20 for 50c, $2.00 per hundred, postpaid. F. Ogden, 1940 82nd Ave., Oakland.

FOR SALE—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

STRAWBERRY PLANTS, "Dollar" variety. Close-out price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

INDIAN CORN SILAGE—200 tons for sale. Box 24, Butte City, California.

MISCELLANEOUS

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

FOR SALE—Gasoline Tractor Well-Drilling Machine. Fully equipped. First-class condition. Mrs. M. E. Guerrier, Gilroy, Cal.

FORTY-TWO TONS first grade Baled Alfalfa Hay for sale. F. O. B. Maxwell, Cal. Sends offers, Brennir, Maxwell.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.

Horse Types for Orchard Work.

[Written for PACIFIC RURAL PRESS.]

Horses have been the main motive power on California fruit ranches since the fruit industry started here; and while great strides have been taken in the handling of fruits, trees, and vines, we have almost entirely lost sight of the best standards of horse flesh with which to do the plowing, cultivating, and hauling.

Undoubtedly there is urgent need for a standardization of horses on the fruit ranches, for it is a matter of record that 42 per cent of all the horses in this State are located in the 14 largest fruit-producing counties, or in other words, 42 per cent of our horses are maintained in 24 per cent of the counties of the State where fruit growing is the chief industry.

Before standards can be set, however, experience is necessary in determining what the requirements are on the average fruit ranch. After ten years of such experience in Napa county, Imrie brothers, who handle 200 acres of orchards, have found that the horse best suited to their kinds of work is a heavy-boned, low-built animal weighing 1400 to 1500 pounds and one with a disposition to stand up in the collar at any and all times, for quick action is oftentimes needed, as well as strength.

From 12 to 15 work horses are kept on this ranch at all times, 12 being all that are required most of the time. All of them are bred and raised on the farm. These would not be required for the orchards alone, but they also farm 200 acres of grain and hay land.

The larger part of them are grade Percheron mares, although there is some Shire blood in a few of them, and that blood is becoming still stronger each year in the young mares on account of the breeding to registered Shire stallions in recent years.

These mares are bred to foal the latter part of April, that they may be worked during the fall and early spring months when most of the plowing and cultivating has to be done.

Haphazard breeding of these mares is never followed; and when a good sound stallion, whose colts fit their requirements, is found, his services are sought as long as he is available. Breeding this way serves a dual purpose, as uniform conformation, color, markings, and disposition are secured, making it possible to secure matched teams, whose value ranges $50 to $75 over what could be secured from equally good horses, not well matched.

As there is almost bound to be a surplus of young horses on fruit ranches at times, this last named factor is of considerable importance, for a well-matched team finds a better and more ready sale in all parts of the State, especially when sold to city or small town buyers.

For the first month after foaling the mares are not worked to any extent, in fact are not called upon to do very much work till fall, as there is very little work to be done before that. In exceptional cases, however, they are put back to work after a month, and the colt is left in a box stall at the barn.

During the summer and fall months the young colts are kept around the barns and corrals, and during the winter months they are provided shelter at all times. During this time they are fed alfalfa and oat hay, and are only turned out to pasture in the spring after feed is growing nicely and all bad weather is over.

Percheron Stallion, Consigned to Draft Horse Breeders' Sale.

Training the Colts.—When the colts are a little past two years, they receive their first training, being hitched to a light empty wagon a few times and driven at a slow gait for short distances. When a little over three years old they are broken to do light work, such as harrowing, but are never forced into real hard work till they are four years old, and from that time they do any and all work required of them. By receiving good care it has been possible to raise horses weighing 1500 to 1600 pounds; but never so far have horses weighing 1700 or over been secured; in fact, that kind are not wanted for the ranch work.

Horses bred and cared for on this ranch are used for the orchard work until they are 16 years old, at which time they have usually lost a good deal of their vim, and are then sold to smaller farmers such as poultry men and others having only light work for a horse.

The Imrie brothers state that they are amply repaid for their care in breeding and raising their own horses, first on account of being enabled to have the desired type of orchard horse, and second, because they can raise them cheaper than they can buy them. There is also an added benefit which many are overlooking. That is the fertilizer, which in itself is of considerable importance to the man raising fruit, as it greatly reduces bills for commercial fertilizers in a year's time.

A. C. RUBY, Portland, Ore.
242 Washington Street.

C. W. BOWERS, Davis, Calif.
One Block north of Bank.

Ruby & Bowers

DAVIS, CALIFORNIA.

Breeders, Importers and Exporters

PERCHERON, Belgian, Coach, Hackneys Shires and Clydesdales

We have on hand at all times the largest and best lot of heavy draft Stallions and Mares, both American bred and imported, to be found in the West. The reason we sell more horses than all importers combined on the Pacific Coast is that we save our customers from $500 to $1000 on each horse, and sell more genuine horse for the money. We give a 60 per cent guarantee. We give a four-year contract that is good at home. Is that not better than buying from some firm 2,000 or 3,000 miles away or a transient salesman. We sold 107 head last year. If you are in need of a horse in your locality, let us know.

Our newly established sales department can sell your horses and mules at your own price. Feeding charges, 50c a day.

We handle all kinds of horses. Saddlers a specialty.

Whitehall Estates Inc.

STUD FARM
OF
Draft Horses
Tracy, California

We are standing for Service this Season the following Three Registered Stallions:

1. **LONDRICITOS** (99574) 97561, Black, four years old, by Huchior, dam Mayonne, foaled March 1, 1911, bred by M. Gerbrau, Dept. of Orme, France. Imported into U. S. in 1913. Grand Champion, California State Fair, 1914. Grand Jr. Champion Chicago International, 1913. Stands 17 hands high; weighs 2200 pounds.
Service Fee (registered mares only), $50, with return privilege.

2. **JACQUARD** (87679) 97441. Black, six years old, by Espiegel, Dam Polka, foaled April 17, 1909, bred by M. Herodite, Dept. of Orme, France. Imported into U. S. August, 1911. First prize winner California State Fair, 1913; second, 1914. Weighs 2150 pounds.
Service Fee, $25, with return privilege.

3. **KAPET** (92678) 96885. Black, five years old, by Georges, foaled April 20, 1910, bred by M. Chadhomme, Dept. of Orne, France. Imported into U. S., 1913. Weighs 2100 pounds. Service Fee, $25, with return privilege.

We have 150 brood mares, including 30 registered Percherons imported direct from France. Sale of 1, 2 and 3-year-olds will be held during the Summer of 1915. Announcement later.

INSPECTION OR CORRESPONDENCE INVITED.

WHITEHALL ESTATES INC.

74 New Montgomery St., Call Bldg., San Francisco.
Ranch at Tracy.

Veterinary Queries.

[Answered by Dr. H. B. Wintringham, Graduate San Francisco Veterinary College.]

HORSE SHAKES HIS HEAD.

To the Editor: I have a horse fourteen years old. Three weeks ago he had what I would call a nervous spell. He would throw his head up and down just as hard as he could and lash his tail between his legs for two or three minutes, then would be perfectly quiet for fifteen or twenty minutes. He kept that up for about seven hours. He looked well and did not want you to put your hand on him. I called a veterinarian. The horse was practically quiet when he got there. He took his temperature and said it was nearly normal. He did not say what was the matter; simply said horse may have another spell and to watch out, that he might hurt me some time. Horse is in good flesh and eats all right, though I notice some slobber when he is eating. He is nervous about the head, which he shakes sidewise occasionally.—M. N. B., Wrights.

[Your horse has something wrong with his head. It is impossible to diagnose the case without an examination. The cause of the trouble may be one of the following: foreign body in the ear, decayed tooth, foreign body in the nostril or lacerated mouth. Call in a competent veterinarian and have him carefully examine your horse's head, especially the ear.]

PIGS' INTESTINES PROTRUDE

To the Editor: I have about twenty young pigs four months old. Several days ago I noticed that on two of them the intestine had been forced out of the rectum about an inch and a half. Today another has become likewise affected. None of the pigs seem to have suffered any especial harm with the exception of a slight bleeding. All of the pigs are in first-class condition and those affected are the largest in the herd. Three times a day they are fed a slop compound of skim milk, water and cocoanut meal. In addition to this, they have large, dry sleeping quarters, well covered with straw, but the yard in which they run is very muddy at present. Can you tell me the cause of this disease, and if there is any cure for those affected?—R. D. K., Oakdale.

[Your trouble is digestive and due to the feeding. Cut out the cocoanut meal from the ration and use middlings in its place. Have your druggist put up the following: Aromatic Sulphuric acid, 2 oz.; spirits of camphor, 2 oz. Give two teaspoonfuls in a cup of flour gruel three or four times daily until improvement is shown.]

HORSE ITCHES.

To the Editor: I recently bought in Los Angeles an 8-year-old mare which seller told me had chicken lice from too close contact with chicken pen. I am convinced the trouble is worse than that—is in the blood, or skin—some sort of itch and quite a bad case. Scratching, she threatens to tear stable down. Tail is rubbed almost bare at base, and mane is somewhat rubbed by violent scratching. We have nice large, clean, airy quarters for her and occasionally stake her out in alfalfa patch to roll. Have all sorts of feed and forage. I am not much of a horseman, but like the traits and disposition of this animal and will be grateful if your suggestions give her a more comfortable life and insure somewhat against the destruction of her box stall.—J. R. D., Monrovia.

[Your horse has scabies. Treat in the following manner: Get some liquor cresolis compositus and make a 20 per cent solution in water, 2½ ounces to the gallon of water. Wash your animal off thoroughly with this, being sure to remove all scabs and crusts. Have your druggist put up the following: Oil of tar, one ounce; flowers of sulphur, one ounce; oil Cajaput, one ounce; neutral oil, enough to make one quart. After animal has dried from the washing, rub this in well all over animal and repeat the above about every ten days. Two such treatments should cure your animal.]

DEHORN AT EARLY AGE.

To the Editor: I have some heifers I wish to dehorn, coming 2 years old, but have been told that if dehorned before third year stubs will grow. Is it advisable to wait? Also, what instrument is best for dehorning?—C. L. E., Elk Grove.

[There is no need to wait to dehorn your heifers. A butcher's meat saw is as good an instrument as you can get. Be sure and make your cut close to the skin of the head in order to destroy the horn forming structures at the base of the horn. Have a hot iron handy to stop hemorrhage. Apply Stockholm tar to the horn stubs.]

DIP FOR FEVER TICK.

To the Editor: My son down in Guatemala (also a subscriber to your paper) has a good deal of trouble with ticks on the cattle and he wishes me to ask you for some formula for dipping and washing cattle to make them free of the pest, and also which would be the best way to destroy them in the pasturages.—E. C. A. B., Ventura.

[The variety of tick infesting your cattle would determine its exact method of eradication, as its life history is the all-important factor in its eradication. The following is an outline for Texas Fever tick eradication. The same dips will kill any variety of ticks. The following dip is a parasiticide: Arsenious acid, 10 lbs; carbonate of soda, 24 lbs.; soap, 24 lbs.; oil of pine tar, 1½ gallons, and water enough to make 500 gallons. Boil the arsenious acid and carbonate of soda in 50 gallons of water for two hours and add the remaining ingredients. An ordinary dipping vat should contain 2000 to 5000 gallons. Have your cattle well watered and rested before dipping. Drain the cattle where there is no vegetation and rest an hour after dipping. By dipping all the cattle every 20 to 30 days, all ticks on the property will become exterminated in one year. Or divide the property with fences and keep all animals off a subdivision for eight months, which will clean that piece of land by starving the ticks. Dip all cattle before returning to rested land twice in ten days. In this way all land on a property can be cleaned up.]

Bee-keepers of Butte county are at war with the farmers because the bee-keepers have come to that section for the sake of the star thistle, which the farmers want to get rid of. According to the District Attorney in Butte county, the State law provides that bee inspectors cannot be appointed until bee disease has been found in the county. Isn't this putting the cart before the horse?

What Does a Silo Cost?

AN IDEAL GREEN FEED SILO will pay for itself the first year. That being the case it will cost you nothing.

AS A MATTER OF FACT, THE COST of a silo is really a secondary consideration, because if you are keeping dairy cows or raising stock for the market, there is no investment that you can make which will pay you better returns than an **Ideal Green Feed Silo.**

A GOOD SILO IS A NECESSARY PART of the dairy equipment of every cow owner or stock raiser who wants to realize a reasonable profit from his herd, and if the matter of cost has been standing in your way, please remember that it is really not a question of whether you can afford to erect a silo, but whether you can afford to do without one.

IF YOU HAVE NO SILO, a little investigation will be sure to convince you that you ought to purchase an **IDEAL GREEN FEED SILO** right away, and be prepared to save your first cutting of alfalfa. Then plant corn to fill it again this fall.

Write for new Silo Catalog B for full information.

ENSILAGE CUTTERS. ALPHA GASOLINE ENGINES.

De Laval Dairy Supply Co.

SAN FRANCISCO. Everything for the Dairy. SEATTLE.

Grandsons of Tilly Alcartra

At Prices Within Reach of Every Breeder and Dairyman.

A GRANDSON OF TILLY ALCARTRA.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Kerndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year.. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

Salvador Stock Farm

Shire Stallions and Mares

I have a very good selection of SHIRE STALLIONS and MARES in my barns at present, and they are for sale at prices which you can afford to pay.

I buy for cash and sell for cash, and in this way I can give you better value than you can possibly get on time. Don't be misled by offers of two or three years' time, for you will certainly pay far more than the horse is worth on those terms.

To buy for cash is much the cheaper way, and if the horseman will give you time, your bank will advance what you need. For prices and particulars address.

HENRY WHEATLEY, Napa, Cal. Phone 665J.

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

HOWARD CATTLE COMPANY

BREEDERS' AND IMPORTERS OF SHORT-HORN CATTLE

55 New Montgomery Street

San Francisco

With the Live Stock Men.

DAIRYING.

The Danish Creamery Association of Fresno reports a big increase over the previous year. The regular 8 per cent dividend was paid.

Because of the success attained last year by the Sutter and Yuba county dairymen, numerous dairies are being started in these counties.

Directors of the San Joaquin County Farm Bureau met last week to discuss the advisability of a cow testing association.

According to a report of the California State Dairy Bureau, Butte county is well up in the lead of butter-producing counties of the State.

A dividend of 10 per cent was declared last week on the capital stock of the Orland Creamery. Directors of the company were elected for the ensuing year.

Hardwick dairymen have applied for affiliation with the group of cow-testing associations which are now being formed by the extension department of the University.

One of the largest and most modern dairy farms will be established in Oakdale, Stanislaus county, by W. T. Such of Berkeley, who plans to install 125 grade cows on the ranch.

It is reported that considerable cream is being shipped from Lovelock to Reno in Nevada and suggestion has been made that Lovelock would be a good place to start a creamery.

A new market for the dairymen of the San Joaquin valley will be opened by the formation of a company for the manufacture of condensed milk, provided favorable action is taken by the Legislature on the proposed amendment to the law governing the manufacture and sale of evaporated cream.

K. W. Abbott of Milpitas gives us the following news of his herd: It may interest your readers to know of the recent death from mammitis of the 32-lb. cow, Mabel Haskins, of San Jose. I fully expected that at this calving as a mature cow she would have made a wonderful record. She leaves three heifers, of which I expect big things in the future. Have just sold seven cows and a bull calf to Mr. F. R. King, Rexholme Farms, San Mateo. He is starting a fine herd to furnish milk to a Belmont Sanitarium. Within a short time I have completed the following A. R. O. records: Linden De Kol, 5 years, 25.75 lbs. butter; Jetze Alafke of Riverside, 8 years, 23.73 lbs., and Fidessa Butter Belle, 2 years, 13.26 lbs.

CATTLE AND SHEEP.

A second consignment sale of purebred Holstein-Friesian cattle is planned for the early fall.

A sale was made last week of twenty head of cattle in Stanislaus county for $2000.

A number of Boonville sheepmen who have been holding their fall wool have sold it for 17 cents per pound.

D. M. McLemore and E. C. Buchanan of Fresno arrived in Modesto last week with 500 head of fine Arizona cattle which they will offer for sale.

Forty-three carloads of cattle arrived in Chowchilla last week and were taken to the ranch of the Howard Cattle Company, south of the city.

H. L. Murphy of Perkins has gone East to purchase a choice lot of Shorthorn and Hereford bulls.

HORSES AND SWINE.

Fred Robinson of Merced county has shipped 240 horses to New York City, from which place they will be sent to France for use in the army.

The demand for purebred hogs has been exceedingly heavy of late. The Grape Wild Farm of Mayhews, Sacramento county, reports heavy sales of purebred sows and gilts. A complete herd of stock from that ranch will be entered at the Panama-Pacific Exposition.

We have been advised by W. A. Ward of the Blackhawk Stock Farm that they are shipping by express seven stallions and one mare, which were purchased in England last winter and held up on account of the war. Among these is Saxby Albert, a three-year-old stallion. The shipment is expected to arrive in about three weeks and will be shown with others of their home bred stock at the Exposition.

J. L. Gish of Laws reports the following sales of Berkshires: To E. A. Potterton of Cordelia, three sows and one boar; C .C. Tidd, Smith P. O., Nevada, one boar; C. G. West, Fallon, Nev., one boar; J. B. P. Crosby, Laws, two sows; A. W. Beesemer, Kerman, one boar; J. Southward, Le Grand, one boar; F. J. Claussen, Dos Palos, one boar; Miller & Lux, Inc., Los Banos, four boars; F. W. Hess, Bishop, one boar; W. A. Sanger, Big Pine, one boar.

MISCELLANEOUS.

Atwater plans to have a District Fair of her own. The Kings county Fair is to be held September 28 to October 2; the State Fair, September 4 to 11; Pleasanton, September 16 to 19; Fresno, September 22 to 25; Hanford, September 28 to October 2.

The Turlock Branch of the Stanislaus County Farm Bureau is to use six acres for a demonstration farm to show what can be done with corn and sorghum in various conditions of fertilization. The High School Agricultural Club will take part in the experiments.

A board chute from hay mow to manger with an opening in its side where the horses' eyes will be above the hay when feeding, may save dollars in horse value. The same chute may open into two adjacent stalls. It is this way on the Stanford ranch in Tehama county. Their chutes have a smaller square cross section at the bottom than at the top.

FOR SALE

Holt Caterpillar

45 H. P. ENGINE

Holt Gombined Harvester

16-foot cut

Oliver Engine Plow

Six 14-inch bottoms.

Engine Cultivator

Size 10 ft.

All in Good Order.

For full particulars and prices Write

CHAS. J. SHAW

BOX 348, Hollister, Cal.

Black Hawk Stock Ranch Shires

BLACK HAWK VICTOR CHIEF.

We Guarantee to Please You if You Want Either Good

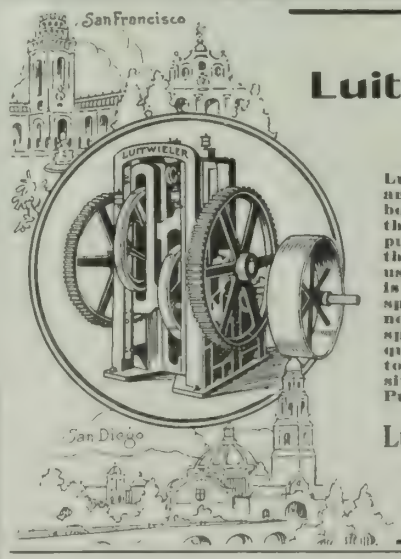
Stallions or Mares

Imported and Homebred. Breeding and Quality Unsurpassed. Prices Right. Inspection Invited. Correspondence given prompt attention.

Apply Manager

Black Hawk Stock Ranch

BURLINGAME, CALIFORNIA.



See the Exhibit of

Luitwieler Pumps

at Both Expositions.

Luitwieler Pumps of different styles and sizes are in actual operation at both expositions. Do not fail to see this interesting exhibit. Experienced pump men are there to fully explain the operation of these pumps. One unusual feature of the Luitwieler exhibit is the operation of a stock pump at full speed, resting on glass tumblers with nothing to hold the pump down. This splendidly proves the easy running qualities of Luitwieler Pumps and the total absence of jar, vibration, excessive friction, etc.. Write for our free Pump and Irrigation Booklets.

Luitwieler Pumping Engine Co.

709-11 N. Main St., Los Angeles, Cal.
San Francisco Agents:
SIMONDS MACHINERY CO.,
117 New Montgomery St.

ZEROLENE

the Standard Oil for Motor Cars

has just the right "body" —body enough to keep the metal surfaces apart—but not to be a drag on the power—light enough to reach the places where needed—and quickly. And it maintains body at cylinder heat. Dealers everywhere.

Standard Oil Company (California)

Cow-Test Battle Rages.

[Written for PACIFIC RURAL PRESS.]

As this is of necessity written before the owners of Spot and Bess had time to reply to our heavy artillery fire of last week, our aerial fleet has been unable to report any damage to the enemy's position. However, we promised a continuation of the battle this week and with reinforcements pushing forward from the rear, we cannot longer hold back our advance guard.

To get back to the subject of tuberculosis testing however, we will again assume that you have purchased a herd of 20 cows. In doing so you have entirely disregarded looking into the condition of their health except as was the case with their butter-fat producing ability, to use your own judgment.

Again assuming that you have average luck, about 30 per cent of those cows are affected with tuberculosis. We do not know where you find authority for claiming 50 per cent, but actual tests made in this state show that out of 8000 head of cattle examined, 2500 head reacted to the tuberculin test.

Ignorance is bliss though, and it is folly to be wise, so you decide to save the cost of testing and take a chance. After the dairy has been established awhile, you discover that six of your cows have developed a hacking cough their coats have become rough and staring, and they gradually get into a "run-down condition." Probably they do not all act this way simultaneously, but by the end of the year the same symptoms are noticeable in all six animals. These cows have gradually fallen off in their milk flow till you finally decide to sell them to the butcher before they die on your hands. During the year you have owned them they have been with the balance of the herd continually and they have also dropped 6 calves, half of which were heifers, the bull calves having been vealed. The calves have had free access to their mothers' milk and have mingled in the herd freely. When they become old enough you breed them to a bull, whose health is uncertain. So you continue year after year, an ever-increasing number of cows "going bad" each year from a "run-down" condition which you do not seem able to regulate or cure. In the end the dairy cow and those pesky contributors to the Pacific Rural Press put you out of business. Maybe you do not succumb so easily to discouragement; and continue to make outside purchases to fill in the T. B. gaps, but whichever way it happens, you cannot afford to test out the reactors for you must have 20 cows, whether they be good, bad, or indifferent.

Now we will "fess up" that we haven't much use for the crank who would have you kill all animals reacting to the test, unless he can show us more satisfactory results than he has in the past, neither would we follow your advice and forget all about tuberculosis and suffer the loss, which is a certainty, as hundreds of dairymen in California will testify.

Therefore in starting the 20-cow dairy outline, we would pursue more of a middle course, first purchasing only cows that had passed the tuberculin test. After purchasing these animals, we should thoroughly disinfect the premises where the stock is to be kept. Then we should buy a registered bull who had also passed the test.

Possibly, later on, a test would show some reactors. If so, we should immediately segregate such animals into a different corral from the healthy ones. Their calves, if they had any, would also be segregated from their mothers and care taken that they received milk only from healthy cows in the herd. Perhaps a surprising percentage of these reactors would recover from the disease, perhaps not. In either case, you have protected your healthy cows at little or no cost to yourself.

If, as was shown last week, your Babcock test has weeded out a part of your herd at the end of the year, you will need more cows to take their place. Don't upset your past work by introducing cows which are apt to be tubercular. Experience proves conclusively that the greatest danger of infection among a healthy herd is through addition of stock already infected.

If you have taken these precautions, your desire of raising heifers free from, although not immune from, tuberculosis will become a reality; practically so at least, for there will be fewer reactors in the future after such a system has been inaugurated.

In this, as with the butterfat test, you have asked us a question at the end of your letter which clearly indicates that our past efforts have had little or no effect in convincing you that it is for the benefit of the calves, present and future, that you should test. Let us finish by asking you how you can afford not to test instead of being quieted with your question of how you can afford to test? For the time being we will rest our army. Sic on your dogs.—Editors.

OPPORTUNITY FOR HORSES.

(Continued from Page 225)

the buying is only now in full operation. Five thousand such horses are being killed or maimed daily in Europe. Farmers from one end of the country to the other are trying to guess what the ultimate number exported will be. It is useless to try. We know that such a drain is bound to clean up every state's supply of such horses. Many of these horses will be replaced by the right type if their owners are shown why they should have the right horse in the right place. That is sufficient, as it gives the California farmer the long-hoped-for opportunity of reorganizing his breeding business to present-day demands. Another factor which the war has advanced is the breeding of purebred horses. It will be years, so say importers, before we can hope again to depend upon Europe for our breeding animals, and perhaps then the supply will be limited. This also gives us new opoprtunities, a chance to build up the breeding of purebred horses without fear of competition from abroad.

Statements of facts sometimes do a world of good. Now that horse breeders have the opportunity of deciding the future of the industry, it should no longer be a question of how long the horse will survive, but what you, as a breeder, are doing toward building up the industry to a point which will compare favorably with your competitor, who has placed efficiency on the top hook of his ambition. The horse will always live. Give him a chance to grow of greater value to the State than ever before by putting him to the use he is best fitted for.

The Turlock branch of the Stanislaus county Farm Bureau has undertaken the operation of an experiment farm on six acres of land near that city.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE OR EXCHANGE—Percheron Stallion. Black. Nine years old. Weight 1800. Registered. C. H. Grupe, R. 3, Stockton, Cal.

REGISTERED PERCHERON Stallions and Mares. Prices and terms inviting. J. B. King, Wrights, Cal.

FOR SALE—One mammoth Jack and fourteen mules. Jack Tompkins, Sunnyvale, Cal.

BEEF CATTLE

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

SACRIFICE. REGISTERED JERSEYS—9 cows and heifers. One bull imported in Dam. Noble of Oakland breeding. Bull worth price of herd. This stock all show stuff and prize winners. Price, $1,800, one-third cash. Box 31, Davis, Calif.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. E. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Con, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

WILLOWWOOD JERSEY FARM—Registered Jerseys. C. G. McFarland. Route 2, Tulare, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle, Los Banos, Cal.

FOR SALE—One Full-blood Holstein Bull, 14 graded Holstein milk cows, 10 yearling heifers, 11 young calves. T. Stirewalt, Los Molinos, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

PACKWOOD FARM HERD of Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BLATCHFORD'S PIG MEAL weans pigs easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs. $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Lawa, Inyo county, Cal.

IMPERIAL STOCK FARM BERKSHIRES.—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in state. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS. T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS

COL. JACK—Thoroughly trained in sales work on registered cattle and hogs. A fast worker in the ring; an able judge, and well fitted to be your auctioneer. Has an extensive acquaintanceship on the Pacific Coast; gets face value on your animal; works on the usual terms; cries any farm sale, and can be found at 513 Exchange Building, Los Angeles, Cal.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

National Livestock Meeting Here.

The annual meeting of the American National Livestock Association will be held in Hall A of the Exposition Memorial Auditorium, San Francisco, March 24, 25, and 26, 1915, according to a communication from Secretary T. W. Tomlinson.

Among the many subjects for consideration at this convention are: federal control of the semi-arid, unappropriated, public grazing lands; various land bills before Congress; administration of forest reserves; railroad rates and service; delays at terminals; cases pending before the Interstate Commerce Commission regarding livestock rates; valuation in livestock contracts; suppression of foot-and-mouth and other infectious diseases, and appropriation by Congress for same; sanitary regulations; meat-inspection law; importation of livestock and meats; inspection of imported meats, hides, and wool; prohibitive tax on oleomargarine; financing of livestock loans; reports of officers and standing committees.

These and other questions will be discussed by men prominent in the livestock world. An unusually interesting program is being arranged. Officers of the Bureau of Animal Industry and the Forest Service, and other federal officials, will be present. Hon. Woodrow Wilson, President, will probably attend one of our sessions and deliver an address.

Only morning sessions will be held, which will leave the afternoons and evenings for sightseeing.

Very low rates have been granted to the exposition by the railroads from all points. Tickets on sale from and after March 1, return limit three months from date of sale. On all tickets the railroads will grant a side trip to San Diego, California, where the Panama-California Exposition will be held during the entire year of 1915.

The California Cattlemen's Protective Association will hold its annual meeting at the Exposition Memorial Auditorium March 23, the day previous to this convention. That association has made extensive preparations for the entertainment of its members, delegates, and their families.

The exposition officials have designated March 26 as American National Live Stock Association Day at the exposition grounds, and special entertainment features are being arranged for that day. There will be a livestock exhibit at the grounds.

The Exposition Memorial Auditorium, where this convention will be held, occupies the entire block bounded by Grove, Larkin, Hayes, and Polk streets, in the Civic Center, directly adjacent to Market street, and easily accessible from all points. The exposition grounds can be reached by car lines running direct from the Auditorium.

This Association will maintain an office in San Francisco from January 15, 1915, until after the convention, at Room 504 Sharon Building, 55 New Montgomery Street, opposite the Palace Hotel.

Those desiring hotel reservations should write to Secretary Tomlinson, 504 Sharon Building, San Francisco, stating as nearly as possible the kind of accommodation desired.

All stockmen are cordially invited to attend this convention.

DON'T MILK BEFORE CALVING.

To the Editor: Will you kindly advise me in the columns of your next issue how to care for young heifers when they are coming fresh? Would you advise milking them a few days previous to calving if the udder becomes very large and swollen? Kindly state also the best way to reduce swelling of the udder in fresh cows. I also have a fine heifer that was born a twin, and people tell me that she will not breed. What is your opinion in the matter?—Subscriber, Bethany.

[Good pasture where animals can be watched is the best treatment for heifers due to freshen. A large swollen udder is normal and needs no treatment. Do not milk before calving as the first milk or colostrum, as it is called, is necessary for the calf. Its action is to start the digestive tract of the calf normally. If your heifer was born a twin to a bull calf she is probably a "free martin" and will not breed. If her twin was a heifer, she will probably be normal and breed.]

GOATS TO EAT BRUSH.

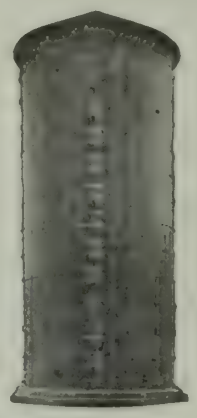
Forest Supervisor Charlton, after several years of effort, has succeeded in interesting goat owners in the subject of feeding out his fire breaks, and the Secretary of Agriculture has just authorized the free grazing of 4,000 of these animals as well as the payment of an additional bonus for handling them according to a definite agreement.

Nearly 200 miles of fire breaks have been constructed on the Angeles National Forest in Southern California along the summits of ridges and at the bases of slopes. The problem of cleaning out the growth on these breaks recurs annually at heavy cost, and it is expected that the experiment with goats will prove a much cheaper method.

When the rain stops for a few days, make a desperate effort to clean out the cattle corral, either with scraper or manure spreader. Dairy cows invariably fall off in production when in mud up to their belly.

Alfalfa Hay
FOR SALE.
A few cars of choice HAY
MANZANITA FARM
C. W. VANNOTE, Prop., Gridley, Cal.

SILOS
BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manufactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

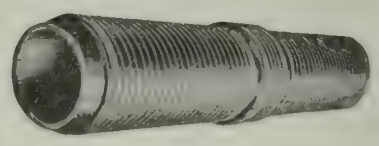
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

ESTABLISHED 1890. INCORPORATED 1914.

McLaughlin's Horses

The only stallions in California which won prizes at either Nogent or Paris, the two great Shows of France, in 1914, were imported by us.

Since their importation, these stallions have been exhibited at all the principal fairs in the Eastern States, where they won all the best prizes and every championship.

If you want the biggest horse, buy of us.

If you want the best horse, buy of us.

If you want to save money and deal with a reliable firm right at home, buy of us.

We are the only firm whose home office is in California that imports stallions from France.

Thos. D. McLaughlin Importing Co.
Oakland, California

Office: 3888 SAN PABLO. Stables: 47th NR. SAN PABLO.

BERKSHIRES Oak Grove
Cholera Immune.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL.
OAK GROVE DAIRY FARM.
H. G. ARMSTRONG, Prop.
Woodland, Cal.

English Shire Stallion
FOR SALE CHEAP
Pure bred, 3 years old, dark bay, heavy bone, stripe in face, weight 1820, good action.
S. E. RAILSBACK,
HANFORD, CAL.

TAMWORTHS
The Big Red Bacon and Block Hog.
Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

Dressing Hogs on Farm.

Keep the animal off feed for 12 to 24 hours previous to butchering, but allow it to drink all the water it will, as this tends to cool the body.

By throwing the hog on its back and then straddling it behind the shoulders, one hand may be used to hold the head down and the other to operate the sticking knife, which should be about six inches long and sharp on both edges.

Before sticking animal, feel for the breast bone and then cut an inch or two beyond it for a distance of four inches to afford a good opening. keep the sticking knife in the center and pointed at an angle of about 45 degrees backward and toward the back bone and thus sever the blood vessels where they spread from the chest cavity.

A hog which has been stunned will not bleed as well as one which has not been stunned previous to sticking. If it is desirable to shoot the hog the best place is behind the ear.

After the animal has been bled, scald it as soon as possible and under ordinary farm conditions a barrel placed so that it slants up to a table or bench will serve as a scalding vat. The water should be at a temperature of 165 to 175 degrees F., and any of the following substances will aid materially in removing dirt and scurf: A small shovel full of hard wood ashes, a handful of soap, ¼ to ½ cup of coal tar.

To scald the hog, place a hog hook in the lower jaw and scald the hind part of the body first, because if the water is too hot and sets the hair, this part of the body is much easier to shave. Keep the hog moving up and down in the water until the hair comes out easily and then remove the hair from the hind legs first by twisting with the hands. The scraper may be used to remove the hair from the remaining parts.

The hog is then turned around and two tendons loosened in the back of the lower hind leg so that the gambol may be inserted and then proceed with the scalding as with the hind part of the body, being careful to clean the ears, snout, and legs as quickly as possible.

After the rough hair and scurf has been removed throw boiling hot water over the carcass and shave with the knife held flat against the body and if two are shaving work from the extremities toward the center.

Wash the carcass with hot water and then clean cold water and hang it up to remove the internal organs.

When the entrails have been removed wash the carcass thoroughly and allow it to drain and cool until the next day in order that all of the animal heat may be out of the carcass before it is cut up.

Colo. Agr. Col. L. D. HUMES.

PIT SILOS INADVISABLE.

To the Editor: I would like to have information regarding underground silos. I am contemplating one about fifteen feet deep and seventeen feet in diameter. Will a cement lining be necessary?—Subscriber, Patterson.

[We have no local data on underground or pit silos as we do not know anyone who has used them in this state. However, we doubt the advisability of constructing such a silo in your location, as experience in the Middle West shows them to be of little value except on high, dry ground, where the rainfall is light and the water level well down. Then too, the slight saving made in their construction over the ground silo is counteracted by the cost of labor in taking the silage out. It is a good deal easier to elevate silage by machinery than it is to raise it out of the pit by hand. An eastern writer gives the following advice in regard to curbing and plastering the walls of a pit silo: After leveling the ground where the silo is to be located, make a circle with the same diameter that the silo is to be, inside measurement. Then make another circle six inches larger and dig out the soil between the two circles to a depth of 18 or 24 inches. Fill this with concrete and extend same to a height of a foot or more outside of the ground. This makes a curbing, which keeps surface water from running into the complete silo. After the concrete in the curb has set for twenty-four hours, the excavation of the pit may be commenced. Great care must be exercised in digging, in order that the walls be kept absolutely perpendicular. A plumb line or straigh-edge will be of much help in keeping the walls straight. The inside diameter of the pit must be exactly the same as the inside diameter of the curb. After digging down about five feet, the walls should be carefully trimmed, so as to make them as smooth as possible, and then plastered with cement, mixed as follows: 1:2 (one part to two parts of sharp plastering sand). When plastering, it will sometimes be found necessary to sprinkle the walls lightly with water in order that the cement may adhere more readily and prevent its drying out too quickly. If the plaster dries too rapidly it may crumble, crack and come off. The thickness of the plaster will depend somewhat upon the smoothness of the walls, but it should average at least three-fourths of an inch to one inch thick. If the plastering is too thin it is very liable to crack and fall off. After the first course has been plastered another five feet are dug out, the walls trimmed carefully and plastered as before. Allow plaster on side walls to become perfectly hard before filling is started, as otherwise it is apt to fall off when silo is emptied.

CABBAGE BAD FOR RABBITS.

To the Editor: I notice a statement in a recent Pacific Rural Press to the effect that one must not feed rabbits or hares cabbage. I would like to know what reason is given for this. Is the danger of such feeding due to the climate, or what? In the East I have fed rabbits on cabbage wth no bad results.—M. N. W., King City.

[Answered by Mrs. B. H. Gilkey, Santa Rosa.]

[Just why cabbage is unfit for rabbits I am unable to say, but slobbers is directly traceable to such a diet. The danger is not so great, however, to adult stock. Acute indigestion once suffered weakens the stomach and liver, causing no end of trouble if not cured promptly; and often the remedy is applied too late. Muriatic acid, one teaspoonful to the gallon of water, given to drink will correct the ailment and should be given occasionally as a preventive measure. Kale, cauliflower, mustard and such may be given, but I repeat: Beware of cabbage.]

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials. 10-dose pkge. Blackleg Pills $1.00 50-dose pkge. Blackleg Pills 4.00 Use any injector, but Cutter's best. The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct. THE CUTTER LABORATORY, Berkeley, California.

Durocs Cholera Immuned and GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay. ED. E. JOHNSON, TURLOCK, CAL.

Sore Shoulder Insurance

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.

Why not take it FREE by using

W. DAVIS & SONS' HORSE COLLARS

"Felt-Face.....each $5.00
"Cushion" Collar, each.. 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

A selling agent (dealer) in nearly every town. If none in your town, write us

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

Which Would You Rather Have? $250 or $1850

Sounds silly, doesn't it? No one should prefer to have $250.00—or less—when he might just as easily have $1850.00, you think. Well, we agree with you.

But how about the farmer who buys a tractor and displaces horses? We see in current advertisements mention of a Tractor that is sold for about $500, and is said to "do the work of five horses." We want you to follow us in figuring out the net results of each course over a period of five years, a space of time that quickly passes. We will assume that normal conditions prevail in each case, no undue breakages nor smash-ups for the Tractor, nor unusual accidents connected with the horses. It is also fair to figure that the gasoline and ordinary repairs for the tractor will offset the cost of feed on the farm for the animals.

FIRST YEAR OR STARTING POINT

THE TRACTOR USER HAS

1 Tractor (deterioration beginning the first day it is used).....$ 500.00

THE HORSE USER HAS

5 Animals, say selected as follows, which can easily be accomplished:—
Three 3-year old Mares at say $150.00 each.....$450.00
Two 3-year old Geldings at say $100.00 each.....$200.00 $650.00
All recuperating their strength when not working, and getting stronger year by year.

NOW TAKE THEM AT THE END OF FIVE YEARS.

THE TRACTOR USER HAS

One Second-hand tractor ready to scrap, but to be absolutely fair, let us say it is worth half what he paid.....$250.00

THE HORSE USER HAS

Three 8-year old Mares, still well worth	$150.00	each		$450.00
Two 8-year old Geldings " " "	100.00	"	.....	200.00
Three 4-year old Colts "	150.00	"	.....	450.00
Three 3-year old Colts "	125.00	"	.....	375.00
Three 2-year old Colts "	75.00	"	.....	225.00
Three 1-year old Colts "	50.00	"	.....	150.00
TOTAL				$1850.00

Compliments of W. Davis & Sons.

One-Man Power Sprayer

A Complete High-grade Outfit for the Small Grower

Supplies one line of hose. One man does all the spraying. One horse can haul it anywhere. Will spray from 2 to 3 acres a day at small cost. Light—strong—durable. This is the

BEAN EUREKA

Equipped with Novo engine, Bean Pump, 100-gal. tank, canvas cover and curtains, patented pressure regulator, rotary agitator, truck, hose, rod, etc. Write for more details and wonderfully low price. SEND FOR FREE CATALOG 28-A, which describes the entire Bean line.

BEAN SPRAY PUMP COMPANY
211 W. Julian St., San Jose, Cal.
Also Lansing, Mich.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by Geo H Croley, President Federated Poultry Ass'n. of California]

As a profitable investment, the State of California should aid the poultry industry in a present crisis that threatens great injury, if not almost complete destruction of this important branch of agriculture in this state. Many other states and foreign countries are liberal in their expenditures to promote the growth of this industry and to protect it from injury. Aside from their regularly provided funds for these purposes, twenty-six states of the Union have made special appropriations, ranging from five hundred to two thousand dollars, for use in assisting their poultry raisers to make meritorious displays at the Panama-Pacific Exposition. California has appropriated nothing directly for this purpose.

If it was wise for the State to provide ways and means to help rescue the fruit, the dairy, and other rural industries at times when they were in great need of fostering aid, and can even take care of the fish, it is certainly a display of political improvidence to overlook poultry.

For several preceding issues Mr. Lindley has brought forcibly to public notice a number of causes that contribute to the $7,000,000 annual loss to the poultrymen of California. Some of the causes of loss were scarcely suspected, even by veterans in the business, and never before have these matters been discussed in such a fair-to-all spirit or presented in such a clear and convincing manner.

First he shows us that the Federal Government places the annual loss in the United States between the hen and consumer at $260,000,000.

Next he demonstrates how the producer may greatly increase his profits by correct feeding; and why loss and damage is caused by improper diet.

Following this he explains the reason for great shrinkage in value through careless handling by the producer or his marketing agent.

Finally he makes clear the reason why much loss occurs in cold storage and how, under existing conditions, it is difficult to improve the present methods of operating this class of warehousing.

In these articles Mr. Lindley has contributed much that is instructive and calculated to illustrate the origin of some of the shrinkage, but he has had opportunity to cover only a small part of one of several sources of leaks that cause this enormous loss to our poultrymen. The loss from disease alone is so great that for obvious reasons we purposely refrain from publicly entering into details in regard to this source of loss and damage. Mr. M. A. Scofield, president of Poultrymen's Co-operative Ass'n of Los Angeles, says: "We all know that the newcomer who buys a small farm frequently expects to make part of his living from poultry; and that he so often makes a failure is not that his plans were ill considered, but rather that he did not know the game; and there was no one whose duty it was to tell him his trouble. There is an amazing amount of information locked up among the poultrymen and organizations of this state, which never has a chance to become diffused because there is no state agency to look after the matter. From this cause, every poultry colony coming to my attention during the past few years has had, in its beginning, the same harvest of failures and disappointments which have resulted from the beginner not knowing how to proceed to best advantage. There has been no time since I can remember that conditions have been so depressing as at present. Poultrymen are organizing here and there over the State. In some cases their plans are well thought out and others are ill considered, but all have this in common, they are desperate."

There are also in this state several thousand fanciers and breeders of highly bred poultry, who collectively comprise an intelligent and decidedly important branch of the poultry fraternity. These are suffering a loss of trade along with the utility farmers who are their chief customers.

One of the Infants of a Big Industry that is calling for Help.

A very large part of the money earned through poultry culture furnishes the sole income of a very large number of individuals in many towns; but more particularly in every rural district. These, if deprived of this means of earning a living, might become dependents, a burden instead of a benefit to the State. Is it not a wise and businesslike undertaking for the State to invest a moderate sum to assist its deserving citizens to help themselves than to be forced to expend a large sum to care for them as wards? The financial fate of thousands of these people is now in the balance. What greater argument can be advanced to demonstrate the necessity of a Poultry Commissioner or some similar government agent whose duties it should be to use some of the present machinery of the State co-operating with the poultry organizations of the State, when possible, to discover and eradicate disease; to establish a plan of systematic inspection if necessary to accomplish this end; to aid in the production of better eggs as well as in the handling of them; to encourage co-operative effort in marketing by the distribution of suggestions, also of plans that have been used successfully; to educate the public to appreciate

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

RHODE ISLAND RED BABY CHIX from one to 21 days old in lots of from 10 to 10,000. Get your orders in now and have chix when you want them. Guaranteed shipments. Rhode Island Red Hatchery, 2162 48th Ave., Oakland. Fruitvale, 1666W.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

QUALITY AND PRICE are our strong points, and the good-will of our customers proves it. Send for circular and let us tell you about our offerings. Rhode Island Reds: Our strain matures early; great winter layers; best of meat. Black Minorcas; the large white egg breed. White Leghorns: the kind that will suit you; heavy layers, good size, hardy. All stock carefully mated and bred for results. Baby chicks, 13c to 8c; depending on breed, quantity and worth. Hatching eggs, $1 setting; $4 to $5 per hundred. Thousand prices on request. Write us your wants. Roofden Poultry Ranch, Campbell, Cal.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mating list. Holman Poultry Farm, Stockton, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

HICKS JUBILEE HATCHERY—[illegible] capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book your order now for coming season. San Jose Hatchery, 273 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. I. W. Clark, Petaluma, Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Soquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wyckoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

WHITE ORPINGTONS, ANCONAS.—Eggs from specially selected Hoganized breeders. Settings, $2 and $1.50. Quantities also. Cockerels for sale. H. Lechten, Newark, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock, $6 per 100; $50 per 1000. Order now. No baby chix.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal.

RHODE ISLAND REDS—Fine young cockerels for sale. J. D. McCormack, Rio Vista, Cal.

BARRED ROCK COCKERELS, nine months old. A. A. Trueblood, Sacramento, Cal.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

WINTER LAYERS from Walter Hogan's White Leghorns, selected and bred by Hogan system. Eggs $6 per 100; chicks, $12. John H. Barber, Verde Farm, Livermore.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $3 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUFF ORPINGTONS—Eggs, $1.50. Special matings, $3. Runner Duck, $1.00. 220 egg strain. Baby stock. Glendale, Fleming Ave., San Jose, Cal.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

BLUE RIBBON White Wyandottes. First prize-winners Santa Ana, Orange and Los Angeles. Eggs for sale. Buena Park Nursery, Fullerton, Cal.

BUFF LEGHORNS—Prize-winning, trap-nested. 250 egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W. Stawetski, San Jose, Cal., R. 2.

WM. LARM'S Rhode Island Red Yards moved to 3854 39th Ave., Oakland, Cal. Winners at leading California shows. Hatching Eggs and Stock.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS [illegible] Eggs. Winners of [illegible] second Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Theo. Mettauer, Petaluma, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland. Cameron Bros., 689 Vine St., Sacramento, Cal.

CLOVER LEAF FARM White Leghorns. Few as good [illegible] cockerels $2 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. E. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave., Oakland, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

FOR SALE—25 pair Maltese Hen Pigeons, all mated and working. Address M. Collasso, R. F. D. 3, Box 89, Stockton, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS—Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock, eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View, Cal.

THOROUGHBRED English White Leghorn Cockerels from $2 to $3. David Rueck, R. 4, Box 53F, San Jose, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

THOROUGHBRED RABBITS—Sweepstakes Fresno, Modesto, Porterville. White Orpington chickens won all over Valley. Marshall's Parkside Place, R. 7, 246, Fresno.

FREE BOOK

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

F. F. SMITH & CO., 1006 J St., Sacramento.

quality in poultry and eggs? For instance, many users would pay a premium for brown eggs, but buy white ones simply because they think the brown variety are shipped from a distance; with a state certificate of age and quality, all doubt would be removed.

During the recess of the Legislature every poultryman should see or write to the member from his district, urging the establishment of the office of Poultry Commissioner in the proposed agricultural bill.

Poultry for Profit

GAIN BY EARLY HATCHING.

[Written for Pacific Rural Press by Mrs. Susan Swaysgood, Pomona.]

During the past two or three weeks hundreds of incubators have been started, mostly hatching chicks for people who are anxious for early pullets. Now in some ways perhaps the early chicks have a place, but I think it is an exaggerated idea of the gains to be made from fall and winter layers that calls for these early hatched chicks. Then, another reason is that the broiler market is not expected to be overdone, as is the case when the later hatched chicks come on it, so that, take it whichever way you will, it is an idea of making a gain somewhere. Now this is commendable if we can prove there is a gain large enough to pay for the extra labor, cost of eggs and fuel. These things all have to be reckoned with before we come to the profit.

Eggs have been around the 30 cent mark for nearly two weeks. The weather has not been good either, another item which cuts into the gain because hens that are running out will not hatch as large a per cent of fertile eggs as they will in good weather. So here we have eggs, the price of which is nearly three cents each, lower in fertility, probably increasing the cost to four cents for each fertile egg, at least ten per cent more oil to run the incubator with, an increase of another ten to run the brooder nights, and extra for days besides. The labor and care of very early chicks is always double what they need when the weather is more settled and the feed consumed by the chicks will also be more. This is provided, of course, that we hatch our own chicks. If the chicks are bought, it is just figured a little differently, but as you have to pay more for the chicks in the winter months, it figures out just the same.

Now say the gain in marketing the broilers is ten cents a pound, and we have one hundred pounds of broilers, about 75 in count. The pullets of all the small breeds, and sometimes the large breeds, will commence laying in August or September. Eggs then are twenty-five cents a dozen with an upward tendency, but pullet eggs will bring at least two cents less. Now after 23 years' experience in this State. I never knew early hatched Leghorns or Minorcas, or in fact any of the small breeds, that did not go into a winter molt. And the worse part of it is that they go into molt just when eggs are about the highest in price for the season.

Chicks hatched in March, April, and May, if fed properly, never go into a winter molt. That they do go into a molt is a fact, but only when they have been improperly fed. This can be done in two ways; (1), by a process of slow feeding that hinders the pullets from maturing, and (2), by feeding a too stimulating diet and causing a too early maturity. But pullets that are fed on a rational progressive ration leading up to a natural development will never go into a winter molt.

These pullets will commence to lay from October to November, and will stay right with it if fed and sheltered from the weather. They do not require as much care as do the early chicks, nor so much heat in day time because the sun will warm things up. So, taking all together, I don't think we gain very much, in fact we are losers by the early hatching fever that attacks us just as soon as the New Year comes in. The Easterners say Californians are lazy. Why, this is one of the most foolish things that can be laid to the door of California. The real facts are that the climate won't let us rest. Back East they go to sleep in the fall while the blizzards rage and wake up when the snow begins to melt, while here we are so restless, that no sooner have we said "Happy New Year" than we commence to clean up brooders, get out the incubators, etc. The gardener hurries to get his seeds planted and the fruit man begins to watch the trees for apple blossoms. Is it not true? But I say, "Just wait and rest until the old war month comes in." Let March come in and roar, then I get having that anxious feeling that there is a lack of something to make life fuller, and when the chicks come I feel that it is all right—my work is laid out. The chicks grow with less care, because it is nearer spring time in March, April, and May. These are the natural months for feathered birds of all kinds to mate and breed.

But it is time for us to get busy and prepare for the spring work.

A good many inquiries have come in of late, and among them is the question, "How long must the male be with hens before the eggs are fertile?" Ten days is the lowest number I would risk using eggs; I have tested them up to eight days and none were fertile. After ten days, however, it is a pretty safe thing, as that time seems to be required for the germ to reach the ovum.

To Keep Eggs For Hatching.—This is a very important thing about the hatching business, and perhaps a few words may save some valuable eggs. The eggs should be gathered as frequently as convenient so that other hens will not sit on them; and as they are gathered, place small end down in a clean filler, or a box of oats, but be sure the oats are not moldy. If neither fillers nor oats can be had, place in a dark box with clean paper around to hold them upright. It is perhaps best to turn them, large end down, if not used in a few days, but I have tried both turning and not turning and could never tell the difference. But I have noticed a difference when the eggs have lain on their side, for then the yolk has not the cushion of albumen to hold it from sagging. Another thing to be careful about is the temperature. It should never get above 65 degrees where eggs are kept that are for hatching; and never below freezing. The more even the temperature, the better the eggs will hatch. How long they may be kept is almost like asking "How old is Anne?," because that depends on the strength of the germ, the temperature, and whether they are to be hatched at home by good hens or sent on a journey to be experimented with. I have hatched good strong chicks from eggs held over a month, but if those same eggs had been sent by express, I would not have expected much from them. All things being equal, a good hen will start germs that an incubator will not. For incubator hatching, it is not advisable to keep eggs more than ten days; for hen hatching, two weeks is the limit, in this climate. And it is best to remember that the fresher the egg the stronger the chick; so it is only in extreme cases that it is advisable to hold eggs more than a week. Keep them in a cool dark place even for that time.

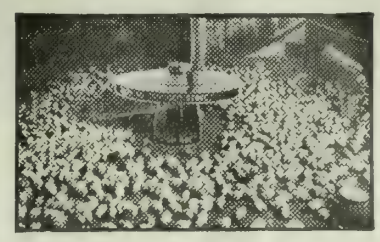
Feeding Milk.—Would like information about granulated milk for feeding baby turkeys and chicks. I used it last year without success, but cannot say whether it was the fault of the milk or not.—W. W.

[I have no practical knowledge as to the value of granulated milk. I used it myself once, but could never see much good I got from it, but like you, I don't really know whose fault it was. However, I do know that when the genuine thing can't be had, the best substitute for milk for both chicks and turks is Spratt's Patent chick meal. It is expensive, but it pays to feed it the first two or three weeks, as it nourishes without burdening the digestive tract with a lot of stuff that contains little or no nourishment.]

CHICKEN SWELL HEAD.

To the Editor: What is the cause of swell heads and canker in mouths of chickens, and what is the cure?—J. L. B., Lockeford.

[Drafts. See Pacific Rural Press previous issues for cure of roup and mouth sores.—Editors.]



The Fresh Air Brooder Stove

THIS is our NEW SELF-VENTILATING BROODER STOVE. AUTOMATIC TO THE MINUTE. Economy's climax. No more crowding around the stove at night. HEAT EQUAL in all parts of stove room. Petaluma's severest critics pronounce this new wonder the peer of all brooding systems. Bank and our personal guarantee always. Get our latest catalogue. We can help YOU. We ship direct to the user.

Fresh Air Brooder Stove Factory
J. E. KRESKY,
307 Wash. St., Petaluma, Cal.

HOPLAND STOCK FARM, Hopland

Sanitary Conditions perfect. Largest Poultry Farm in California.

Hatching Eggs—S. C. W. Leghorns .....$ 5.00 per 100
Hatching Eggs—White Plymouth Rocks.....$10.00 per 100
Baby Chicks—S. C. W. Leghorns.....$10.50 per 100
Baby Chicks—White Plymouth Rocks.....$15.00 per 100

Incubator Capacity increased this year to 50,000.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

Eggs Wanted

Egg Producers! Egg Shippers!
STOP! LOOK! LISTEN!
Highest prices paid for clean fresh eggs.
Address
E. F. ZUERN
Wholesale Produce
Butter-Cheese-Eggs-Poultry
354 Fourth St., Oakland, Cal.

GET THE BEST
For Your Baby Chicks
Coulson's Poultry Foods
SPECIAL CHICK FOOD
Write for book "Chickens" to
COULSON CO., Petaluma, Cal.

Send for our booklet
"White Leghorn
BABY CHICKS"
FROM HEALTHY HAPPY HENS
and that helpful pamphlet,
"FEEDING CHICKS"
Free on request.
Must Hatch Incubator Co., (Inc.)
419 Seventh St., Petaluma, Cal.

VERMIN PROOF POULTRY HOUSES

All Kinds and Sizes.
Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house.
Write for descriptive catalog.
ROGERS MFG. CO.
Williams, Calif.

The Home Circle

THE LITTLE RED HEN.

The Little Red Hen had some kernels of corn
She wanted to plant in a row.
She asked Mr. Piggy, Miss Goose, and Miss Duck
To help, but they answered, "Oh, no!"
"Not I!" said the Goose, and "Not I!" said the Duck.
While Piggy just ran off and hid.
"All right," said the Hen. "If you won't, why, you won't.
I will plant it myself." And she did.

When the corn was all ripe, "Who will take it today,"
Said the Little Red Hen, "to the mill?
Won't somebody offer to carry the bag?
I will be much obliged if you will."
"Not I!" said the Goose, and "Not I!" said the Duck–
While Piggy just ran off and hid.
"All right," said the Hen. "If you won't, why, you won't.
I will take it myself." And she did.

When she brought home the meal, said the Little Red Hen,
"Won't somebody help make the bread?"
But nobody offered to help her a bit,
And this is what each of them said:
"Not I!" said the Goose, and "Not I!" said the Duck,
While Piggy just ran off and hid.
"All right," said the Hen. "If you won't, why, you won't.
I will bake it myself." And she did.

The Little Red Hen baked the loaf all herself.
At last she was ready to eat,
The others looked on as she buttered a slice,
And crowded around at her feet.
"I'll help you to eat it," said Goosie and Duck.
"And I!" said Piggy with a grunt.
"Oh, thank you so much," said the Little Red Hen,
"But I have an idea that you won't!" And they didn't.

—Robert Seaver in Youth's Companion.

THE TWENTY-SECOND OF FEBRUARY.

Robin had known very few advantages. In this he resembled the burglar in "Editha's Burglar." Here the resemblance ceased, for Robin was a nice little boy.

He had been longing to go to school again. But, just after his mother moved to a new town—not a town that was new in itself, of course, but new to Robin—he had contracted measles, which made school seem a long way off. Now, on Monday morning, the twenty-first of February, he entered the school-room, with his heart beating with delight, and feeling almost sorry that tomorrow would be a holiday.

He looked about him eagerly—at the bright, clean room, the shining desks; at the flowers in the windows, the white muslin curtains behind them; at the maps and pictures on the walls. And then he had to look at the teacher who was examining him.

To Robin, at that moment, there seemed but one thing in the whole world that mattered very much. The thing was that he should be placed in Four A, with the boys who had smiled up at him on their way to and from school, in the days of his rather dreary convalescence!

He did not spell well; his reading passed muster; but his map-drawing sent him 'way down! His heart began to sink. To go to Three B—what a humiliation! How sorry his mother would be! And the boys were smaller than he, and did not look as if they could play much!

"Which class?" he heard one teacher say to another.

"Depends on his arithmetic," was the reply. "If that is good, Four A. If not, Three B."

Robin was not very strong yet. So the measles may be blamed, perhaps for the tears that rose to his eyes. There was a desk vacant in Four A, next to that of the jolliest little boy with eyes shining with mirth and mischief. Robin longed to sit near him. And the teacher of Four A was such a charming lady ,too. But his arithmetic! It was his weakest point.

The teacher gave him some examples to work. Then she laid her book on his desk and went away. Robin toiled at the tiresome sums, and felt dazed and miserable. He did not quite know how to work one of them, and the second, which was more familiar, yielded three different answers to three different essays! The teacher turned from some papers she had been putting blue pencil-marks on, and came to him.

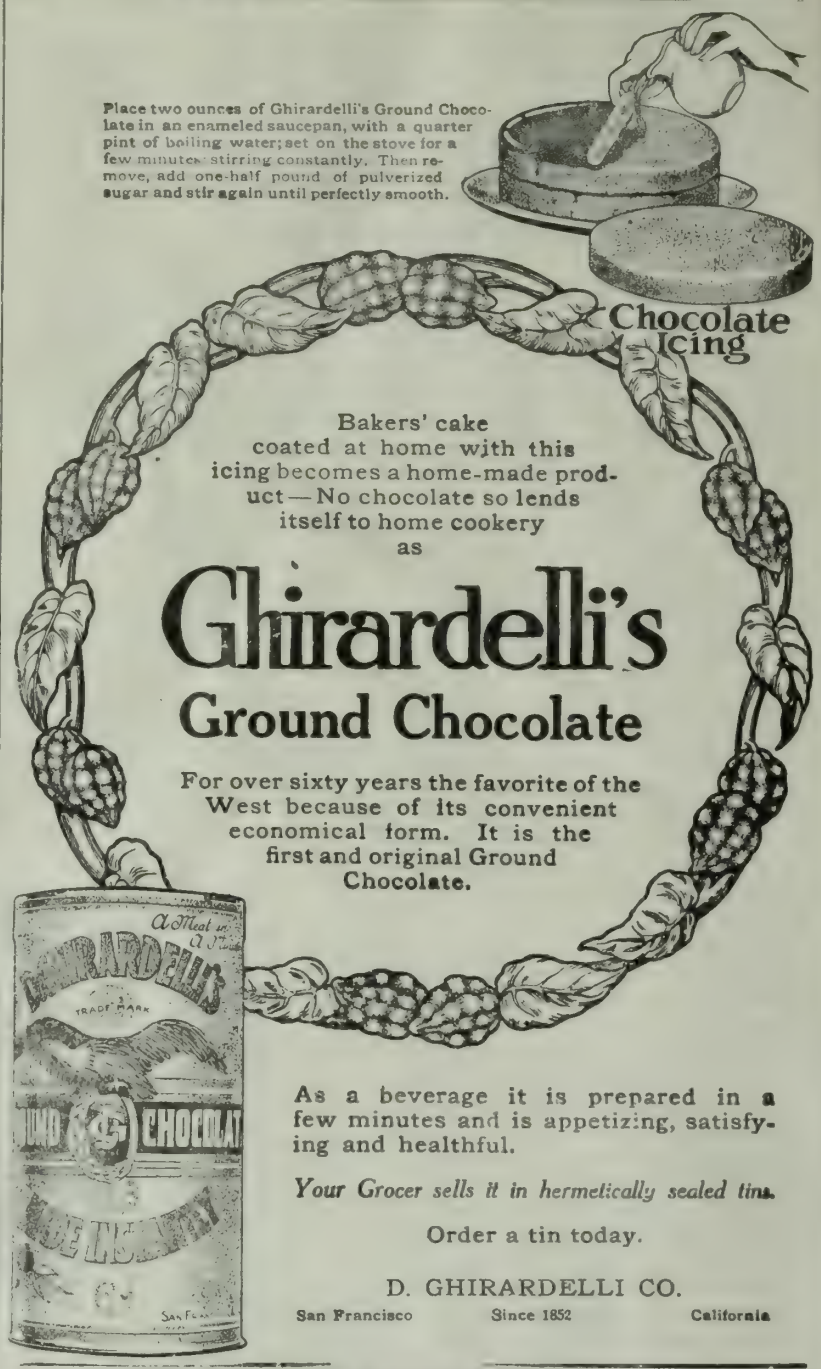
Something made her cross to the window. It might have been the "honk" of an automobile, which also distracted many of the pupils. Robin didn't even hear it, for at that moment he saw the answer to his sum staring at him from the teacher's open book. To save herself the trouble of turning back and looking at the answer, she had dictated the "example" problem, already worked out. Robin's pale cheek flushed. He hastily scrawled the answer under his work and leaned back in his desk. The teacher came to his side and took his papers away.

Just then the door opened, and a gentleman, wearing a fur overcoat which he removed, entered the room. He shook hands with the teachers and smiled on the children as they rose, and then said he had come to have a little talk with them. How many of them, he wondered, knew why they were to have a holiday to-morrow?

"Because it's George Washington's birthday," chorused the school. The gentleman smiled. He went on to question them, and, instead of telling the story of the cherry-tree and of George Washington's temptation, he drew it from them. Robin, strange to say, had never heard it before. He listened, breathlessly.

"So we keep his birthday as a holiday because he was a great man," said the gentleman, when the last question had been answered. "Because he was our President and because we all love and revere his memory. But what I want you all to notice, my dear children, is this: that he was a great man, because he was a manly, straight-forward, honorable boy. We may be sure he never cheated at his lessons, that he never"—

The gentleman spoke for some minutes more, but Robin did not hear what he said. A sound—something like the roaring of many waters—filled his ears. Everybody seemed to go a long way off. When the noise and the mist cleared away,



The Value of
STILETTO
The banker's endorsement on a certified check is an absolute assurance to you of its value—the name STILETTO on any piece of hardware—any tool—any farm or garden implement or can of paint is equally as great an assurance of value. STILETTO stands for the highest quality attainable in the article which bears its name—it is a positive guarantee of worth—see to it therefore when buying anything for the house, garden, factory, farm, bench or shop—that STILETTO is stamped upon it. It warrants your confidence.
Wherever good goods are sold you can get STILETTO brand.
Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.
STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

the gentleman was gone, and he was sitting by the teachers' table, with both teachers looking at him anxiously.

"He hasn't been well," said the sweet-voiced teacher of Four A. "Never mind, Robin, your arithmetic is nearly all right, and I'm so glad to have you in my class."

"Please, ma'am," said Robin, and, oh, how hard the words were to say! "I didn't do right with my sums. I wasn't like George Washington. I—I copied the answer to the sugar sum."

Robin thought all the room heard him, but his trembling little voice only reached kind, wise ears.

"If you made fifty marks without that sum, you go into Four A," decided the other teacher; "but, if you didn't, Robin, and have to go down to Three B, you will always be glad that you spoke the truth."

They counted up the marks. To Robin it seemed to take all day, but at last they smiled, and the one he liked best put her hand on his shoulder.

"Just fifty," she said. "So you win your place fairly. You'll always find that, Robin. Do your best, and the thing it is right for you to have will come."

But, as Robin took his place in the empty desk and met the friendly smile of his new comrade, his heart swelled with gratitude to the memory of one whose boyish courage and truth had turned his own faltering foot-steps from the path of wrong.—Frances Harmer, in the Churchman.

PLANNING THE MEAL.

"Oh, dear! this eternal planning and contriving, from meal to meal, over what to serve next."

A common enough exclamation, surely, and one familiar to the family man, who too often considers wife's work more or less of a sinecure, and wonders why she frets so easily over trifles.

Just throwing things together in bulk, regardless of the food's effect on the general health and efficiency of those who must eat it, is a wasteful and even a dangerous process.

Nowadays the thoughtful housewife "balances rations" as skillfully and carefully as does the careful stock feeder. She feels that what is good for beasts of the field is surely worth applying to man.

A few hints on balancing rations from the home economics department, College of Agriculture, of the University of Wisconsin follow:

Fat, protein and carbohydrates should be distributed through the day so that no meal will contain an excessive amount of any one food stuff.

Don't serve two or more foods rich in the same food-stuff at one meal. For example, macaroni and cheese with meat, rice and potatoes.

Don't serve the same food in the same form twice in the same day, except with such staples as bread, butter and milk. Never serve such a combination as tomato soup and tomato salad, or creamed peas and cream of pea soup in the same meal.

Work for flavor contrasts between different courses of a meal. Seek to have pleasing combinations of flavor, color and form in each course.

Plan to serve a fruit or vegetable at each meal. A mixed diet of vegetable and animal food is safest.

"SILVER OLD AND SILVER NEW."

Every housekeeper takes pride in keeping her silver bright and shining, whether her choicest collection be great grandmother's treasured teaspoons or the latest achievement of the jeweller's art.

But whether her silver is of this year or of a century ago, the sulphur in eggs, rubber, natural gas, water, white tissue paper, and in the white cloth, so often used in making silver cases, will turn the best polish she can put on it, to a yellowish brown.

To clean by rubbing with whiting or any of the silver polishes is a long and laborous process, and one which must be repeated frequently; but an easier method, which does not injure the silver, may be employed.

Dissolve 1 teaspoon of common salt and one teaspoon of soda in one quart of water, and place in a galvanized pan. Silver placed in this solution takes on a polish without rubbing. To get results it is necessary to keep the inside of the pan thoroughly clean.

By placing in the solution a small piece of zinc or the lid of a Mason jar the use of the galvanized pan becomes unnecessary and any kind of a pan may be used.—M. L. Oberlin, Col. Ag. College.

EXCITED HER FEARS.

A lecturer gave a very learned and interesting address before a women's club on "The Decadence of Pure English." At the close of the talk a much overdressed woman came up to him and said:

"I did enjoy your talk ever and ever so much, and I agree with you that the English language is decading something awful. Hardly no one talks proper nowadays, and heaven only knows what the next generation will talk if nothing ain't done about it."—Tit-Bits.

Exacting Father: "James, how are you getting along with that job of wood-splitting?" Rebellious Son: "I'm making about three knots an hour."

California Poultry Practice

by Susan Swaysgood,

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

FREE

One Month's Trial Tuition Free. Metronome for Teaching Time. Big Illustrated Catalogue. Send for Our Book Today.

LEARN ANY INSTRUMENT.

Our course of extension instruction has been so successful that we know, if you try a month free, you will be eager to continue the course. We teach piano, organ, violin, mandolin, guitar, cornet, etc. The method of instruction is entirely new. If you take the course we will refund your money if you don't think it worth every cent charged. Send for the big free catalogue and month's free tuition offer today.

American School of Music

Commonwealth Bldg., Portland, Oregon.

THE ELECTRIC WAY

From San Francisco and Oakland to and through the Sacramento Valley.

Look Up the Rate On All Your Freight.

Train Schedules Designed For Busy Travelers.

Oakland, Antioch and Eastern Railway

Through Redwood Canyon, over Rock-Ballasted Road-Bed, Automatic Block Signals, Comfortable Steel Coaches, Observation Cars.

TICKET OFFICES:

Key Route Ferry, In S. F., Sutter 2339 — Fortieth and Shafter Ave., In Oakland Piedmont 870 — Third and I Streets, In Sacramento Main 261

PROFESSIONAL DIRECTORY.

SYMMES, MEANS AND CHANDLER
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Redwood Tanks
I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. Wilson, Stockton, Calif.

Bee Keepers Supplies
We keep a full line of supplies and are prepared to serve beekeepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco

Blake, Moffitt & Towne
Dealers In PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles.
Blake, McFall & Co., Portland, Oregon

"We Are Delighted with Our New Home,"

So H. C. Graff of Hover, Wash., writes us. He says further, "I know I saved at least $500 on the house."

Mr. Graff bought one of our 'knock down' houses and put it up himself.

You, anyone, can build your home. Houses as low as $195 complete in every detail. Material numbered to correspond with the plans—plans so explicit and simple that a child can do the building.

Satisfaction guaranteed you by the pioneer 'knock down' house company of the Pacific Coast.

Send today for our catalogue.
READY BUILT HOUSE CO.
973 Broadway, Portland, Ore.

BURN OIL

SAVE MONEY

Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO., Pasadena, Cal.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Feb. 17, 1915.

WHEAT.

Some of the larger markets have developed a much weaker tone in the last few days, but little pressure to sell has developed, and it is not certain that the highest point has been reached. So far there has been no reaction in the local market, club and the best lots of red being held even higher than before.

Cal. Club, Ctl.	$2.45@2.50
Forty-fold	2.50@2.55
Northern Bluestem	2.55@2.60
Northern Club	2.45@2.50
Northern Red	2.45@2.65

BARLEY.

The present high prices have a tendency to curtail the local demand for feed, and with assessment day approaching, purchases are closely restricted. Values, however, are pretty well maintained at the old figures.

Brewing & Shipping	$1.60@1.62½
Choice feed, per ctl.	1.55@1.60

OATS.

The local demand is about normal, with no further change in prices, though some activity is noted in the north.

Red Feed	$1.60@1.65
Seed	1.80@1.90
White	2.00@2.05

CORN.

All grades continue to find a very good demand around the country, owing to the comparatively high prices of other grains. The local movement is also fairly active, and prices are steadily held.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

BEANS.

Prices have receded a little from the high point reached in the last few weeks, most varieties being marked down about 25c. This is not taken, however, as a sign of any real weakness in the market, as there is still a very fair demand from the east, with occasional foreign orders, and supplies are by no means excessive. A particularly heavy demand is reported in the lima bean district, and prices there tend upward.

(On Wharf.)

Bayos, Cal., per ctl.	$5.00@5.25
Blackeyes	5.00@5.50
Cranberry Beans	4.25@4.50
Horse Beans	3.50@4.00
Small Whites	5.00@5.25
Large Whites	4.85@5.00
Pink	4.00@4.25
Limas	5.50@5.65
Red Kidneys	5.50@5.75
Mexican Reds	4.75@5.00

SEEDS.

The demand is picking up a little in some lines, especially in alfalfa, and this variety shows a slight advance.

Alfalfa	16 @16½c
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Arrivals in the local market show quite an increase this week, though not very heavy as compared with former seasons. The offerings, however, have been very hard to dispose of, as the actual consuming demand here is hardly up to the usual mark, while conditions are such that buyers are taking only what they need for the moment. At the same time, holders everywhere are increasingly anxious to sell with the approach of assessment day. Strong efforts are being made to dispose of country holdings, and a lot of hay is coming in on consignment. Prospects for the new crop are very favorable, which offers little encouragement for future prices. Current values, however, are not quotably lower than they have been for some time past. Alfalfa is said to be cleaning up fairly well in some places, with a little better demand; but conditions in this market do not indicate much improvement.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

The demand is keeping up fairly well, especially for some of the cheaper varieties, and prices continue to advance. This week cracked corn and rolled oats have been marked up.

Alfalfa meal, ton	$16.00@17.00
Alfalfa-Molasses meal per ton	19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	40.00
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	41.00@42.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	36.00@37.00

VEGETABLES.

The local vegetable market is picking up a little, and a much better demand is expected within the next week, owing to the crowd of Exposition visitors. Offerings in several lines have been rather light, with a corresponding improvement of prices. Artichokes are scarce, and winter transportation troubles also tend to keep prices up. A little asparagus is appearing, and still commands high prices. Green peas are a little easier at the top figure, but are still offered sparingly; and peppers show a wider range, choice lots being higher. Tomatoes are quoted much higher, most of the current offerings being choice repacked Mexican stock, Los Angeles offerings being cleaned up at the moment. River celery is moving well at steady prices, while good lettuce is higher, with less coming in. Good local rhubarb holds up well, but some southern stock is offered as low as 50c per box. Hothouse cucumbers will hardly bring over $1 per doz.

Artichokes, doz., No. 1	50 @60 c
No. 2	40 @45 c
Asparagus, lb.	25 @50 c
Peas, lb.	15 @17½c
Peppers, Bell, lb.	10 @20 c
Chili, lb.	5 @10 c
Carrots, per sack	50 c
Tomatoes, crate, Mex.	$2.50@3.00
Celery, crate	$1.50@2.25
Sprouts, lb.	2 @2½c
Rhubarb, box	1.00@1.50
Lettuce, crate, So.	75 @ 1.15
Cucumbers, doz.	75 @1.00

POTATOES AND ONIONS.

There is little outside demand for potatoes now, and shipments of Oregon stock to the Southwest are said to have resulted in a loss. There is more or less Oregon and Washington stock arriving here, bringing somewhat better figures than the river goods. Sweets and onions are stiffening up, as the supply of good local stock is diminishing.

Potatoes, Oregon, ctl.	$1.60@1.70
Salinas, ctl.	2.00@2.10
River Burbanks, ctl.	[illegible]
Sweet Potatoes, ctl.	1.60@1.80
Onions, yellow, ctl.	[illegible]
Garlic, per lb.	[illegible]

POULTRY.

A good deal of eastern stock has been coming in lately, but this is cleaning up readily, and there has been little difficulty in disposing of the local offerings, which are not very heavy. The demand has picked up considerably in the last week or two, and an active business is expected for the next few days.

Live Turkeys, lb.	18 @20 c
do, dressed	20 @23 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb.	18 @19 c
Small Hens, per lb.	17 @18 c
Young Roosters, per lb.	17 @18 c
Squabs, per doz.	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz.	6.00@9.00
Belgian Hares, live, lb.	9 @11 c

BUTTER.

Both extras and prime firsts have made a slight further gain, though arrivals are fairly large both from California and the north. The consuming demand here shows some improvement, and a large business is expected for the next week.

	Thu.	Fri.	Sat.	Mon	Tu	Wed
Extras	29½	—	29½	29	29	29
Prime	25	—	26	26	26	26
Firsts	24	—	24	24	24	24

EGGS.

Prices are a little higher than a week ago, but have been fluctuating slightly from day to day, with no very marked change. Arrivals of Chinese eggs are quite frequent.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22½	—	23	24	24	23½
Sel. Pul.	20	—	20½	21	22	21½

CHEESE.

Trading is slow in practically all lines, and the market shows little strength, though Monterey cheese and Y. A.'s are quoted at a slight advance over last week.

Fancy California Flats, per lb.	14c
New Young America, fancy	15c
Monterey Cheese	13@14c

Los Angeles dairy prices:

	Wed	Thu	Fri	Sat	Mon	Tu
Butter	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
Eggs	26	24	—	24	24½	25½
Cal. Cheese	14	14	—	14	14	[illegible]
Flats	14½	14½	—	14½	14½	14½

DECIDUOUS FRUITS.

There is practically nothing to report in this line, prices for apples being as quoted for some time past. There is a little more local demand, but the trade is by no means active, and offerings are excessive.

Apples, Newtown Pippins	50@1.00
Belleflowers	50@ 75c
Baldwin	50@ 75c
Pears, Winter Nellis, bx.	1.25@1.50

DRIED FRUITS.

The dried fruit trade is hardly keeping up to the promise held out last month, when there were indications of a strong general demand in all lines. Business, however, is still in fair shape for this time of the year, and the prospects for spring are still favorable, recent advances in prices being firmly held. The principal retarding factor is the continued reluctance of merchants to buy in advance of actual needs. Some European buyers have been in the market of late, and small lots amounting to several carloads of various kinds go by nearly every steamer; but these buyers are looking for bargains and will seldom pay full prices. Apples are steadily held at the recent advance, and promise to clean up well. Apricots are already nearly out of the market. Sales of prunes have been made at 6½c, and even better, at Santa Clara, though it seems hard to get an offer from local packers at the moment. Stocks in growers' hands, however, are very light, and still higher prices are expected, as there are no heavy stocks in the east. It is hard to get an offer of over 3½c for peaches, and many growers are anxious to sell, though a good many are convinced that the situation will improve before the next crop is in. The New York Journal of Commerce says:

The tone of the market for all varieties remains firm and there is no pressure to sell, though demand at present is light and for the most part confined to the supplying of small passing requirements of consumption. In California prunes sales for forward shipment to Eastern markets are comparatively small, but this does not induce sellers to make price concessions. Stocks in growers' hands are understood to be closely absorbed, and supplies held by packers, it is reported, are not large, but in the absence of important demand from distributing markets f. o. b. prices are nominal. The difference between spot New York and f. o. b. Coast shipment quotations is narrowing as a result of the recent demand from Middle Western markets on stock held here, which demand, according to current report, has used up most of the early-bought, low-priced stock in the hands of New York receivers. In peaches some advance in f. o. b. Coast prices is looked for owing to the recent revival of consuming demand for Southern markets, which for many months have been doing little buying because of the industrial and financial conditions in that section, which are now showing a material improve-

Almond Growers

California's largest almond crop was 3500 tons. Recent planting will increase this to over 15,000 tons. Are you awake to the necessity of co-operation to insure satisfactory market for this surplus?

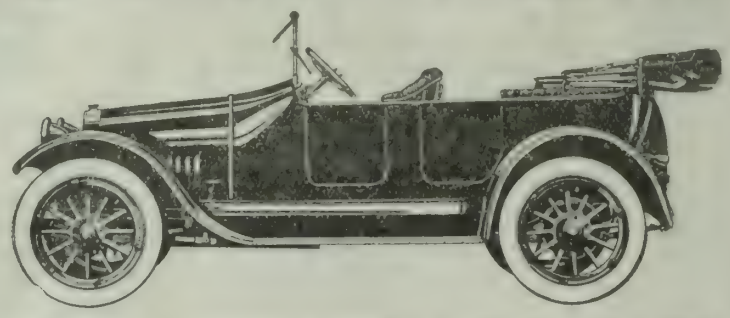
CALIFORNIA ALMONDS GROWERS' EXCHANGE,

SACRAMENTO, CALIFORNIA.

Mitchell

Light Four $1250 Special Six $1895

Light Six $1585 Six de Luxe $2350



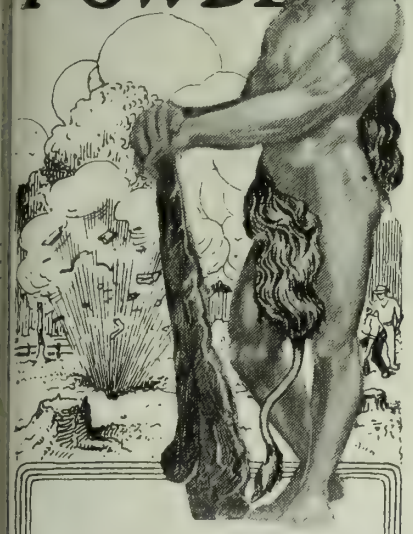
Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. 1st and St. James Sts., San Jose.

ment. Raisins of all kinds are quiet, but the tone of the market is firm, as stocks are well controlled and, at least in the case of seedless, small.

Evap. Apples, 1914	5½ @ 6 c
Apricots, 1914	6 @ 9 c

HERCULES POWDER



Farming with the Help of Dynamite

ON the modern farm, and by progressive farmers, dynamite is used to serve a multitude of purposes. Whenever it is properly used it increases efficiency, increases crops, decreases labor, and decreases expense. It has proven its ability to do these things in almost every field of agricultural labor.

HERCULES DYNAMITE

is used extensively for subsoiling, tree planting, stump and rock removal, ditch running, the blasting of cisterns, and other work of a similar nature.

Probably the results produced by sub-soiling and in tree planting are the most interesting because they are the most remarkable. Very often the crop yield from a sub-soiled field will more than double that from the same field before sub-soiling was done—an increase of 100 per cent. This has happened with corn, wheat, rye, hay and other crops. When trees are planted in a dynamited instead of a spade dug hole they develop more rapidly, are stronger and bear more heavily.

Sub-soiling gives new life to the ground. It breaks up the hard sub-soil thereby improving drainage and giving the crop new and untouched plant food.

You should write for the book, "Progressive Cultivation." It tells how, when and why to use dynamite on the farm. To many, it has proved an eye opener and a money saver.

HERCULES POWDER CO.
CHRONICLE BLDG.
San Francisco, Cal.

Figs: White, 1914	3 @ 3½ c
Black	2½ @ 2¾ c
Calimyrna	5 @ 6 c
Prunes, 4-size basis, '14	5½ @ 6½ c
Peaches, new	3 @ 4 c
Pears	6 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½ c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern orange auctions are in better shape than for some time, and the higher prices being paid for California fruit is the result. At the New York auction, Monday, Feb. 15th, twenty-four cars of navels were sold at average prices ranging from $2 to $3.25 per box. Lemons brought from $2.15 to $2.50 per box, average. F. O. B. prices at California points are now quoted at $1.40 to $1.60 for oranges. Total shipments from southern California for the season up to Feb. 13th were 5,315 cars of oranges and 927 cars of lemons, as against 5,982 and 446 cars respectively to same date last season.

Prices for citrus goods in the San Francisco market show no improvement. though oranges are in very fair demand, and fancy stock is held a little firmer at shipping points. Supplies here, however, have so far been rather in excess of requirements.

Oranges, navel, box	$1.25 @ 2.00
Tangerines, small box	75c @ 1.75
Grapefruit, seedless, bx.	1.50 @ 2.75
Lemons, box	1.50 @ 2.50

NUTS.

There is little new in almonds. which continue to move fairly well in small lots at the figures quoted. There is a little better demand for walnuts, as choice stock is getting scarce, and first-class California nuts are getting scarce. Good ungraded walnuts sell at 12½ to 14c, while most of the business at present is in Manchurian goods.

Almonds, 1914 crop:	
IXL	16½ c
Ne Plus Ultra	15½ c
Drakes	14 c
Texas, Prolific	14 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½ c
Budded	18 c
No. 2	12 c
Ungraded	12½ @ 14 c
Manchurian	7 @ 9 c

HONEY.

Nothing new has developed, offerings everywhere being excessive, with very little demand. Prices are nominally held at the old level, as a reduction would not be likely to augment the demand; though concessions could doubtless be had on a large purchase.

Water White, comb	10 @ 12 c
Light Amber	8 @ 10 c
Water white, extracted	6½ @ 7 c
Light Amber	5 @ 5½ c
Dark	3½ c

LIVE STOCK.

The only quotable change is a slight advance on hogs. offerings of which have been much lighter in the last week. Cattle hold fairly steady, but feeders show more disposition to sell than for some time past. Sheep are rather scarce at the moment, and lambs are pretty well cleaned up, though spring lambs will be coming in in a few weeks.

Steers, No. 1	7 @ 7¼ c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1	6 @ 6½ c
No. 2	5½ @ 5¾ c
Bulls and stags	4 @ 6 c
Calves: Light	9 @ 9½ c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7 c
100 to 225	7½ c
Prime Wethers	6½ @ 6¾ c
Ewes	5¼ @ 5¾ c
Yearling Lambs	7½ @ 7¾ c

DRESSED MEATS.

Steers	10¾ @ 11½ c
Veal, large	13½ @ 14 c
Small	15 @ 15½ c
Prime Wethers	12 @ 12½ c
Ewes	11 @ 11½ c
Suckling Lambs	13½ @ 14 c
Dressed Hogs	11½ @ 12 c

WOOL.

Local buyers are still taking little interest in the market, but some activity is expected in a few weeks. when the spring shearing gets under way. Some outside buyers, however, have been picking up small lots in northern California, sales being reported around Anderson at 15c.

HORSES.

A few Oregon and northern California drafters have come in this week, together with a fair assortment of miscellaneous stock, and the offerings aroused a little more interest than was apparent at sales of a few weeks before. Prices are still comparatively easy, but dealers look for a better demand here in the spring. Quite a lot of mules from the San Joaquin have lately been taken for the Hawaiian Islands.

Publisher's Department

CALIFORNIA GARDEN FLOWERS.

This is the title of the newest of Rural Press books, and we are very proud of its appearance. We know that Prof. Wickson has given to its production years of investigation and the result of a lot of practical experience as a grower of flowers. Besides producing a literary gem, the Professor has given very practical, detailed instruction in the growing of flowers in California. The book treats very fully each division of flowers, trees, lawns, shrubs, vines, as well as climate, soil, irrigation and parasites. We will be pleased to send you a copy of this book on receipt of the price, $1.50 postpaid.

BREEDING OF FARM ANIMALS.

Under the above title the Orange Judd Co. of 315 Fourth Ave., New York, has issued a new 340-page, handsomely illustrated book. The author, Prof. Merritt W. Harper, of Cornell University, writes from experience in raising as well as teaching. The book differs on the breeding of farm animals, in that special emphasis is placed on the importance of proper care and management of the parents, together with the development of young stock. The book is well adapted to the needs of the farmer, breeder and student. Price $1.50 net. Address the publishers.

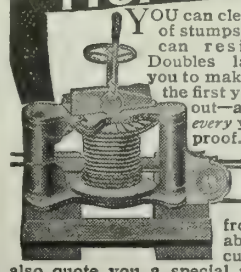
CALIFORNIA POULTRY PRACTICE.

During these times of high prices of feed and the low price of eggs, is just when poultry raisers need a copy of "California Poultry Practice." Mrs. Swaysgood has raised chickens in a commercial way for more than a score of years in this State, and she did so in a successful way. Her manner of handling poultry, the care, feed, raising the young chicks, care and marketing of eggs, are all given in this book. To be successful, follow the path of those who have succeeded. The price of the book is $1 postpaid.

NEW PRUNING GUIDE.

One of the most complete works of its kind that has ever appeared in print, is the new book just issued by George C. Roeding of Fresno, California, entitled "Roeding's Practical Planter's Guide, the result of 30 years' experience in California Horticulture." It gives complete instructions for planting, stating both when and how, the general details about varieties, etc., and then gives detailed instructions for pruning, with photo illustrations showing "before" and "after." The matter contained in this book is just the kind of literature that planters of this state have been looking for, and the book fills a long-felt want. It sells for 25c and will be sent postpaid upon receipt of price, by Fancher Creek Nurseries of Fresno, California.

Pull 100 Stumps A Day—With The Hercules

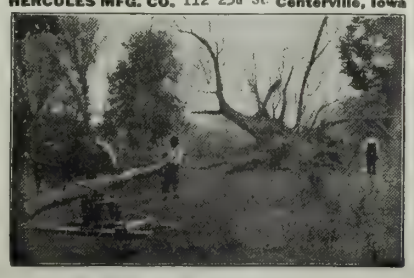


YOU can clear an acre or more of stumps a day. No stumps can resist the Hercules. Doubles land value—enables you to make $1200.00 on 40 acres the first year after stumps are out—and $750.00 in crops *every* year after. Get the proof. Why not

Write Us Now

Book tells all the facts—shows many photos and letters from owners—tells all about the many Hercules features. We'll also quote you a special money-saving price proposition that *will interest you*. Address

HERCULES MFG. CO. 112 23d St. Centerville, Iowa



PROPOSED LAND-SETTLEMENT ACT.

(Continued from page 235)

the original application.

Section 18 provides that the recipient of land cannot sell it within five years; that he cannot assign or encumber it except to obligate it for receipts from the Rural Credit fund (created by the proposed law, published on page 202, Rural Press of February 13,)

Section 19 defines "improvements" as covering everything from the original survey to the final planting for the applicant.

Section 20. "Subject to the approval of the secretary of agriculture advances may be made from the state rural credit fund to applicants for land under this act on such conditions and terms as may be agreed upon by the secretary of agriculture and the trustees of the rural credit fund; provided, that the title of the state to the land shall not be subordinate to any lien held by the trustees of the state rural credit fund."

Section 21 provides for resale of defaulted land—providing it cannot be sold for less than enough to reimburse the state for all expenditures and delinquencies on the tract.

Section 22. "No farm allotment shall be disposed of under this act to any person who is already the holder of agricultural land in California of the value of ten thousand dollars or who would thereby become the holder of agricultural land exceeding such value, and no more than one farm allotment shall be sold to any one person or any one family."

Sections 23, 24, 25, 26, 27, and 28 relate to details of administration.

Section 29 appropriates $40,000 for costs of administration or meeting ordinary general expenses, and not in any way to proceed with operations on any particular pieces of land. It may be used for employes, for preparing bonds, advertising the sale of them, etc.

Sections 30 and 31 provide going into effect if approved by the people at the next general or special state election. It is necessary to be voted upon, as it involves constitutional amendment in its use of the credit of the state in connection with the bonds and perhaps otherwise.

Now is the time to plan fruit storage houses.

FIRST ANNUAL CONSIGNMENT SALE

Pure Bred Draft Stallions and Mares

Under the Management of

The California Draft Horse Breeders' Ass'n.

At the University Farm, Davis, Cal., February 24, 1915, at 1 p. m. Sharp

Shire Stallion

Here are four horses which will be offered at the sale, and are a fair sample of the class of stock to be sold.

Homebred Percheron Stallion

The Stock will be on the grounds the day before the sale, and can be inspected at that time. This is your opportunity to buy good, sound stallions and mares at breeders' prices.

Imported Belgian Stallion

Don't Miss It!

Shire Mare and Foal.

Catalogs on Application to **J. I. Thompson,** University Farm, Davis, Cal.

WM. HIGGINBOTTOM, Auctioneer

Vol. LXXXIX—No. 8 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, February 27, 1915 LOS ANGELES

State Library

Well-Kept Orchards Pay.

[Written for PACIFIC RURAL PRESS, by John J. Fox, Napa Horticultural Commissioner.]

Wherever you find a successful farmer, you find a man to whom nothing is "too much trouble" if it is going to benefit his orchard or vineyard; unless the outlay has been demonstrated to be commercially prohibitive.

The orchardist is careful, by common sense pruning and thinning, to produce a standard quality of fruit. Double the quantity of small fruit will, in the end, show a debit instead of a credit in the ledger, will wear out the trees and, in the end, the grower. A standard pack and size in the dried fruits, too, are favored.

Of course, we all imagine our own county is the best in the State, but Napaites are quite positive in this respect. To take a drive up the level floor of our valley for 40 miles is a never-ending pleasure even to the old resident. The river can be traced throughout its whole length till you get below Napa, by a fringe of trees—cottonwood, willow, oak, ash, and wild pepper (the green bay tree of Scripture); and the mountains, with their cozy little canyons, are not so high as to be overwhelming, yet near enough to be friendly and like a part of our homes. On the West side their slopes are timber-clad to the summits, pines and redwoods joining as you ascend; while the East side of the valley shows contours rounded by brush and a lower growth varied by bold, rocky spurs.

These foothills are even more beautiful in the summer, with their rich yellows, browns, and pinks, with their later red and purple glows, than in the winter and spring when the whole is one mass of varied green. There are many delightful little valleys in these lovely hills that we all know of and go to visit when we want a little change or a picnic. You can go anywhere in the county with a machine and will be well repaid no matter in what direction you travel.

The Business End.—For the details of expense and interest on fixed capital, I am indebted to various eminent growers in this valley of Napa county, so the figures are accurate and reliable. These have made a success in their respective branches of horticulture and viticulture and have their work and their accounts thoroughly organized, as any successful business must be. They farm scientifically and diligently. Every stroke that is necessary is faithfully carried out so far as possible, and no unnecessary operation is allowed to detract from the profits. On the other hand, no labor is spared that will give the best commercial results. No one better than a successful grower can realize how trees and vines respond to scientific and thoroughly applied labor.

Mother Earth cannot be cheated. A spring plowing deferred a couple of weeks, a cultivation or spraying left out for lack of time, often means a weakened condition of the buds for the following year. For here, in these northern counties, as elsewhere in California, moisture is of paramount importance. As we in Napa do not practise irrigation, we must study the art of conservaton of our winter supply of moisture by plowing at the proper time and cultivating assiduously. This art of soil conservation should become second nature to the farmer who comes to a dry climate from a humid one.

As every farmer knows, all over the world the classes of soil differ in their texture and location, drainage and subsoils, and it is necessary to study your successful neighbor's methods on similar soils and then, in course of time, try to improve on them in the ways known to a tiller of the soil—by adding humus or lime, by a special deep-rooted, soil-disintegrating cover crop, by trying to judge exactly the right period for your spring plowing and by working it down—daily if possible—before it becomes cloddy and hard. Set a date, and that fairly early, beyond which you will not wait to begin plowing, no matter whether your carefully sown cover crop is three inches or two feet high. By the middle of March, the Napa farmers' sole consideration is, or should be, the conservation of moisture.

What is So Rare and So Plentiful as California Orchard Bloom?

This is a very busy period for the horticulturist, especially if he has peaches, apples, and pears, which need a few days' attention before he is through working his ground, and yet I think it is always a very happy period too, in spite of there being nothing to sell. The man who lives unmoved by intimate contact with the fresh turned soil and the newly awakening life in tree or vine, in the spring flowers and green hillsides, by the joyous, alert, busy sounds and movements of the birds and insects that are the very music of action, that man must be, I think, either rather dull or else be suffering in body, soul, or mind.

The items contained in the following columns are a balance of two or three different businesses in each case, and I have added them together and struck an average. These items will also give the Easterner some idea of what operations our best growers consider necessary, and the cost of such operations.

(Continued on Page 266)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertisng copy must reach the office by Wednesday a. m. tlo insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., February 23, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	2.42	34.54	30.32	58°	38°
Red Bluff...	1.83	26.19	16.99	58	34
Sacramento.	.79	11.52	13.52	60	38
S. Francisco	1.46	19.94	15.79	60	44
San Jose...	1.17	16.57	11.30	64	30
Fresno.....	.53	8.04	6.25	66	38
Indep'nd'nce	.00	2.26	6.14	54	24
S. L. Obispo.	1.49	20.70	13.36	64	40
Los Angeles.	.46	13.40	10.54	62	38
San Diego..	.36	12.09	6.83	64	44

The Week.

Of course the opening of the Panama-Pacific International Exposition, or, in commoner words, the California World's Fair, has been the great event of the week, and in popular judgment it has justified all anticipations and fulfilled all promises in point of time, greatness and significance. It is conceded to be the greatest ever in size and quality—great in demonstration of industries, in embodiment of esthetics, in exaltation of the humanities. Probably every one within the wide circle of our information and influence will know this before any tidings of ours can reach him, and so we inscribe the fact simply for the completeness of our historical record. In the ages to come some painstaking antiquarian will look in this quiet corner of ancient journalism to see if the Exposition really opened. In the remains of great dailies he will only see splotches of watermelon hue, which may be mistaken for reflections of the Great Fire of 1906.

But now that we are alone with the duty of recording the fact we are appalled by it. It is too great a fact to be emphasized by comment and too great a fact to be obscured by omission thereof. As a theme it takes us at great disadvantage: for nothing which we can say or not say will either help it or hurt it. It will maintain its stately march for ten full months, the greatest thing in earth or sky on this hemisphere; influencing the thoughts and movements of millions; suggesting, stimulating, inspiring new activities in the minds of men, and and thereby bringing new emotions to their hearts and new achievements to their hands. As no one can exactly tell how it came to be so great, so no one can say how great its significance and influence will be in the world, nor to what ultimate ends they will attain. It surely betokens things which are everlastingly great in the affairs of men—nobility, beauty, service to mankind. It embodies results of the greatest forces known to mankind—wealth, labor, devotion. It is a blossoming branch upon civilization's sturdy stem. In a very timely way it is emblematic of the new world—the western hemisphere in which it has been created, for in its spirit, and in the very material agencies which have been chosen to express that spirit, it declares to all the nations: "Peace has her victories no less renowned than war."

That Silly Embargo Business.

We are sincerely glad that the particularly asinine suggestion that the United States, after having made strenuous exertions to make the 1915 crop of wheat the largest ever, and after hanging out the sign for hungry worldlings to buy from us, should stop the business and kill the product, just because a few people on the Atlantic seaboard should ignorantly think that they might not have bread enough. Such people were evidently scared by the food embargoes of Europe, and knew no more of the producing capability of this country than do the flies on the rind of a melon of the contents thereof. Suppose these people do have to pay a little more for their bread because the war makes grain prices high, they would be vastly better off than if the producing industries of this country were paralyzed, and they had nothing to buy with. This country is called to maximum food production, and the reward lies in the profit which the demand will normally cause—and this reward will be distributed to every man who owns a bond or does a day's work, or sells a hat or clips an appendix. And it is fortunate for the world and for ourselves that this country has capacity for large world-feeding and for the prosperity which comes from the exercise of that function. It is good for the world that some money should actually be made and conserved on this sentiment while there is such woeful waste on the other side. The only possible offset for European poverty is American wealth.

But perhaps the silliness of the suggestion that we go out of the world business by the embargo route may be made more clear by figures than by argument. Probably President Wilson has put a final quietus on the embargo scare by a statement which he makes to Mayor Mitchell of New York. "The 1914 wheat crop of the United States was estimated to be 891,000,000 bushels," the statement said. "The estimated surplus carried over from the 1913 crop was about 76,000,000 bushels, making a total available supply of 907,000,000 bushels. As the normal annual per capita consumption of wheat in the United States is about 5.3 bushels, 520,000,000 bushels should meet our normal domestic requirements for food; 90,000,000 bushels are required annually for seeding. Therefore, 610,000,000 bushels should supply the normal domestic demand. This would leave a surplus of 357,000,000 bushels. Of this surplus about 210,000,000 bushels were exported by January 30th. This left 147,000,000 bushels, or 40,000,000 bushels more than our average annual export for the last five years for export between February 1st and the appearance of the new crop, or for carrying over into the next crop year. In other words we can ship out a million bushels of wheat a day and still have wheat on hand when the new crop comes in.

Promotion of Legitimate Trade.

But although we are sure that no such thing as checking grain exports by the government would be either reasonable or just, we are just as strongly convinced that there is something which either the State or National Government, or both, should do to facilitate trade and reduce speculation by those who neither grow nor use beyond individual nutriment. There certainly is speculation which is a public and private evil, profiting none save the individual participants therein and clearly against the legitimate interests of both producers and consumers. We are hopeful that the general discussion which the subject is now receiving, directed toward vigorous propositions now pending before the legislators, will disclose lines of regulation which can be reasonably pursued. Regulation seems to us far more rational than control; to find an evil by investigation and to cauterize the spot, or to plan methods of handling which will circumvent the evil by more direct contact between producers and consumers—these seem to be promising recourses. Paternalistic control is certainly against the American spirit of enterprise and individual initiative. For example, we do not take joyfully at all to a current movement, which is reported to be embodied in a petition asking President Wilson and Congress to establish food supply depots. It is said that such a petition bears more than 100,000 names, in response to appeals by the national executive committee of the Socialist party, and that it was filed in the House of Representatives by Congressman Kent of California. People who think that way certainly have a right to express themselves, and it is a Congressman's duty to see that they have a hearing; but we cannot feel that such institutions are desirable, unless it be a provision for charity, which we do not understand this to be. The term "food supply depot" evidently does not mean bread-lines nor soup kitchens. It means some kind of a government "trading post." We believe the government could, to advantage, do more to ensure fair trade, promote equality in information, and make extortion impossible, perhaps but to acquire and dole out—well, it may be reasonable as an imperialistic war measure, but it is hateful to the American idea, nevertheless.

Governing Too Much.

There is just a little danger, perhaps, that the present European war may set back mankind several thousand years in the matter of the right of the people to rule—which we take to mean the right of the people to do as they deem best in their own affairs. This condition seems to be threatened from two sides: first, the imperialistic side; for not since Joseph taught Pharaoh the profits in a grain-corner has anything more upper-handed been undertaken than the German expropriation of food and the Austrian prescription of crops under penalties for non-compliances. These are war-measures, but who knows whether the rulers will forget that fact or not. There is a danger that as great crimes are now being committed in the name of patriotism as there ever were in the name of liberty. The second danger to the right of people, to do as they deem best in their own affairs, comes from the socialistic side. It is a little strange that both the imperialistic and the socialistic, opposite political

poles, should be giving the same sort of a shock to a civilization which has been advancing so long and so far upon the basis of equality of opportunity for individual initiative and achievement. From both menaces to enterprise and manhood, we have to pray: Good Lord deliver us.

The petition, to which allusion is made under the preceding topic, is said to declare that "the speculators are arbitrarily and unnecessarily raising the prices of necessities of life, and the Government should conserve the interests of producers and consumers against speculators." That we believe to be true, but we do not believe that the cure for it is government expropriation and distribution of food. The investigation now in progress at the east, at the instigation of President Wilson, is quite likely to unearth something in the speculative buying and concentration of grains which needs correction, and if so, it is the duty of the government to tax or otherwise regulate it to death. But, because such a thing exists, does not warrant the government in usurping trade, for the right to buy and to sell have been individual rights since prehistoric times. To support such a government policy, whether it be to save an empire or to destroy one, is certainly dangerous to the industrial rights of the coming generation.

Why So Many Birds?

But all these things are rather low and groveling; let us go aloft. Why are there so many birds in California this winter? It is our impression that we never had a larger winged population in our garden than this winter. As we have a suburban place and always more fruit-buds than we have any use for, these birds are not doing us any harm, and are giving us great delight with their early morning tumult. Probably if we had an orchard and a population of linnets, we would not enjoy it so much, but it is certainly delightful to see the brown earth and brown tree branches alive with robins and brown thrushes—large fellows, who bristle about so confidently and as though saying to us, as the day dawns: "You may stroll around in our garden; we cannot entertain you for we have too many worms to pull—but make yourself at home." And so we do, and we remember that in a census of the birds of the United States last year, by the Department of Agriculture, the robin is shown to be the most numerous bird, with the English sparrow a close second. In the northeast robins averaged six pairs to each farm of fifty-eight acres, while English sparrows averaged five pairs per farm. Taking one hundred robins as a unit, other birds were noted in the following proportions: Cat birds 49, brown thrushes 37, house wrens 28, king birds 27, blue birds 26. As for density of population, on each acre of farm land there was an average of one pair of birds. Chevy Chase, Md., holds the record for density, where 161 pairs nested on twenty-three acres. Thirty-four species of birds were represented.

These are, of course, eastern bird figures, and do not apply to this coast, for we have our own species, which are probably largely different in kind and distribution. On our own place, however, the robin, English sparrow and thrush figures seemed very close. But why are there so many this year? Is the continued storm holding many migrants which would otherwise be going north? It would be easy enough to believe that the European skies might be emptied of birds by the rival flight of shells and Zeppelins, but it is doubtful if they could change hemispheres: fortunately, too, for these poor people will certainly need birds to sing for them.

Baring the Heart-Wood.

A lumber pile has been a favorite place for hiding things from time immemorial, and yet one would hardly expect to find concealed sentiment there. And yet this was the chief transaction at a convention last week of the Western Retail Lumbermen's Association, which brought not less than 600 members to its annual conference, which was held in the great new Civic Center Auditorium in San Francisco. One might expect to find lumber men rather wooden-hearted, as are the logs which they handle, but this has been demonstrated to be a great misapprehension. They are really as full of real warm sentiment as any of our great public-service corporations. One writer about the conference says that it spent a whole day discussing "modern building methods, in which the retail lumberman finds his ultimate advantage in the erection of a house which might develop into a home, instead of merely selling an order of lumber. Although several of the speakers discussed the technical question of lumber merchandising, the principal addresses were directed toward impressing upon the hearers the necessity of giving the consumer service in addition to merchandise." We cannot find words to tell our joy over the fact that the lumberman has bared his heart to the sharp thrust of a humane idea. Not that lumbermen are worse than others, but a lumber heart is naturally so far in, and the botanists have always told us that it was lifeless, that its warmth, as now manifested, gives us an indescribable thrill. And no one can tell what public good may result, as it was stated, "out of the efforts of the lumbermen to lift themselves from 'plank peddling' to a position of service to their communities." Of course, one gets an idea that their new attitude is not what is sometimes called "pure sentiment," for the president, in his address, "spoke on the work of the organization in furnishing assistance and advice to home builders, and of its hope to eliminate the contractor from moderate-sized building operations." And so it seems it was the irresponsible contractor that was hidden in the lumber pile. He is a hard customer to deal with probably. He has no ownership of the land, no interest in the home. It would be better for the lumberman to deal with somebody who has both: tender-hearted lumberman!

Queries and Replies

Querists must give name and address.

Does the Bluejay Take the Jordan?

To the Editor: I have lately been considering the planting of almonds, but I would like to know what results I could obtain against destruction by the birds by planting the Jordan varieties. Do you consider this section good for almonds? The level is above 450 feet, free from the killing late frost occurring every two or three years a few hundred feet away. The early Newcrosse apricots are not bearing regularly, perhaps on account of cold nights in Spring. Would it not affect the almonds in the same way? There are no almond plantations here, and the only one that was here is now grafted to Wickson's, on account of damage caused by birds. Almond trees make a very good growth around here, which is shown by the ones scattered around in the neighborhood. Is it necessary to plant other almond trees among the Jordans for pollination? I am in the thermal belt, where for two years the first prize for citrus fruit has been awarded, and it is considered the earliest section in California for citrus fruit.—D. B., Lincoln.

We have not the point of view of a bluejay and therefore cannot tell you what he thinks of the hard shell of the Jordan almond. Will some reader give his observation? Generally speaking, we would be slow to plant almonds where the apricot gets caught by the frost, and slow also to plant almonds where no one else has them, because of having to feed all the jays. As for frosts, your situation being thermal for the orange does not help you with the almond; a frost that kills blossoms or young nuts on an almond might not hurt an orange, because the orange has nothing to be hurt at that season. What you say of the almond tree growing well is not of much moment: the question of an almond tree is, does it bear well? We do not know whether a Jordan needs pollination or not.

What Ails the Almonds?

To the Editor: I have 23 acres of almond trees, 18 years old. I prune every year; cultivate from April till August, and have about 400 hens, and use the droppings around the trees, yet I cannot get a crop. For the past four or five years my trees have had two sets of leaves a year. I am in the smelter district. What shall I do with my almond trees, and why do they have two sets of leaves a year?—H. F., Burson.

Stop pruning and fertilizing. Perhaps you are stimulating wood growth too much, without moisture left in the fall to make good fruit buds. This last condition might account for the irregularity in leafing, for trees which drop one suit of leaves too early are apt to get a new one too soon. This could be prevented by a summer irrigation to keep the leaves from yellowing and dropping. Or, perhaps you have red spider, which takes off the leaves. If so, they must be killed by May and June spraying. But if you get much sulfur fumes from the smelter you ought not to have red spider. Then, perhaps the smelter is doing it, but people are apt to blame that for things not caused by it. There are, therefore, several things which have to be determined before definite answer can be given.

Why Melons Require New Land.

To the Editor: Can you tell me the reason why melons will not yield a good crop the second year in this locality? We can only get one crop; then we are compelled to change to to a new piece of land. My land is sandy loam soil and has plenty of moisture. I have been planting Kleckley Sweets, and they come up and look fine, but when about a month old will nearly all die. Do you think if I should change the seed it would do any good?—F. L. M., Santa Rosa.

The reason is the multiplication of minute organisms in the soil which enter the roots and destroy the plant. It is rather rapid in your case, for usually one can get two or three crops before these germs get numerous enough to destroy the plants in the way you describe. No cure has yet been demonstrated; you will have to keep moving. Change of seed will not escape this trouble, though, if well selected by the grower it may give a better type of melons. Some one may develop a resistant variety of melons by selection, but, so far as we know, it has not yet been accomplished.

View of Australian Citrus Problem

To the Editor: In this district there is a certain quantity of sandy loam soil under which is a layer or subsoil of lime sandstone which will disintegrate when placed in water if you rub two pieces of it together.

In California I never happened to have any experience with citrus trees planted under these conditions. I note what you have to say in "California Fruits" on the matter. I also find that a number of trees have died here when planted over this sandstone, after showing very good growth and health for a number of years.

Is it possible that you could give me any information on the subject, or could you tell me what percentage of lime it would have to contain to be injurious to citrus trees. If I knew this fact I could then have it analyzed. H. B. ANDERSON.
Echuca, Victoria, Australia.

To the Editor: In connection with the problem submitted by Mr. Anderson, I am enclosing herewith a reprint of a brief paper which I published in "Science" on The Possible Causes of Die-back and Mottle Leaf in our Citrus Trees, which I think may serve the purpose of a basis for a reply to Mr. Anderson, whose letter you sent me, and which I am returning herewith.

The idea is merely this, in brief, that I believe that where we find chlorosis and particularly in mottle leaf and die-back areas, our trees are not getting a proper supply of available nitrogen. These diseases, however, do not occur necessarily over marly subsoils, but may occur on what seem to be perfectly good deep soils. Your inquirer does not state how close to the surface his marly sandstone lies. If it is really close to the surface, that in itself, owing to physical conditions, would interfere with root development, as you know, and make all the trouble he has noted. If, however, lime sandstone is at least five feet from the surface, then I opine that the difficulty is similar to that which I have been noting in the die-back and mottle leaf areas, namely, a lack of available nitrogen for the roots to feed on, and in that case only certain organic fertilizers, or sulphate of ammonia, will furnish the necessary material. I find that the high grade material like blood and high grade tankage, do not serve at all on such soils, and the poorer the soils are in organic matter, the less such high grade materials are likely to be of use. If, therefore, the inquirer has at least five feet of soil overlying the sandstone hardpan, I should advise him to apply sulphate of ammonia at the rate of 400 to 500 pounds to the acre, or to use steamed bone meal, which is sometimes known as low grade tankage, at the rate of 1200 pounds to the acre.

Of course, as you appreciate, it is difficult for me to say anything definite in the absence of samples of soil which will give me an idea of what his soil is like both in the upper and lower layers, and also more definite information with reference to the climatic conditions there existing. If such information can be obtained, however, I shall be glad at any time to go into a more definite treatment of the subject for the benefit of your inquirer.

CHAS. B. LIPMAN.
University of California, Berkeley.

The following is the article from Science to which Dr. Lipman alludes in his letter:

The disease known as "die-back" in citrus trees has, for many years, worried the citrus growers of Florida and California in this country and has thus far baffled the efforts of the agricultural scientist to discover its cause. The writer has recently made some observations and experiments on several citrus soils bearing trees affected with "die-back," which lead him to believe that a poor nitrifying power on the part of the soil, with the ammonifying power remaining normal, may be the cause of the peculiar manifestations which are characteristic of the disease and which, for the purposes of this preliminary report, need not be described. The theory upon which I am working at the present time, looking toward the solution of this problem, is that in the absence of normal nitrification and in the presence of sufficient ammonification, the tree does not obtain a sufficient quantity of nitrate for its development and is sooner or later forced to assimilate ammonia compounds as produced by ammonifying organisms in the soil; or in the presence of a sufficient amount of bases in the soil even the ammonia may be set free, thus causing the plant to starve for want of nitrogen. While it is true that some plants can use ammonia compounds just as well as nitrates as a source of nitrogen and further, that some of them even prefer the ammonia compounds, as Kelley has shown is the case with rice, it is very possible that we have in the citrus tree, a plant which is deleteriously affected by ammonia compounds when it is forced to absorb them. As above explained, however, when a soil's power to fix and hold ammonia is very feeble owing to the presence of bases in excess, a poor nitrifying power may mean nitrogen starvation for plants on that soil. The writer has examined and tested the nitrifying power of four citrus soils in various parts of California, on which trees were suffering from "die-back," and has found in every case a very slight nitrifying power or none at all. The tests were made by adding to soils, kept at optimum moisture conditions at a temperature of 26 to 28 degrees C. for approximately a month, both dried blood and sulphate of ammonia, but only slight or no increases of nitrates over the amount in sterile checks or dry soil were obtained. The dried blood was used also in varying quantities from 1 per cent. up to 5 per cent. of the dry weight of the soil, but the same results were obtained in all cases. In some of these soils, particularly, the ammonification of the blood proceeded so rapidly as to give an intense odor of ammonia when the Petri dish cover was raised from the tumbler in which the soil cultures were kept.

This theory of the writer's which inclines to account for the "die-back" by the fact that too much ammonia is assimilated by the tree under compulsion in the absence of nitrates, or, under certain circumstances, because ammonia is set free and therefore there is scarcely any nitrogen for the tree to assimilate,

Be A Producer

Don't waste your time. Spend it in your garden. The European war has caused a tremendous demand for American products, and has boosted all foodstuffs. In the midst of this high cost of living, your small ranch, back yard or old corral lies unproductive. A few cents in seeds will produce dollars for you in vegetables, and a wealth of bloom.

We offer the highest quality of seasonable seeds bought by our corps of experts, and tested at our famous Trial Grounds in our latest and best innovation

MADE TO ORDER
FEBRUARY
GARDEN COLLECTIONS

Not the ordinary seed collection, but a collection to be selected by yourselves from a large variety of seasonable vegetable and flower seeds, plants, trees, insecticides, etc. We offer these collections at a reduced rate of 1½ to 1, for instance, $1.50 in seeds for $1.00, and as high as $75.00 in seeds, etc., for $50.00. We make this extraordinary offer because the observance of a few labor saving conditions enables us to give you the benefit of this saving.

With every order we will mail you our beautiful illustrated catalogue, which is so full of planting and cultural directions as to earn the title of the

GARDEN ENCYCLOPEDIA-FREE

Take advantage of this opportunity now by writing to
Collection Manager

Established 1871
Germain SEED & PLANT CO.
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

Ornamental Trees
For Street, Sidewalk and Home Grounds.

Texas Umbrella	American Sycamore
American Elm	American Linden
Norway Maple	Carolina Poplar
Silver Maple	Mountain Ash
Ash Leaf Maple	Russian Mulberry
Catalpa	California Black Walnut

All varieties in 6 to 8, 8 to 10, and 10 to 12 ft. graded. Straight heavy trunks, require no staking.

Buttelands Nursery
JOHN L. AMES, Mgr. LIVE OAK, CAL.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.
TUSTIN, CALIFORNIA.

PIPE
For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped
2nd Hand and New
PIPE
Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

SEED
No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

would also seem to be in part confirmed by the observations made by Florida investigators on the disease in question, in which it was noted that in all cases the application of organic manures to citrus groves invariably made conditions worse or increased the amount of "die-back." In accordance with the idea above expressed, and in the absence of nitrification, this would be for the reason that either the added organic matter would be responsible for the formation of so much ammonia, which (through its enforced absorption) would poison the plants or because, under some soil conditions, most of the ammonia would be set free and pass off into the atmosphere in a gaseous form, thus inducing nitrogen hunger.

I feel justified in transmitting this brief preliminary note on the subject in question, before the theory has been fully tested out, by the fact that the disease known as "die-back" has been studied in many different ways without giving results, and, because, further, this new method of attack related to the chemical and bacteriological conditions of the soil, as affecting plant nutrition and as applied to a problem of this kind, deserves to be called to the attention of other investigators working along this or similar lines. I am vigorously proceeding to test out the theory above given by simultaneous greenhouse and field experiments with citrus trees which are now under way, in which, on the basis of what I have said above, I am not only trying to overcome the disease by variously treating soils in the field, so as to provide a plentiful supply of nitrates and reduce ammonification, but I am also making an effort to produce the disease experimentally in the greenhouse with seedling citrus trees on soils deficient in nitrates by the addition to the latter of various ammonia compounds, and to overcome it by means of adding stimulants for the nitrifying bacteria. The writer feels confident that a definite relationship may be shown between the abnormal soil conditions mentioned and the "die-back" of the lemon and perhaps as well of other citrus trees, when the experiments have progressed far enough. The theory above enunciated is not only in accord with the Florida observations, but also with other observations with which I have become acquainted in respect to the disease known as "die-back." Moreover, it allows for the production of bad soil conditions which will result in a poor nitrifying power through a large variety of causes. Such are, for example, the poor physical conditions of soils, unfavorable drainage conditions, the presence of a vigorous denitrifying flora of one kind or another, and many chemical, physical and bacteriological conditions, not to mention conditions respecting the origin of the soil which would seriously affect the nitrifying power thereof.

These lines for the most part were written about a year and a half ago when I first formulated the theory, and may need slight revision and some additions in the light of many new facts with which we are now acquainted, but, in the main, the theory seems to be better supported in fact at the present time than it was two years ago. Moreover, it seems very probable now, from a large series of tests which we have been making, that not only "die-back," the true exanthema, is to be accounted for by the theory under discussion, but also that the equally disastrous, and much more widely spread disease known as "mottled leaf" of citrus trees is capable of being explained in a similar way, if I may regard a large series of tests on various soils in this state as a reliable criterion. Quite unlike the "die-back," the "mottled leaf" condition in citrus trees is to be found in all citrus districts of California, and is at the present time regarded as one of the most menacing factors in the production of citrus fruit for profit here.

The "die-back" and mottled leaf" conditions of some districts in this state are becoming so bad as to make it imperative to solve these questions as quickly as possible from the practical standpoint alone. One orchard on which, in particular, the writer is working, has a very large proportion of its trees badly affected by the first-named disease, and most trees in the orchard show some manifestation of the disease. The trees are about four years old and had for a time grown vigorously, and then suddenly began to give symptoms of one of the worst and most widespread cases of "die-back" of which we have knowledge in the state It is hoped that our experiments may serve eventually to remedy such conditions. CHAS. B. LIPMAN.

Research Laboratory for Soils.
University of California.

PUDDLED ROOTS SUSPICIOUS

[By State Horticultural Com'r. A. J. Cook.]

There is a custom among some nurserymen of "puddling" the roots of nursery stock before shipping to protect them from drying out. In case of any trees subject to affection like drupaceous trees subject to attack of borers, apple trees which may harbor the woolly aphis, and almost all rosaceous trees and plants, and many others that furnish home and food at the root for the root gall nematode, etc., this puddling should be cause sufficient for refusing nursery stock thus treated. It makes it well nigh impossible to detect the pests. One of the largest and most cautious nurserymen of the State told me that he never puddled any tree but the fig, which, so far as he knew, had no insect or other affection of the roots.

Do not plant trees with any sign of disease.

LIME SULPHUR RED CITRUS SPIDER.

To the Editor: In reply to your question, will say that we have carried on quite a number of experiments with different sprays for citrus red spider during the past two years, but as yet have made no change from the commercial lime-sulphur solution. We are now trying out a soluble sulphur mixture put out by the Lilly Co. and known as Niagara Soluble Sulphur, which we hope will prove as effective as the solution, since it is much easier handled and costs less, but have not made sufficient trials to justify a change. — J. A. Prizer, San Diego Land Corporation.

"The largest walnut trees I have in my 40-acre orchard are those planted where the hardpan was only six inches below the surface, but was well broken before planting. I lay this back to the action of the hardpan in preventing evaporation from the moist sand under it, for I have no irrigation water," says J. F. Ricketts of Sacramento county. "The trees grow well and I often find that the subsand is better than the top soil. When we dig it up it smells like wet, rotten bunches of wood."

THE MOST IDEAL PLANTING SEASON IN YEARS.

Fresno-Nursery Company

Growers of WILSON'S Quality Trees

THE FRESNO NURSERY CO. INC. TRADE MARK RELIABILITY QUALITY SERVICE FROM THE ROOTS UP

Established 1889

Our Stock Of All Commercial Varieties of Fruit Trees and Grape Vines is Complete. Submit a list of your Exact Wants for Quotations:

Be Sure and Let Us Figure on Your Tree Wants

If you want the best NURSERY STOCK that money will buy you want "WILSON'S QUALITY TREES." Our 52-page Catalog mailed free. We offer all varieties of APPLES, PEARS, CHERRIES, PLUMS, PRUNES, APRICOTS, FIGS, PEACHES, OLIVES, ALMONDS, GRAFTED WALNUTS. We also grow in quantities, English, Huntington and American White Elms, Date Palms, Fan Palms, Oleanders, Loquats, etc. Send for our catalog and submit a list of your requirements. Our Packing Methods are perfect, insuring safe arrival.

Address THE FRESNO NURSERY CO., INC.

Box X615 Fresno, California.

We've Been Pleasing Planters For 26 Years

Trellis for Mammoth Blackberries.

[Written for PACIFIC RURAL PRESS.]

A mass of tangled, piled, and twisted Mammoth blackberry vines, six or seven years old, attracts the attention of one who passes by a certain farm in San Joaquin county. F. B. Mills, who owns the place, operated by his nephew, Claude Mills, says that having the vines in a mess has certain advantages. It does not seem to lessen the new growth at all and it aids fruit spurs to grow outward toward the light and spread out all over the surface of the mass of old, dead vines. This not only prevents the berries from being where the pickers cannot get to them, but also spreads them out so they have the maximum of sunshine both for the growing berries and for the leaves that nourish them.

In a month from now the vines will be covered with snowy blossoms; and along in July and August there will be three or four men besides the younger Mills family, picking berries every day until they have picked so many that they cannot dispose of them in California and will have to make jelly of the rest. The berries are all large and some of them as big and as long as man's finger. Last season this patch with a few more vines which were then just a little over a year old, produced all that Mr. Mills could dispose of by sending them to Stockton with the strawberries raised by a neighbor, by shipping them to San Francisco, and by selling them locally. After all efforts to find a market, Mrs. Mills had to make jelly from what were left until she got sick of the job and quit, with berries still going to waste.

The elder Mills claims that these berries bear nearly as great a tonnage per acre as grapes, and it is certain that by his method of training they do not require nearly so much care. Only a market is lacking and this might be assured as it is in the Sonoma county berry region, by locating a cannery at Lodi and interesting enough people in berry growing to make it pay to run the cannery.

Have No Pests.—Mr. Mills has never had to spray his vines or worry about borers and fungus diseases. This is the reason that he can afford to allow such a dense mat of old vines to remain. He is likely to keep close watch for the appearance of trouble, when the old vines will have to be cut off. That won't be such a serious job, for every year the canes which bear fruit die anyhow, and while they are bearing fruit new ones appear in large numbers from the roots and spread out on the ground. These new ones are more or less in the way during berry picking and must be piled up on top of the old ones in the present system for the fall and winter cultivation. But if the old ones had to be taken out the wires would be cut at the ends and the stakes broken off. The canes would be cut off at the ground and the whole mess rolled or pulled from the patch and burned. That year's growth would then be trained on new wires.

Wires Better than Stakes.—In the spring of 1913 a small almond orchard was set out on the place, the trees being about 20 feet apart; and about this time of year, rooted tips taken from the ends of vines which had trailed on the ground the year before and taken root, were set half way between the almond trees. This arrangement of the vines would not permit the massing of them as they are in the old patch in front of the house, so a 2x2 stake was set beside each plant so that it would project about four feet out of the ground. Two pieces of lath two feet long were nailed crosswise of this—one of them at the top and the other about 30 inches high. The vines grew in 1913 all over this stake trellis and in 1914 bore their first crop, which was a good one.

The sprouts from the roots grew eight to twenty feet long and when cultivation commenced last fall, they had to be twisted and circled around the old vines on the post so that they now have somewhat the shape of a giant disheveled mushroom.

This system does not appeal to the Mills very much as a regular way of planting Mammoths, because it does not allow the vines enough support to run on, but was attempted in this case because the trellis was not wanted along the tree row.

The Wire Way.—These plants and those in the patch in front of the house rooted many tips in the fall of 1913; and a large number of these were planted in the almond orchard between the rows of combined almonds and berries just described. They were placed opposite the midpoint between the trees so as to be as free as possible from shade.

A wire trellis for this was fixed, and Mr. Mills says that all planting in the future will be supported in the same way. Two No. 12 wires are stretched clear across the patch between 4x4 end posts. Intermediate stakes of split redwood are set every ten feet opposite the almond trees. The top wire rests on top of all of the stakes about three feet high and the lower wire about 18 inches above ground.

Growth and Culture.—During the season of 1914, the newly set vines grew six or eight canes in every hill, larger in diameter than a lead pencil and long enough so that when they were twisted around the wires during the winter, they reached the stakes on each side of each plant. They have held their leaves more or less red and green all last winter; and with the other vines are now sending forth lateral fruit spurs from the leaf axils, which will bear clusters of four or five berries each.

Irrigation is not so necessary here as in some other places, because the water table is not over ten or twelve feet under the surface during the summer when the dam in the river holds the water to a much higher level than it does in the winter time. Nevertheless, Mr. Mills has a small centrifugal pump set in a pit not over five feet deep with which he runs water into a cement stand pipe and thence to the berries. The first irrigation comes about the middle of May and continues twice a week through picking time. This, of course, depends a little bit on the weather—some weeks they are not irrigated so much, but the Mammoth is a shallow rooted plant, especially when irrigated from the first. Water for the new patch runs under the driveway to an open ditch along the highest line through the patch. From

New MACATAWA Everbearing Blackberry

The **MACATAWA** originated by Alfred Mitting, in 1909, at Holland, Michigan, a cross between the true Giant Himalaya and the Eldorado, and offered to the trade in the fall of 1912. It went through the extreme cold winter of 1911-12 in an exposed condition without freezing. The Macatawa has characteristics of both its parents. The fruit is very large and sweet, in fact, it is the sweetest blackberry grown. It is coreless and almost seedless, very solid, jet black when ripe, and can be shipped 1000 miles without bruising. The shape is oblong, very uniform, averaging three and one-half inches around one way, by three and one-fourth inches the other way.

It begins blooming in the southern and coast States about February 15. One month later you can begin to pick. It is a continual cropper from Spring until the frosts, in fact, is the only berry in my 46 years' experience that is an everbearing variety.

The Macatawa is 3½ inches one way by 3¼ inches the other.

Its habit is similar to that of the Eldorado, upright grower, needs no support, self-branching, and the bloom is almost semi-double, about the size of a silver dollar. The young plants come from suckers and not from tips, but it is a shy sucker maker, so we propagate by digging up the roots between the rows and cutting same into one, and one and one-half-inch pieces.

These piece roots are sown in rows four inches deep, the rows two feet apart. They should be sown in the southern and coast States from December 1st to March 1st, in the center states from March 1st to May 1st. By the next fall you will have nice plants full of fiber roots, and the plants will be 18 inches high and ready to plant in the field for fruit. Our price for these piece roots, $10 per thousand: one year old plants, $1.50 per dozen, $10 per hundred, $100 per 1000. 50 plants go at 100 rates, 500 at thousand rates.

Address All Orders to

Santa Cruz Bulb and Plant Co.

8 New Street, Santa Cruz, Cal.

WANTED AGENT to sell New Macatawa Everbearing Blackberry Plants. Some of our agents are making $10 to $25 a day. We allow a liberal discount on all sales made. Send for outfit now with references to Santa Cruz Bulb & Plant Co., No. 8 New St., Santa Cruz, Cal.

THE OAKLAND REVOLVING BOWL SCRAPER.

A Fresno Scraper that loads and dumps almost automatically. It is also a first-class leveler; is made in four sizes—five, six, seven and eight feet. When used tandem they will level from 10 to 16 feet wide at one operation. **Write us and we will tell you all about it.**

GRAVES SPEARS ROAD MACHINERY CO., Oakland, Cal.

Sales Agents for all kinds of land levelers, scrapers, plows, farm tools, concrete mixers, etc.
ASK FOR CATALOGS.

Orange and Lemon Trees

Big--Clean--Thoroughbred Trees
GROWN IN A CLEAN DISTRICT
We Can Save You Money **Write For Prices**

McMillan-Graffen Nurseries

Established 1900 **Spadra, Cal.**

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,

ARBUCKLE, COLUSA CO., CALIF.

The only exclusive Alfalfa Seed Dealers in the West.

this ditch it is let out to each row by one or two galvanized iron pipes about three inches in diameter laid at the level of the bottom of the ditch through its banks. Wooden plugs are inserted when a row has been sufficiently irrigated. It is quite necessary to furnish enough moisture, especially during the ripening season, because otherwise the leaves would wilt more or less, and allow the berries to sunburn. The berries would also develop into tough, dry, seedy fruits if they did not have plenty of water. These, of course, would not command much of a market.

It is important in picking the berries to wait until they turn black if possible. When picked red, they are only two-thirds the size as if allowed to ripen before picking and they are not sweet enough to do the variety justice. Three or four crates were picked last summer after they had turned nicely black, and sent by express to San Francisco, where they arrived in first-class condition. Berries picked of the red color will turn black, but, as Mrs. Mills expresses it, "They are pretty sick looking, and no one wants to eat many of them." But they are mighty fine if ripened on the vines.

BLACK CANNING CHERRIES.

[Written for PACIFIC RURAL PRESS.]

"Black Tartarians are the only canning cherries with a real flavor to them," says A. E. Crabb of Alameda county. The Royal Annes are demanded by consumers because they are pretty while the black ones are dull, but the Annes lack almost all flavor. Mr. Fontana of the California Fruit Canners' Assn. went farther, and said that the cherries demanded by the public aren't fit to eat—they are indigestible. But so long as they are demanded they will have to be supplied. Thus it is that, as Wm. August says, about the only times canners accept black cherries are when they must take them in order to get the whites, or when the whites have a crop shortage.

Winter Orchard Irrigation.

[By Samuel Fortier, U. S. Dept. Agr.]

When water is used outside of the regular irrigation period or, what is in many cases equivalent, outside of the growing season, it is termed winter irrigation. Over a large part of the arid region the growing season is limited by low temperatures to 150 days, or less, and when the flow of streams is utilized only during this period much valuable water runs to waste.

It was for the purpose of utilizing some of this waste that the orchardists of the Pacific coast States and Arizona began the practice of winter irrigation. The precipitation usually occurs in winter in the form of rain, and large quantities of creek water are then available. This water is spread over the orchards in January, February, and March, when deciduous trees are dormant. The most favorable conditions for this practice are a mild winter climate; a deep, retentive soil which will hold the greater part of the water applied; deep-rooted trees; and a soil moist from frequent rains.

The creek water which was applied to some of the prune orchards of the Santa Clara Valley, California, during the winter of 1904 was measured by the agents of this office with the following results: From February 27 to April 23, 1,241 acres were irrigated under the Statler ditch to an average depth of 1.58 feet. From February 12 to April 23, 2,021 acres were irrigated under the Sorosis and Calkins ditches to an average depth of 1.75 feet. In the majority of cases the orchards which are irrigated in winter in this valley receive no additional supply of moisture other than about 16 inches of rain water.

In the colder parts of the arid region winter irrigation is likewise being practiced with satisfactory results. The purpose is not only to store water in the soil but to prevent the winter-killing of trees. Experience has shown that it is not best to apply much water to orchards during the latter part of the growing season, since it tends to produce immature growth which is easily damaged by frost. In many of the orchards of Montana no water is applied in summer irrigation after August 20. Owing, however, to the prevalence of warm chinook winds, which not only melt the snow in a night, but rob the exposed soil of its moisture, one or two irrigations are frequently necessary in midwinter.

WHY DO WICKSON PLUMS BEAR WELL?

[Written for PACIFIC RURAL PRESS.]

While Placer county fruit growers who are fortunate enough to get a good crop of Wickson plums can always sell them readily at a high price, often packing them in peach boxes because they are so large, there is something not well understood which prevents a crop there in most cases. In this shipping district not many of this variety are being planted and most of the trees there are being worked over to other varieties.

Likewise in San Joaquin county on the 800-acre ranch of J. B. Cory are two blocks of Wickson plums of 500 trees each, which are now being grafted over to Formosas because, as J. H. Davis, foreman of the ranch, says, they bloom heavily, but they drop continually from the time of blooming until they begin to color, and do not mature much of anything. These trees are grafted on almond roots and are eight to ten years old. Another tree on the same ranch set among sugar prunes is also a failure. The soil is level sediment loam, irrigated.

Must Prop the Trees.—But there is a county not so far from either of these places where Wickson plum trees have to be propped and the fruit thinned. This is Sacramento county. One orchard near the city of Sacramento will be described more fully later.

It is in the Fair Oaks district that quite a number of small Wickson orchards are giving splendid results. One of these belongs to Rev. Hoskinson and was planted about seven years ago next west of a block of Climax plums owned by Frank Lawrence. This Wickson orchard slopes southward and is planted on dark, reddish loam, well drained. The crop must always be thinned in order to avoid propping, and also to get larger plums.

Mrs. W. F. Wright also has a little Wickson orchard sloping southward in this section and hers also are mixed up more or less with Climax. Last year they had such a big crop that Mrs. Wright thought there was no use attempting to ship them because they must be a heavy crop everywhere.

Another orchard, this time sloping northward on a steep hillside, is owned by Clark Heisel. It consists of only forty trees seven years old, healthy, vigorous, about six inches in diameter and these also are on almond roots. "I wouldn't trade these forty trees for any almonds I ever saw," says Mr. Heisel. "In spite of the June drop, which no one can stop, and in spite of the thinning that is always necessary, I always have to prop them heavily. In pruning them I aim to cut back only for the purpose of saving more props."

Mr. Heisel has just finished grafting over a number of medium aged almond trees to the Wickson plums. He cut the scions from water sprouts a little smaller than a lead pencil inside the Wickson plum trees and inserted them by splitting the stubs.

A curious phenomenon is shown in a Wickson bud which he inserted last June expecting to get a vigorous shoot. Instead, that bud has put forth twelve fruit buds and flowers, all stuck as close to the bark as they possibly can be without any wood growth observable.

He is now pruning, cutting back only for the purpose mentioned, but thinning out considerably, although he doesn't want fruit inside the tree because it is too hard to get at.

Stable manure is the only fertilizer Mr. Heisel uses, and this reminds us of a remark of A. T. Chute of Placer county, who has had more than ordinary success in that section with Wickson plums. He says, "A well nourished animal or tree always resists disease, frost, or bad weather better than one that is ill nourished."

It is almost always noticeable that where good Wickson crops are matured, there are Climax plums near, whose pollinating help seems a good explanation.

PIPE 3 INCHES; WATER 10 INCHES.

To the Editor: I have thirty acres of land on a hillside. Am planting ten acres to orchard and berries. I will need three inches of water this year, but may want to improve the other twenty acres and would need five or six inches of water. What size pipe should I use from the main box, which is 250 feet above the orchard I am planting? Would like to use a three inch pipe.—Subscriber.

[Answered by S. W. Hudson of the American Steel Pipe and Tank Co.]

[With a head of 250 feet, a three inch pipe will carry ten inches of water which is plenty for your whole place. The pipe used should be standard screw, as slip joint pipe would not be satisfactory. With such a head on the line if the outlets at the bottom where the water is to be distributed should be opened full without any control on the main feed line, it would probably wash the land considerably. We would suggest placing a valve in the main line so that the amount of water delivered could be regulated.]

Cut Worms on Trees and Vines

[Written for PACIFIC RURAL PRESS.]

Cut worms and arsenate of lead sprayed for them when apricots were an inch in diameter sunburned H. E. Losse's apricots and stopped their growth by taking the leaves off.

The worms worked on the prune trees, too, and not only ate the leaves, but also the fruit, leaving the pits hanging. The spray damage to the leaves did not show until the first hot days afterwards when the leaves began to fall. This spoiled the worms' feed ground and they were at a loss to know what to do, so they gathered around the tree trunks, and their numbers late in the evening suggested to Mr. Losse that it would be better to prevent them from getting up the trees than to kill them after they were up, especially in view of the disastrous effects of delay.

He tried wrapping sticky paper around the trees, but that was too expensive, so he gave them poisoned bran and they were all gone in a few days.

The worms did not hurt the trees until the bur clover cover crop had been turned under. They did not work in the day time, but stayed in the ground until about 4:30 p. m., when they began to ascend for their night's work.

A bunch of poisoned bran around the tree trunks, both on the eight rows of apricots which had been sprayed and the rest of the orchard where cut worms were bad, attracted the worms and they died. A half cup of sugar was mixed with a cup of Paris green and this mixed with enough water to make a bran mash with an ordinary medium sized bucketful of bran. Lead arsenate one pound per fifteen gallons of water mixed with chopped clover, alfalfa, cabbage, or other greenage laid around the bases of the trees would have had about the same effect.

The poisons are good when cut worms attack grape vines, which they do sometimes at the first breaking forth of leaves and tendrils. One San Joaquin county vineyardist is said to have distributed poisoned bran at each vine of twenty acres in two hours with two men.

These poison measures are the best available after the cut worms get in the orchard and vineyard. The best way is to keep them out of it entirely. They often travel in armies in search of food, in which case they are called army worms.

To keep them out of the orchard, Prof. Wickson recommends in "California Fruits" that a deep furrow be plowed around the orchard with the perpendicular side next to the trees. If this steep side caves in anywhere, it is necessary to cut it down with a spade; a little undercut is an improvement.

The worms congregate in the furrow and try to climb over it. Sometimes they do get over, and for such cases as this the sloping soil above the top of the steep side should be pulverized so that they will most likely fall back into the furrow. If they have come in large enough numbers, it will be well to sprinkle them in the furrows, with coal oil. If that would waste much of the oil it is better to dig postholes at intervals in the forrow. In attempting to find a place to climb out of the furrow, they will fall into the postholes and there can be killed with coal oil or by some other means.

According to Prof. C. W. Woodworth of the California College of Agriculture, the cut worms winter over in a half grown state and are ready for business at the first appearance of cultivated green crops. So we must be ready for them.

KEEP CANKER WORMS OFF.

[Written for PACIFIC RURAL PRESS.]

Female canker worms are about to climb orchard trees to lay their eggs, three hundred apiece in some cases. When these eggs hatch, the larvae will strip the tree entirely of its green leaves, if there are enough larvae.

M. Sharpe of Vaca valley has tried arsenate of lead and tobacco sprays. He says it makes the worms sick. Black birds are good, but the most effective way of treating canker worms is to prevent their getting on the trees. Mr. Sharpe uses a band made of fine wire screen about six inches wide and long enough to reach around the tree and lap an inch or two.

He shaves the bark smooth entirely around the tree about two inches wide and lays a pad of cotton against it. The wire screen is then placed with its lower edge over the cotton and nailed with long tacks or short shingle nails so close together that no gaps are left when the wire screen is bent outward and downward to form an umbrella shaped obstruction around the tree.

Hundreds of the worms will try to get through, and if there is any chance at all, some of them will lay their eggs high on the tree and the damage will soon be done. But with such a tightly constructed band, they should be stopped. They will accumulate in large numbers under the band and die. They should be cleaned out occasionally to prevent their filling it up so the others could crawl over them. The band should be placed a foot or so above the ground.

DURABLE WHITEWASH AGAIN.

To the Editor: Please tell me a formula of whitewash that will stick to the trunks of my trees to prevent sunburn. I applied some last spring, but it fell off in a month.—L. K., Yountville.

[Answered from "One Thousand Questions in California Agriculture Answered."]

[Whitewash requires some kind of grease in it to make it most durable. Tallow is best. The grease may be old and partly spoiled. It has the effect on whitewash that oil has on paint. Mix the grease with some of the whitewash by boiling it and stirring at the same time so that it will not separate or harden when cold. For every barrel of fresh lime add sixteen pounds of tallow, sixteen pounds salt, and four pounds of glue dissolved. Mix all together and slack. Keep covered, let stand a few days before using, add hot water to bring the right consistency, and apply, if convenient, before it cools. Stick this recipe onto your hat with some of the whitewash. It is durable enough so we won't have to print it again next month, and it will preserve your hat, too.—Editors.]

Our Newest Book

JUST FROM THE PRESS.

California Garden Flowers, Trees, Shrubs, Vines

By Prof. E. J. Wickson.

In this new book the amateur flower grower of the Coast will find just what he wants to know about the care of his garden, with detailed instructions, telling how to get the best results from the soil.

For years Prof. Wickson has been giving time and effort in gathering the data from all parts of California with which to write this book, and this wealth of information has been augmented by his personal experience in the growing of flowers and shrubs on his large, beautiful home grounds at Berkeley. In recognition of his work as a floriculturist the Professor has many trophies won from the California State Floral Society, of which he is the Honorary President.

In "California Garden Flowers," the author has expressed, as no other man can do, the glory of California gardening. He also sets forth in plain words directions for successful practice in growing of flowers, trees, shrubs, vines and lawn, besides telling what to do in overcoming troubles that plant life is heir to.

The book contains 260 pages of text; also a dozen full-page plates and other illustrations. It is handsomely bound in cloth with two-color cover.

No plant lover, be he farmer or suburbanite, can afford to be without this book. **The price is $1.50 postpaid.**

The time for your spring work is at hand, and you should have this book to help make your work more successful.

Pacific Rural Press, Publishers

525 Market St., San Francisco.

ESTABLISHED REX 1896

For Citrus Spraying

Rex Lime and Sulphur Solution

Minimizes Scale Troubles, Controls Red Spider, Destroys Fungus Growth, Tones and Vitalizes the Trees.

For Deciduous Spraying

Rex Lime and Sulphur Solution

Kills the Insects, Destroys the Eggs, Deadens the Fungus Spores. Is a Tonic, Fertilizer and Vitalizer for the Trees. Is the Best General Clean-up Spray there is. Most Efficient and Used in Larger Volume for Peach Leaf Curl and Twig Borers Year after Year.

For Vineyards

Rex Lime and Sulphur Solution

Sprayed on vineyards during dormant season, destroys the fungus spores and equals any spray in controlling mildew.

The Rex Companies Specialize Spray Materials and Our Chemists Devote Their Entire Time to This Work. Eighteen Years of Continuous Spray Business Means That REX SPRAYS have the Virtue. They are the Standard.

REX LIME and SULPHUR SOLUTION
REX CRUDE OILS and DISTILLATES
ARSENATE of LEAD BORDEAUX PASTE
PHENOLS, ARSULPH, ETC.

WRITE FOR BULLETINS.

California Rex Spray Co.

BENICIA, CALIFORNIA.

GIANT WINTER **RHUBARB**

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

Brown Mites and Red Spiders.

To the Editor: I have ten acres of almonds which were attacked by red spiders last year. Will Rex lime sulphur spray kill them, and if so, when should they be sprayed? I see that "California Fruits" recommends a flour paste to be applied later, but it will be some work to spray when in full leaf.—H. C. W., Denair.

[There are two kinds of so-called red spiders which affect almond and prune trees especially. One is the brown mite which has red eggs and red young, but are brown when they are old. They have hairy legs. The real red spider is red with a yellowish tinge and dark spots on his body and the legs are relatively hairless. For the brown mites, Rex lime sulphur spray applied thoroughly now will prevent them until the insects are blown by the wind from neighbors' orchards. If the lime sulphur stays on until May or June it may have some effect in preventing the red spiders, for it is said that red spiders crawling over lime sulphur are killed. This is the only way that lime sulphur spray will help now with the latter pest, which winters over alive in the ground. Sticky paper or tanglefoot kept fresh around the trunks of trees when the spiders begin to climb them will catch most of them. If they get on to the tree, your only remedy is to spray them with dried sulphur, atomic sulphur, lime-sulphur diluted one to twenty or twenty-five, or a spray of flour paste. The same sprays will get the brown mite if it becomes abundant in the summer time. Dry sulphur is cheapest and most commonly applied, but is usually hard to do thoroughly and is a nuisance to the harvesters, especially in almonds, but, as previously intimated, at best you are fighting a losing fight unless you can interest all your neighbors in controlling their spiders and mites at the same time.—Editors.]

WORKING GUMMY SUBSOIL.

To the Editor: What would you do to ground that has about a foot of soil and a lot of sticky, gummy subsoil sixteen to twenty feet down? The water stands on top for a whole week at a time through the winter and spring. Would trees die if planted in this soil? It is on a hillside and has small draws throughout. Would blasting do it any good? We have six or eight weeks in July and August, when this land gets very hard and dry. What kind of cultivation would be advisable?—A. R. F., Garrison, Tex.

[The first thing to do is to drain the land into the draws with tile or other drainage expedients, such as redwood or cedar fence rails laid lengthwise on the ditches, and the lines of drainage not very far apart, nor over a depth of three or four feet. The next thing is to apply lime as recommended in a recent article to make the subsoil more grainy and able to be permeated by air, water, and plant roots. To plant orchard trees on this soil without such preparations, the trees would never thrive and would probably die, though pears and quinces endure such lack of drainage better than most other trees. Blasting would only open reservoirs for sour water in such a soil, and if done at all it should be so that the entire subsoil will be well broken up. This would be best done during your dry time by blasting holes six to ten feet deep with 25 per cent dynamite or farm powder, and the charges placed not more than eight to ten feet apart as recomended in a recent article. In cultivating this soil, we would plow it as deeply as possible early in the spring and later keep it stirred one or two inches deep with weed cutters to present a fine, level, dust mulch which would prevent the evaporation of soil moisture and the consequent baking of the soil. In the fall, we would disk it thoroughly on top to break up all clods that would fall into the furrows. The disking would prevent the turning under of clods, which would leave air spaces underneath to dry out and making the land still harder to work and the crops still harder to grow.—Editors.]

GET AGREEMENT IN WRITING.

To the Editor: You know that parts of this State are being cut up in small tracts and sold to the eastern people. They lay off what they call a road and mark it A or B. They don't turn this over to the county in the right shape, so they will not receive same. The real estate man sells this "road" and the buyers fight it out for themselves. If you were to step into the Hall of Records in Yuba City, you would be surprised to see the shape things are in. Could you advise me what steps to take? I have bought and paid for a tract of land here in Sutter county 4 1-2 miles west of Yuba City, and as soon as I paid for same, they fenced the road up and pulled up all the stakes. Do you wonder people come here and are dissatisfied with such operations as that?—C. C. K., Yuba City.

[Whenever a man buys a piece of land every agreement which he hopes to hold the seller to, must be put on paper. Guarantees in regard to roadways, title, or other matters if included in the contract for sale are binding if you care to go to the expense of enforcing these agreements in court. In the absence of such written guarantees, there are certain general principles of law whose application to your particular case would be a matter for courts alone, and Pacific Rural Press, while depreciating all such underhanded practices, is unable to give legal advice on this or any other questions. The law and the conditions in each case are too complicated to decide and the issues at stake are too great.—Editors.]

KEEP PEACE WITH NEIGHBORS.

To the Editor: Land of one of my neighbor's would naturally drain away from me, but by cutting a ditch across the place next to mine he drains on to my land. Can I stop him from doing this?—M. E. M., Ione.

[It is doubtful if you could stop him by going to law; but there is no doubt about the expense of such a procedure. Such cases are always best settled by showing the neighbor the damage done and offering to assist him to dispose of his water if he will assist in preventing the damage. Pacific Rural Press doesn't like to give any legal advice whatsoever, because law is such a complicated matter, also because it is seldom that all the details are given, and because such cases might be decided differently by different judges on the same evidence.—Editors.]

Armstrong Nurseries
ESTABLISHED 1889

Olive Trees

Your Order for Olive Trees should be placed with me soon

If you want the best stock obtainable in California, I can supply you at prices to meet your approval. Write me.

Have you received and read a copy of my "Booklet" on the Culture of the Olive? If not, I will, on request, be pleased to mail you a free copy.

Write or wire for special prices on large lots of Mission, Manzanillo and Ascolano olive trees—all sizes, 3/8 to one inch caliper.
Safe deliveries guaranteed to all points in California and Arizona.

54 - page Illustrated Catalog and Price List of high grade nursery stock, describing every wanted kind of fruits and their many varieties. Write for a free copy.

JOHN S. ARMSTRONG, Proprietor
406 Euclid Ave.
ONTARIO, CALIFORNIA

Visit my Nurseries, 37 miles east of Los Angeles on the S. P., Salt Lake, Santa Fe and P. E. Railways. State Highway by auto.

TREES

French and Imperial Prunes, Bartletts and other Pears; Tuscan and Phillips Clings, Fay, Elbertas and other Peaches, Cherries, Plums, Apples, Grafted Walnuts, etc. Stock pure and of best strain. Place orders promptly. Prices reasonable.

TABLE GROVE NURSERIES
Healdsburg, Cal.

Absolute Protection Against
FROST DAMAGE
BOLTON ORCHARD HEATERS
One gallon size 20c.
Two gallon size 27c.
F. O. B. Your Station.
Write for our new booklet R. P.
The FROST PREVENTION CO.
Merchants Nat. Bank Bldg.
SAN FRANCISCO, CAL.

Irrigation Machinery
Pumps-- Motors--Engines
Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION."
Expert Engineers.
Three Stores to Serve You.
California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco.
81 S. Briar St., Lindsay.
AMERICAN PUMP CO.,
120 No. Los Angeles St.,
Los Angeles.

SAN JOAQUIN NURSERY CO.
for all varieties of Home Grown
PEACH, APRICOT, GRAPE VINES.
Special Price on Royal Apricot.
1sts, $120 per thousand.
2nds, $80 per thousand.
Our Stock is The Best.
HANFORD YARDS,
Cor. Seventh and Reddington Sts.
STAND AT ARMONA.
K. YAMAMOTO, Prop. HARRY W. EBY, Mgr.
Hanford, Cal.

California Native Plants
Write for my new price list of California Native Plants, containing seventy choice species, all of which are worthy of a place in any garden.
THEODORE PAYNE,
845 Main St., Los Angeles, Cal.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

Well-Kept Orchards Pay.

(Continued from page 257)

It were well perhaps to mention here that in not a single instance have I asked any figures from a man whose place is for sale. I simply say that with good judgment in selection of location, variety of fruit, judgment and management, these figures can be duplicated anywhere in this county on land of equal value.

These balances are, in every instance, from strong bottom land. They do not represent what can be done on thin or poorly placed ranches. On these I offer no data, but they would be much less in most instances, except in many rich little pockets of sediment in the foothills.

Prunes are perhaps our premier crop in horticulture; and for the sake of giving exact figures in this department I will set forth the receipts and expenditures on one place of 18 acres; as the three men visited varied so slightly, chiefly in cost of management and location. Receipts and expenditures are from a 5-year average, one year's crop considerably reduced by frost in spring.

Valley Fruit Among Napa Hills.

Eighteen acres of prunes 22 years old, worth $800.00 per acre, value $14,400.

Receipts: 45 tons dried fruit at $120.00 per ton, being average of 5c base on 60s	$5400.00
Expenditures:	
Pruning, including burning of brush	180.00
Spraying (winter spray only)	144.00
Two plowings at $2.50 per acre each	90.00
Cultivating six times and rolling	72.00
Picking up green fruit at $2.50 per ton	255.00
Dipping, curing and warehousing at $3.25 per dried ton, no charge for wood	168.75
Barnyard manure and apply it	360.00
Interest on capital	1120.00
Taxes	72.00
Total Expenditures	$2461.70

I leave the reader who is interested to work out the exact percentage of profit here represented, but it is obviously very satisfactory, without regard to the decimal fraction.

I would like to say more about prunes, as the subject is alluring to a deciduous fruit grower. It is one of the easiest—probably the easiest—crop to handle, and very profitable. Our knowledge of the industry is by no means perfect yet, especially as regards pruning and spraying; but the exact knowledge that we already possess is very serviceable and adaptable to seasons and conditions.

Cherry Profits.—And now as to the cherry—the succulent, elusive, perishable, but highly profitable cherry. Good cherry land is very scarce, and I think I am right in stating that it lies nowhere in large areas. It must be deep and well drained and not too compact. The cherry tree doesn't object to rocky ground provided there is plenty of good soil between the rocks, but it doesn't like getting its toes into clay or gravel, even in Napa county. In unsuitable locations it is like the merry conjurer's coin—first you see it and then you don't. I think that the average figures compiled from estimates by the three growers I interviewed are by no means high. The differences between the three were so slight, being chiefly in cost of hauling and fertilizer, that the balance I have struck can be taken as typical of a vigorous cherry orchard in full bearing and not too far from a shipping station. Five miles is the farthest haul included in my statement, which is based on an average of the past five years. Average ages of trees, 25 years. Land valued at $800.00 per acre.

Receipts: 2½ tons per acre at an average price (all varieties) of 6c	$ 300.00
Expenditures:	
Pruning, per acre	$ 2.00
Two plowings	4.50
Cultivating, etc	4.00
Picking fruit (average 1½c)	75.00
Hauling	2.00
Fertilizer (one man of the 3)	20.00
Int. on capital at 5 per cent	40.00
Taxes	4.50
	$152.00

This nice little sum needs no comment. If a man has a piece of suitable soil—and not otherwise—a small acreage of cherries is a very nice adjunct to almost any kind of farm and the crop is cleaned up, sold and paid for at a time of year when a few hundred ready dollars are convenient and reassuring.

Pear Profits.—On pears, I again have figures from three orchards, from which I shall have to strike an average, as the cost of hauling the green fruit ranges from 75c a ton near wharf and depot to $2.50 a ton ten miles out in a mountain valley.

Price of full-bearing pear orchard, $600.00 per acre.

Receipts: Per acre per yr. for 5 yrs. average 7 tons at $37.50 per ton	$ 262.50
Expenditures.	
Plowing once	$ 2.00
Cultivation	3.00
Picking green fruit	17.50
Hauling	10.50
Fertilizer	5.00
Interest	30.00
Pruning and burning brush	10.00
Taxes	2.50
Sundry expenses	5.00
	$ 85.50

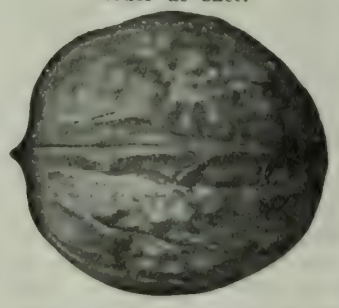
These lands should, in my estimation, receive more in the shape of manures; and if barnyard manure is unattainable, then use cover crops to better advantage.

One of the men whose figures I use sends all his green fruit to the canneries, one sells his best fruit to the packers, selling windfalls and culls to the cider works at $7.00 a ton. The third man packs his choice fruit and dries the balance: but I find the net prices are very close together.

Packing and material costs 22 to 25 cents a box and has been included in the estimates; as also has the cost of handling in the case of the dried pear man, who averaged about 1700 pounds of dried pears to the acre at 8c a pound after selling his fancy fruit packed. It costs about $25.00 a dry ton to cut, dry and box pears. With waste it takes about 6 pounds green pears to make one pound dried.

These pears are Bartletts and they thrive and yield handsomely on land too cold and dense for plums, prunes, cherries, or peaches. Once the trees have attained maturity, they will live and bear to a great age; provided they are kept young by proper attention. The chief pests the pear has in Napa county are the San Jose and greedy scales (which are easily kept in check by the winter spray),

Importation from Europe
Just Arrived in First-Class Order.
Some of the best-bearing varieties of FILBERTS; also two varieties of RHUBARB, the stalks of which often measure 4 ft. long and 3 inches in diameter.
Personally selected by the head of the firm while in Europe.
CONCORD and SAN JOSE MAYETTE WALNUTS.
Write for Prices.
Order at once.



LEONARD COATES NURSERY CO. INC.
MORGAN HILL, CAL.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.
OUR FRANQUETTE and SAN JOSE MAYETTE TREES
Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.
Ruehl-Wheeler Nursery
163 South Market St.,
San Jose, Cal.
Trees for sale and samples of nuts also at
HALLAWELL SEED CO.,
258 Market St., San Francisco.
CALIFORNIA SEED CO.,
151 Market St., San Francisco.
SUNSET NURSERY CO.,
92 41st St., Oakland.
VALLANCE BROS.,
31 Glen Ave., Oakland.

CITRUS TREES OLIVE
Orange, Lemon, Grapefruit, Olives.
Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.
Orders Now Being Booked.
Write for prices and particulars.
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

California Vegetables. $2 postpaid. Pacific Rural Press.

codling moth and scab are well controlled here at one operation; thrips I won't say anything about except that we have not suffered from it much yet, but hope to learn more in the future about its absolute control. In a few locations there have been and are sporadic cases of blight, which we know how to control. We still have a lot of very good pear land, unoccupied as yet except with grain or corn crops.

Apple Profits.—With regard to apples my data are less complete than any of the foregoing fruits, but my own estimate, to supplement those of the growers I have interviewed, places the value of good apple orchards in full bearing at $600.00 to $800.00 an acre, say $700.00.

Average for past five years:—

Receipts: 270 boxes per acre, at $1	$ 270.00
1 ton culls and windfalls	7.00
	$ 277.00
Expenditures.	
Plowing	$ 2.00
Cultivation	3.00
Picking and hauling	25.00
Fertilizer	5.00
Pruning and burning brush	8.00
Spraying	14.25
Taxes	2.75
Interest	35.00
Sundry Expenses	5.00
	$ 99.00

Early apples pay very well indeed here, and the Gravenstein also does well and seems to be the favorite main cropper, though I know orchards of Alexanders and White Astrachans which are little gold mines and regular bearers.

Other Fruits.—Apricots and almonds do well in our foothills, bear heavy and regular crops and are very profitable. They do not bear so well in the valley as a rule, though they make very handsome trees. Walnuts of the right varieties grow splendidly here and give heavy returns in the right locality. The favorites generally at present are the Concord and Franquette, with the Mayette running very close and the Eureka following it.

Grape Growing Best in Valley.—This is such a vast industry that is conducted on such different scales and varying conditions of soil, climate, altitude, and magnitude, that I felt compelled to get my exact figures from our most eminent growers, who have kindly given me access to their accounts. In this way I have a base to start from and can then generalize on the hundreds of small mountain vineyards by comparison, and thus get pretty close to their value as well. Many of the mountain vineyards have been wrested from the wilderness of brush and rock by the present owners, who have created a value by planting vines—a value that could have been attained in no other way. These hardy pioneers—Italians, Swiss, Germans, Portuguese, as well as Americans—have transformed land worth from $5 to $10 per acre as pasture into valuable plantation worth $100 and $150 per acre, and even more, by the steady, grinding efforts of themselves and their families.

By reason of this increased earning capacity of thousands of acres of land, too poor to grow hay profitably and too shallow in many instances for fruit trees, these pioneers have increased our tax values to a great extent. By their own efforts these men have attained a pride in the results of their efforts which insures independence and self-respect.

Here are no evidences of oppressive wealth or abject poverty. One sees neither squalor, drunkenness or oppression. Suffering and hardship is, of course, ubiquitous; but it is, to put it mildly, as self-effacing in our beautiful valley as anywhere I have ever seen, and this condition comes out of the soil, the warm, rich, responsive loam of Napa valley.

The first figures are from 100 acres in the center of the valley. This is the only vineyard that I know of that is sprayed in the winter—or at all. (Bordeaux Mixture is used.) The grapes grown are dry wine varieties exclusively, pruned on the same system. Average for past five years:

Value 100 acres at $350.00	$35,000.00
Receipts:	
5 tons grapes to the acre or 500 tons at $18.75 per ton	$9375.00
Expenditures:	
Plowing twice at $4.50 per acre on 100 acres	$ 450.00
Cultivating, three times	250.00
Weed cutting, both ways, 3 times	150.00
Incidentals	50.00
Pruning	700.00
Burning brush	125.00
Bordeaux spray and work	150.00
Tieing up vines	125.00
Rope	30.00
Suckering and holing	75.00
Sulphur and labor of ditto	110.00
Picking at $1.85	925.00
Hauling (close to winery)	125.00
Interest on capital	1400.00
Taxes	200.00
	$4875.00

The cost of pruning as indicated above is on account of the cane system. Where the spur system only is employed the price would not be more than half the sum and there would be no cost of rope and tieing.

An average on two places where the spur system of pruning is given me is as follows:

Value of land $350.00 per acre

Receipts: Average for 5 yrs. 5 tons to the acre, at $18.00 per ton	$ 90.00
Expenditures:	
Picking per acre	$ 9.25
Hauling	1.25
Two plowings	4.00
Cultivating and weed cutting	1.50
Pruning and burning brush	4.75
Suckering and holing	.75
Sulphuring twice	.75
Interest on capital	17.50
Taxes	2.00
	$41.75

One of these vineyards would probably stand more cultivation, though they are well managed and, as can be seen, have given good returns to the grower.

Vineyard costs have been here included because they have been very important in Napa county; and to leave them out would appear an invidious distinction. I have endeavored to be perfectly fair in the matter, although I am not personally interested in vineyards. I do not wish to encourage the planting of wine grapes, as I think appearances are against their increasing prosperity, to say the least.

W. J. Weyand of Dixon has purchased the Orland alfalfa meal mill and will operate the plant.

Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

NOW IS THE TIME TO
FERTILIZE FRUIT TREES
Use the specially prepared MOCOCO Deciduous Fruit Fertilizer and increase the quantity and improve the quality of your fruit.
Mountain Copper Company
332 Pine Street, San Francisco.

Citrus Trees With Pedigrees
Guaranteed Stock—Grown by Americans.
LEMONS—GRAPE FRUIT—ORANGES.
These are unusually high-class trees. We want to close them out. Write for Special Prices.
C. V. WORREL, Sanger, Cal. R. F. No. 2, Box 73D.

SURPLUS TREES
AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of **Grape Vines.**
Fine supply of **Olive** and **Citrus** trees; also Grape Vines in **Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha,** etc., etc.

Mission Olive Trees in our Nursery at Fresno, propagated from selected large Mission Trees.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast. this spring, wire us (our expense) for quotations on If you will need some stock your orders.

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

More on Walnut Grafting.

To the Editor: I am interested in the recent article by Geo. Payne on grafting walnuts. I have carefully read it and yet there are some things I do not understand. You say split the stub one-half the diameter of the scion. Do you mean to insert the scion and drive it home, or as you say later in tht article, do you cut a "V" shape for the insertion of the scion? In either case, how firmly should the scion be set? I have a Franquette tree which was frozen back two years ago and has made a large growth last summer. Will this young growth make scions? —J. A. C., Chico.

[The split in the stub should be open to one-half the diameter of the scion, then the scion should be trimmed, then the notch should be cut out to the same shape and almost the size of the trimmed scion and the scion driven into it just hard enough so that the top isn't smashed down with the force of the blows. It will then be so tight that a little pull will not loosen it. The young growth of last summer is what Mr. Payne refers to in selecting scion wood, but it should be taken from the lower part of the growth; seldom, if ever, using tips or the soft wood within several inches of the tip unless the variety is exceedingly valuable or the wood scarce.]

To the Editors: Having read Mr. Payne's article in a recent Pacific Rural Press on grafting walnuts, I wish to ask two questions. Experienced men have attempted three or four times to graft over a black walnut tree on my place and have failed, so I want to do it myself. In cutting the notch, do you cut it a soart of "V" shape toward the center of the stub, or does the "V" shape refer to the up and down cut as looked at from the side? Isn't the scion supposed to be cut in a straight line from the beginning of the cut to the point of the scion?—F. B. M., Lodi.

[In cutting the notch, the cut should be made so that the notch looked at from the top of the stub will have a rectangular shape; that is, the sides of the notch do not come together, but go square in. This permits the scion to stick there and does not tend to allow it to loosen as if the notch were cut to a point toward the center. The scion should be cut as illustrated in the article. Beginning an inch or so from the end, cut through the bark and very slightly into the wood. Run the cut at this depth two-thirds of the difference toward the point of the scion and then make a rather sharp slope to the point. This leaves most of the wood of the scion and prevents it from drying out as it would if it were cut in a straight line, because more wood would be cut off that way. So there is really no V shape to any cut in grafting walnuts.—Editors.]

OLD OAK-SPOTS NOT SUITED TO NURSERIES.

[By Prof. W. T. Horne of the University of California.]

Warning should be given concerning the danger of planting small nurseries in old spaces of vacant ground in orchard districts. Such spaces are frequently free of trees because they are infected with Armillaria, or the oak fungus. Advantageous use of these spots is one of the hard problems confronting orchardists, and their occurrence is much more common than generally supposed in nearly all orchard localities, both north and south.

Probably no more unfortunate use of them could be made than to plant them in nursery. Part of the trees grown in these spots will be conspicuously attacked by the rhizomorphs of Armillaria and can be rejected, but the danger lies in those cases where only a few rhizomorphs are present, for they may escape inspection. The manner in which they attack a root makes it possible for them to be brushed off, leaving the infection still on the root though invisible and inconspicuous. When a growing rhizomorph comes in contact with a root it does not penetrate in a solid body, but gives off from its surface very slender microscopic threads which grow into the root and, when they have gathered sufficient force, commence to kill the tissue and produce the typical root rot. In the early stages nothing is noticeable on inspection if the rhizomorphs should have been removed. In view of the fact that no economical method has yet been fully demonstrated for checking the spread of the fungus or for killing it out of the soil, it becomes the clear duty of every inspector to condemn all nursery trees grown in Armillaria spots.

Nobody understanding the facts will plant Armillaria spots to nursery. The great danger lies in ignorance of this serious disease and of lack of information about the history of the land. Everyone should use his best efforts to prevent this serious blunder by well-meaning planters. If there should be any liberty-loving individual who should insist on growing nursery stock in Armillaria land, the local quarantine officials should be informed promptly on the discovery of the facts.

BISULFID FOR MORNING GLORY.

To the Editor: How long is carbon bisulphid active if applied in the soil about two feet deep to kill morning glory? How soon afterward can I safely plant vegetables on the soil?—F. O., Napa.

[We wouldn't apply it so deep. Six inches would be plenty if covered with tight moist soil. A plow arrangement was once advertised in the Press, which strikes us as being the most economical method of application. It sprays the patented "Nonpariel" which is mostly bisulfid, from the plow beam into the furrow just in front of the overturning dirt. The article in issue of Jan. 16, notes that an ounce of carbon bisulfid placed 14 inches deep had, a month later, killed all roots near the surface within a radius of a foot while three feet down everything was killed for a radius of three feet. This doesn't show very widespread killing power by that method at that depth. Carbon bisulfid costs 60 to 65 cents per gallon of about 10 pounds Vegetables may be safely planted two weeks later.—Editors.]

A man who is raising olives by dry farming tells us that he had no trouble with the dry rot of Manzanillos when most of his neighbors who practiced irrigation had their fruit turned down by the same company to whom he sold his.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press.. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged, and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

40-ACRE EQUIPPED
Farms

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

SAFETY FIRST in purchasing
Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

This Spray Hose Stands the Wear.

Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is

Bean High Pressure Spray Hose

Made to withstand high pressure and constructed especially to withstand the action of spray materials and to give long service. Costs no more than ordinary spray hose—but lasts twice as long. Write for prices. You can order from your dealer—or direct from us.

BEAN SPRAY PUMP CO.

211 West Julian St., San Jose, Cal.

Reset Pears With Peaches.

[Written for PACIFIC RURAL PRESS.]

What to reset fruit trees with when they die out is always more or less of a problem. H. S. Fasig of San Joaquin county knows a solution for this problem for pears, at least in his section.

He has a 20-acre pear orchard set out twenty-two years ago, in which at odd places there are peach trees, some of them bigger than the pears and ranging in age from twenty-one years down to one. One-half of the orchard consists of Bartletts and Muir peaches and one-half of Bartletts and Lovells.

It was about sixteen years ago that H. S. Neilson bought the place. Pear blight had killed a good many of the trees and the previous owners had started resetting with peaches because young pears among older trees were not very satisfactory.

Mr. Fasig has tried resetting cherries also with the peaches, and has set peaches in the old prune orchard, but he finds that the peaches do not do very well there, though they do as well in the pear orchard as if planted in the open. Possibly this is partly due to the fact that he prunes his pear trees a great deal like peaches are ordinarily pruned and does not worry about producing any new wood at all on pear trees. He figures that with both peaches and pears, enough new wood will come out if he cuts off practically all of the previous season's growth at the winter pruning.

In his cherry and prune orchards he expects to try replanting with sugar prunes on almond root because the almond is such a rank feeder that he thinks it will give the trees enough start to make them thrifty, even in the shade of the old trees.

PEACHES, ALMONDS, PEARS

To the Editor: I have some almond trees one year old. Can I graft them to peaches? Have left four to six limbs on them. Should these limbs be shortened in now or left until grafted? Also have some Bartlett pear trees two and three years old. They are in some very rich, yellow clay. I pruned them last winter and they grew six to eight feet. Would you advise cutting them back or waiting until they throw out laterals? What kind of a melon is the winter melon? Is it the Casaba, and what is the proper time to plant them?—H. D. McK., Lincoln.

[The almond trees would be all right to graft if they have been a year in the orchard form and if there are limbs an inch in diameter. We would cut entirely off, all but the one to be grafted, and a iltle branch to draw sap temporarily; doing it at the time of grafting, both for convenience and so wax may be applied to the cut surfaces when the scions are waxed. Cutting off the entire top of such young trees below the head, and putting one graft in is often successful; but sometimes there is a failure, and this leaves a gap in the orchard. Peaches work all right on almonds. We would cut off about one-third of the Bartlett growth, which will help induce laterals and also generate more vigorous growth during the coming season. This practice is all right in building up the framework of the young pear trees until they are of full size, provided all blight is rigorously cut out far below any indication of it. If you have no blight, you are fortunate. We presume that the winter melon you speak of is the Casaba, for it keeps well into the winter. It should be planted as soon as frost danger is over, to get a good start before dry weather.—Editors.]

BORERS ON PRUNE TREES.

To the Editor: What is the best way to spray to prevent borers in my young prune trees? When should it be applied. Last spring I noticed many branches on my prune trees which wilted and died. Examination showed small holes just above the crotches. Haw much spray would it take for 250 trees? Is the commercial lime-sulphur-salt mixture as reliable as the home-made?—I. K. Yountville.

[The borers you speak of are quite probably the peach twig borer or peach worm. Apply lime-sulphur from the time the buds begin to swell until the trees are in full bloom. Commercial lime sulphur is as good as the home-made, and much more convenient. It is more expensive if you have an equipment for boiling your own lime sulphur, but we could scarcely recommend that you fix up such an equipment, because home-made lime sulphur seldom goes through the spray nozzle as well as the commercial. Arsenate of lead, four pounds per gallon of water, when the blossoms are opening, will kill most of the comparatively few worms at the beginning of the season You do not mention the size of your trees, but being young, about 100 or 125 gallons of the diluted lime-sulphur will probably do a good job on your trees.—Editors.]

MAKING VINEYARD FROM SUCKERS.

[Written for PACIFIC RURAL PRESS.]

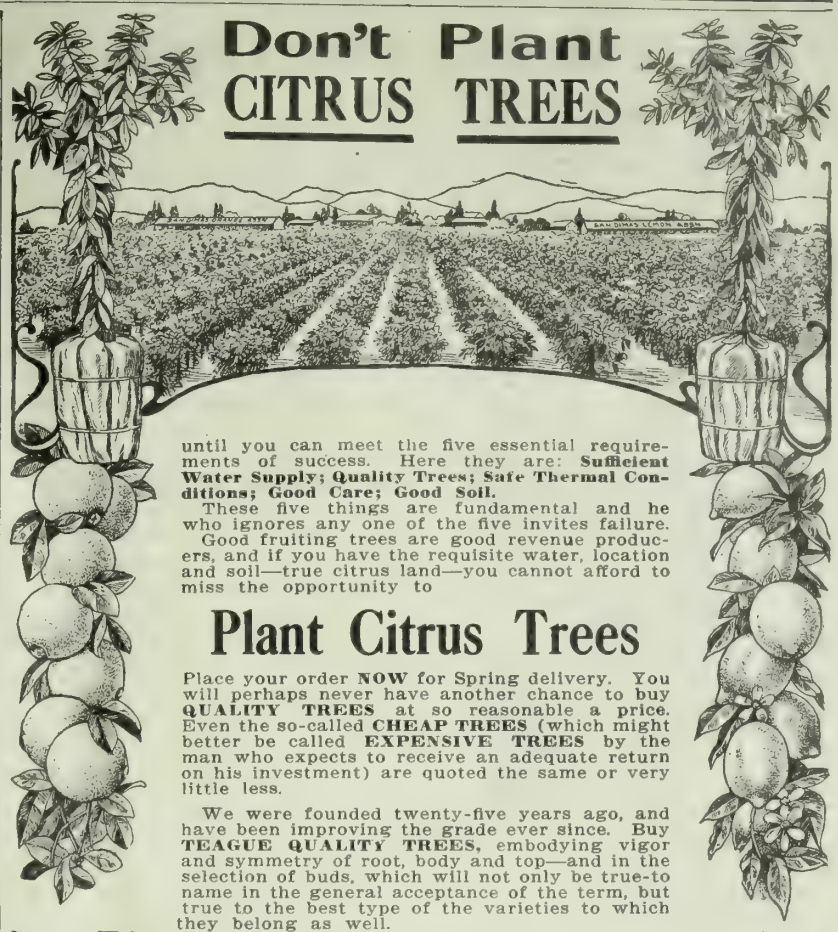
"I have made my two-acre Tokay vineyard from suckers," says N. J. Shadle of San Joaquin county. "I finished planting them on the morning of the great earthquake. That season there was a lot of morning glory in the vineyard and I cultivated it too much. I kept the morning glory down all right, but made the vines grow too late in the season. Frost got them and I thought they were dead. I did not prune them until later than usual next spring and I noticed suckers coming up. I pruned these longer than I would otherwise and trained them the same as I would young planted vines. They are now a fine bearing vineyard."

ALMOND-APRICOT POOR UNION.

To the Editor: Is it advisable to graft almonds to apricots, and what is the best way to do it?—G. H. P., Fair Oaks.

[Answer Adapted from "California Fruits."]

[It is the general experience of those who have tried it that apricots grafted onto almond stock make a weak union, which may grow all right until the wind blows hard. Root grafts of Royal apricots on almond roots have succeeded, but the chances are poor, and it might be far better to graft a peach or plum on the almond and then either bud the apricots onto the new shoots the same season or wait until the peach or plum growth is large enough to graft the apricot onto it.—Editors.]



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES**, embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Fruit Trees ! Fruit Trees!

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. **Cor. First and Cedar Sts., Chico, Cal.**

MAXWELL'S NURSERIES, Napa, Cal.

Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.
FIRST CLASS STOCK TRUE TO NAME.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. **If not for sale by your dealer, write us.**

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, **San Francisco, Cal.**

Homesteaders Want Capital.

[Written for Pacific Rural Press, by L. A. Beckstead, Fallon, Nev.]

To the Editor: Some time ago, you will remember having been so kind as to publish a letter from me, concerning the Truckee-Carson (Nevada) project. In answer to that article I have been and still am, receiving 3 to 5 letters per day. To say that I am surprised at the great interest shown and the value of your paper as an advertising medium is putting it mildly, although you of course know that I am not paying you a cent for anything published, for as I said at the outset, I have nothing to sell, nor am I in any way connected with any real estate concern. My aim and ambition is to see those thousands of idle acres changed into happy homes. As I am in the general merchandise business, besides cattle, horses, etc., I can hardly take time to answer each letter personally and so will ask the indulgence of the best all-round paper in the West, the use of some of its space to answer some of the most important questions asked.

To begin with, I will say that the circulation of the Press must be enormous for I am receiving letters from almost every town, city and valley in California, and even as far north as Puget Sound, and the questions asked have been so numerous and varied that it would take up the space of an entire issue of the Press, large as it is. I will therefore have the project management send to every writer printed information covering most of the questions asked and will confine myself to trying to explain simply and truthfully some of the paramount issues not quite so fully covered by the Government's printed matter.

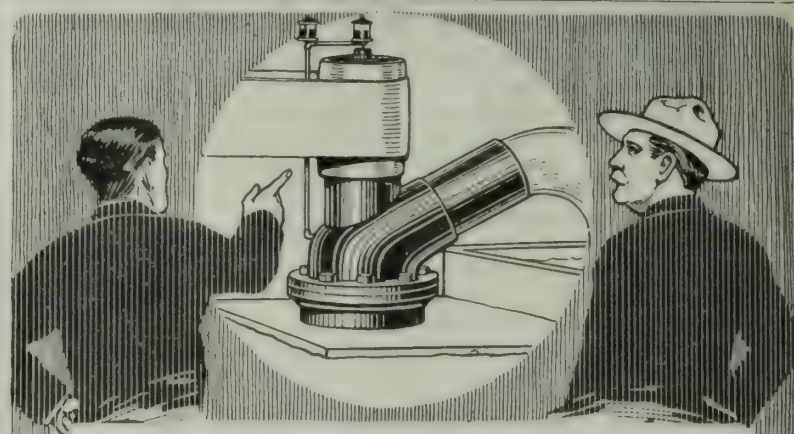
Plenty of Water.—One of the most oft-repeated and important questions asked is about the water. As none of the writers seem to know the least thing regarding this question, I will state that the Government charges you nothing for the land, but from now, on all lands opened to entry, the water rate will be $60 per acre. While this is higher than the old rate, they require only 5 per cent at the time of filing, and instead of charging you $3 per year per acre, crop or no crop, you get five years grace before making the second payment and get twenty years to pay it all up in. Thus, you have five years' grace in which to make your second payment and can spend this money in leveling, building, etc. The Government has just now completed its mammoth dam on the Carson river, and it is supposed to furnish plenty of water for all of this project, now and for all time.

Requires a Little Capital.—To my mind the most important question asked and the least understood is how much money it will take to file on a piece of land and begin properly. This question can only be answered in a general way, for no two men ever born are just alike in finances, good management, hard work, etc., and where one will fail, another will make good. However, in my judgement no man with a young family dependent upon him (the family being too young to help) should try to start, without having enough to make the payment on his 80 or 40 acres, put up buildings, buy stock, and level a part of his land. In fact, he should have some left over for a year or so, until his land commenced to yield something. On the contrary a single man or a man with grown up children could start with a small amount, say a few hundred dollars. As wages have been good and work plenty in the summer time, they could go out to work, and so alternate between ranch and working out, spending the money so earned on the homestead, until such time as the homestead will be sufficiently improved as to support them. I personally know quite a number of people who have gone on in this way, and today have all of their place levelled and yielding and are out of debt. I also know of men with families doing the same thing; but would not advise the man with a young family trying it, without being properly financed. I can truthfully say this—that in the 5 years I have known this project and its workings, I have never known a single individual to deliberately throw up his homestead and quit. I have known those who have sold out and left, being discouraged, but in all of these cases, the buyer went ahead and made good and reaped the benefit of the first man's mistakes. I might also add, that today those same people are the owners of homes that are bringing an income that makes them practically independent.

Leveling Present Problems. — Without doubt, the hardest and most difficult problem to be confronted, is the leveling of the land—for, believe me, this has to be done in part, or all, before much can be expected. The large part of the land opened for entry to date is covered more or less with varied sizes and assortments of sand hummocks and in places almost hills, say as much as five feet high (I am now referring to the land opened to entry). As I said, this land has to be levelled and in the scraping and levelling process the good soil is always covered up and the poor soil remains on top. Owing to this fact, it takes two seasons for this land to be exposed to the air and water before it will yield anything to depend on. However, in justice to this land, it is a fact, that once in good condition, it is probably the best alfalfa yielder in the United States, producing on the average three crops per year and besides, a good pasture in the fall for stock. In fact we have alfalfa fields here that are over twenty years old and still doing fairly well.

Hereto appended is a little of my personal experience. Two years ago, I selected an almost level piece of land and sowed it to alfalfa; that fall I cut a small crop. The next

(Continued on Page 275.)



The LAYNE & BOWLER is the only pump pumping from wells on the San Francisco Exposition grounds.

An inefficient water supply at the Exposition would cause an endless amount of trouble. The officials fortunately realized this and spared no pains in selecting the very best pumping system. As a result they installed **LAYNE & BOWLER PUMPS** to supply the Exposition with water. Wherever a thoroughly dependable system is required, you'll find the **LAYNE & BOWLER PUMP**.

Send today for our valuable Irrigation Booklet No. 25. Every rancher should have a copy. It's free.

Layne & Bowler Corporation

900-910 Santa Fe Ave., Los Angeles, Calif.

Walnuts Are Dollars

Plant a Walnut Grove that will grow into Dollars while you sleep. The Vrooman Franquette bears at three years and sells for 25 cents per pound—is smaller than an apple and sells for more money. Get in with the tide, and get rich. At forty feet apart, it only takes 28 trees to the acre. Is cheaper than an apple orchard to plant, and makes your land more valuable. True Vrooman Franquette Walnut Trees at Bargain Prices at

Mira Monte Nursery

SAN JOSE, CALIFORNIA.

CAMPBELL

IRRIGATION

We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Turbo-Irrigator, and the new Automatic Oscillator for overhead pipes.

J. P. CAMPBELL,

230 Union Terminal Building, Jacksonville, Fla.

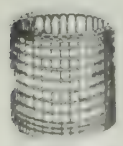
Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco



Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

California Vegetables. $2 postpaid. Pacific Rural Press.

Write for a copy of Morse's 1915 Garden Guide Just off the press Mailed Free

C.C. MORSE & CO.

GARDEN-FIELD AND FARM SEEDS

749 FRONT ST. SAN FRANCISCO

Every packer of Morse's Seeds Vegetable or Flower, are dependable seeds. Fully tested before packed. For Sale Everywhere.

California Vegetables

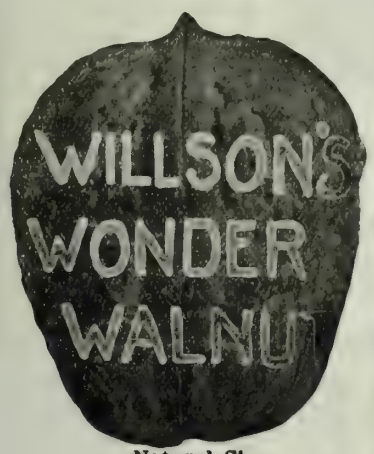
In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also description and methods of handling all varieties of vegetables grown here.

PRICE, $2.00,
Postpaid Anywhere.

Pacific Rural Press
Publishers.
525 Market St., San Francisco



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer
Customer on investigating trip says:
"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."
All trees grafted on Cal. Black Stock limited
Write for circular with prices.

Encinal Nurseries
Sunnyvale, Santa Clara Co., Cal.

PLANT BERRIES

Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.

ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Lime, Air-Slacked

Good for Sour or Stiff Soil—Alfalfa, cover crops, beans, peas and crops in general.
H. B. MATTHEWS, Soil Chemist and Fertilizer Dealer
733 Merchants Ex. Bldg., San Francisco

Good Seed Potatoes.

[By W. V. Shear of U. S. Dept. Agr. at Moorland, Cal.]

Interest in good seed potatoes is spreading throughout California and into the neighboring states. This interest has been centered largely around the question of disease-free seed and it is quite natural and essential that this should be the starting point in considering the question of good seed stock for the potato grower. While absolutely disease-free seed potatoes in any great quantity is, perhaps, out of the question for some time to come, still it is an ideal to be looked forward to and to be realized as nearly as possible. Certainly good seed potatoes must be approximately free from disease and every attention should be given the matter of securing seed potatoes which are practically free from those diseases which affect the inside of the tubers and, therefore, cannot be reached by soaking the potatoes in a solution which will kill diseases such as scab and Rhizoctonia, on the outside of the tubers. Many growers are inquiring where disease-free seed potatoes can be obtained and how they can be produced.

Producing Clean Potatoes.—To produce disease-free potatoes two things are absolutely necessary—disease-free seed to plant and disease-free soil in which to plant it. Disease-free soil is perhaps the more important of the two. By careful and proper attention in handling the seed to see that the diseases on the outside of the tubers, such as scab and Rhizoctonia, are killed by soaking the potatoes for two hours in a solution made by dissolving four ounces of corrosive sublimate in thirty gallons of water; and by discarding all tubers affected with wilt or other internal disease; fairly clean seed potatoes can be obtained. But if these potatoes are planted on land infected with these diseases, and practically all soil which has produced potatoes for one or more years within the past five years are likely to be so infected, then little headway will be made toward producing a disease-free crop. Clean seed, then, should be planted in clean soil, and those who wish to grow potatoes either for seed or domestic use will do well to see that clean seed is put into their land, as otherwise the land will be injured, and sometimes very seriously injured, for the production of future crops of potatoes.

Productiveness Needed, Too.—However, there has been so much discussion of disease-free seed potatoes, and the emphasis has been placed on potato diseases to such an extent as to create the impression that freedom from disease is the only important characteristic of good seed potatoes. While it is very important that seed stock should be as free from disease as it is possible to secure it, still the mere fact that a potato is free from any evidence of disease does not necessarily establish the fact that it is a good potato for seed purposes. The test of a good seed potato is whether or not when planted and given the proper care it will produce a large crop of marketable potatoes. Productiveness is the final test of the seed stock, whether it be potatoes or any other farm crop. That seed of any kind should be comparatively free from disease would seem to be an almost self-evident characteristic. Clean seed is only one of the qualities of good seed or productive seed. Productiveness or non-productiveness is as much a definite and decided characteristic of a potato as any other quality.

For a number of years past great interest has been taken by farmers throughout the country in using productive seeds of all kinds. Productive strains of wheat, barley, oats, corn, and other crops are being demanded and bred in many localities where these crops are grown. It is a well-recognized fact that not all seed of a given variety has the same productiveness as other seed of the same variety, even though it may have all or most of the outward appearances of the more productive strains. This fact applies with equal or greater force in the case of potatoes. One potato or one lot of potatoes may seem, as far as appearances go, to be as healthy and vigorous as another, and still the former may not yield nearly so much as the latter because it has not the same productive capacity.

Seed Plots.—If any grower will take the trouble to pick out from a miscellaneous lot of potatoes twenty-five tubers which seem to be as perfect and uniform as can be found, and cut each tuber and plant the pieces by the side of the pieces from the other tubers so that the yield from each can be separated from the others, he will be likely to find during the season a great difference in the behavior of the plants grown from the different tubers. Most of the plants from the same tuber will very likely be quite similar, some being uniformly large and productive and others just as uniformly small and unproductive. If the yield from the unproductive tubers is planted the following year, and also the yield from the productive ones, a much greater difference will be found in the productiveness of the two lots. This difference will increase year after year if such selection is carried on. To get a high yielding strain of seed potatoes it is necessary to select year after year for seed purposes the tubers from the best yielding hills.

To produce seed potatoes of this character, it is necessary to spend an extra amount of time and money upon the seed plots; but growers who do this will find they will be amply repaid by the increased productiveness of their seed stock, and they should receive a correspondingly higher price for such seed than the general run of market potatoes. It has been demonstrated over and over again that such selected potatoes have a much greater value for seed purposes than ordinary unselected stock, even though the unselected stock be practically free from disease. There can be no doubt that the potato grower who intends to give his crop the proper care will be well repaid for using the best seed stock obtainable. This is of special importance to those who have clean, disease-free soil in which to plant their potatoes. Of course, in disease-infested soil without good drainage, or without proper attention to the growing crop, good seed could not be expected to entirely overcome such an environment and exhibit its full capacity for productiveness.

Oliver No. 17-A Gang

The Vineyard Gang You Should Buy

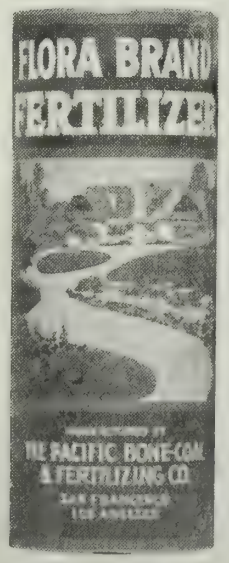
Why ?

Because it can be used as a two or three-bottom plow with steel or chilled bottoms, each cutting 8 inches, and with steel, plain chilled or slip nose shares interchangeable on all bottoms. Both axles are adjustable sideways and land wheel may be run within the landside line of the second base. Wheels with 3-inch tires, dust proof boxes and ends of hubs cut off flush with rims, are exactly opposite, insuring steadiness in cross plowing. Will plow the same depth, whether furrow wheel runs on land, turned furrow or bottom of furrow. Beams are of 1⅜" high carbon steel. Clevis adjustment 12 inches sideways and 7 inches vertically. Tension spring to assist in raising bottoms out of the ground. Rolling coulters for plowing under foul growth. Rear handle for convenient handling of plow is reversible and adjustable up and down.

The No. 17-A Gang is supreme in California vineyards.
Handled by dealers everywhere.
WRITE FOR CIRCULARS.

Oliver Chilled Plow Works
9 MAIN ST., SAN FRANCISCO

Beautify Your Home FLORA FERTILIZER



spread on the lawn and around the flowers. For your spring planting of berries and vegetables — just the thing.

A 5-lb. can enough to cover a lawn of 200 square feet. At your seed store or florist's — 50c. or sent direct by parcels post, to any address in California—60c. Send money order, check or coin.

Write us for our prices on complete fertilizers, Nitrate of Soda Bone Meal, Potash Salts Superphosphate, etc.

Pac. Bone, Coal & Fertilizing Co.
203 Clunie Bldg., San Francisco.

Mechanical Power on the Farm.

TRACTOR HAULS ORANGES.

[Written for PACIFIC RURAL PRESS.]

Among the hills of Sacramento county, a Midget caterpillar is used by J. C. Lapham to haul packed boxes of oranges a mile to the station for the Fair Oaks Fruit Co. A hundred and twelve boxes weighing about 8500 pounds are stacked on a broad tired wagon with a wide bed, and hauled from the packing houses, to where there is room to start. Then another wagon with 88 boxes is pulled as close as possible behind the first. The Midget then gets out to the side and hooks to a chain fastened for that purpose to the rear axle. A man guides it and the two are hitched together. Then the little tractor, built to pull as much as eight horses, sputters away up hill and down with its load of about 9 tons, besides the wagons. The driver turns the engine loose at the top of a steep hill while he steps back to set the brakes without stopping anything. On ordinary hills there is no need of brakes, for the wagon wheels sink in enough to hold them back.

Special equipment is used for connecting the tractor to the wagon. A heavy hardwood timber about six feet long has an eyebolt in one end to hitch onto the engine. The other end is held between the hounds by a heavy bolt. The ends of the hounds are protected from being broken out by a strap iron. From the ends of the bolt through the short tongue and the hounds, a 5-8 inch rod extends to the axle, beside each wheel. Over the lower bolster on each side, quarter-inch iron straps about an inch wide and three feet long are bolted to the hounds one end beyond each side of the bolster. Similar strap braces are run under the axles, being held in place underneath by the U bolts and by the same bolts that held the ends of the upper braces to the hounds.

The tongue of the rear wagon is held up and prevented from running too far forward by a big loose clevis bolted through it and hung over the rear end of the reach of the front wagon. The second wagon is pulled by a long rod from the bolster-pin of the front wagon connecting under the second tongue into a short chain to a ring from which two rods spread to the ends of the front axle of the second wagon.

Mr. Lapham makes four round trips per day to the station unless he has a return load of shook or something. He figures that about seven gallons of oil are used per day at this work. The engine is an agile and powerful little animal.

KEEP UP SPRAY PRESSURE.

[Written for PACIFIC RURAL PRESS.]

We recently noticed five men spraying home-made lime sulphur on the peach orchard of J. H. Cutting, in San Joaquin county. We noticed the pressure was down to 140 to 150 pounds, the pump being run by a 1 1-2 h. p. engine.

The operator admitted that the pressure should be 175 to 200 pounds, but he couldn't keep it up to that because in this make of sprayer the gravity ball valves were unevenly worn and the spray material had eaten pits into the balls so that when they were supposed to fall and close the valve, there was more or less of a leak. There was also some leakeage in the valves, due to fine particles of limestone, which had not been taken out of the home-made spray.

The balls should have been cleaned often enough to keep the pressure up to its maximum efficiency, for there were four men handling four nozzles and doing more or less ineffective spraying, because of lack of pressure. If no other way was available to keep up pressure, one line of spray hose should have been closed, which would have permitted the rest to operate with efficiency.

STRETCHED TRACKS—EXTRA WEAR.

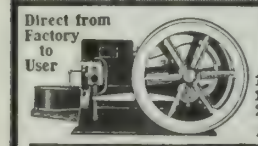
"A caterpillar-type tractor is like a horse in that it needs shoeing once in awhile," says E. H. Rider. Better watch the track for sagging on the upper part. When it sags three or four inches or more when the machine is pulling a full load, it shows that the bearings are so much worn, that from that time on, the damage will increase in greater proportion. If the track links are ten inches between bearing edges of new ones, and an examination on the lower half when at work shows as much as ten and a half, there is a half inch wear on the bearings, and it is time to send the track in for repairing.

If the track is used continually for a year, it should be shipped in for repairs on general principles. One man plowed 8000 acres, after which the service man advised rebuilding the track.

There is not only extra wear when the bushings have been worn to the extent mentioned, but the track is likely to "slop" under the front or idler wheel, and the track wheels are practically sure to run off the track, especially on uneven ground or in turning corners.

Now! These New Engine Prices

Direct from Factory to User



2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Portable Engines Proportionately Low.

WITTE Engines

Kerosene, Gasoline and Gas

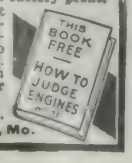
Stationary, (skidded or on iron base), and Mounted Styles. Standard the world over for 27 years. Better today than ever. Why pay double price for a good engine, or take a poor or doubtful one for any price, when the WITTE costs so little and saves all risk?

5-Year Guaranty

On Efficiency and Durability.

Direct from Factory to Users, for cash or on easy terms, at prices hitherto unheard of, for engines of these merits: Long-wearing, semi-steel, separable cylinders, and four-ring pistons; all vertical valves; automobile ignition; spark shift for easy starting; variable speed; and others, without which no engine can now be high-grade. I am simply sharing my manufacturing advantages with engine buyer-users—asking only one small factory profit.

New Book Free The most easy-to-understand engine book in the business. Gives the "inside" of engine selling as well as manufacturing. Shows my liberal selling plans with complete price list. Write me your full address for my prompt reply.



Ed. H. Witte, Witte Iron Wks. Co.
2401 Oakland Ave., Kansas City, Mo.

BETTER THAN ANY OTHER YOU CAN BUY

American SURFACE IRRIGATION PIPE

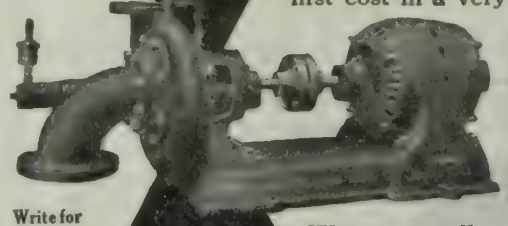
American Surface Irrigation Pipe is made heavy enough to last a lifetime. There are NO rivets. Riveted pipe is all right for underground work but surface pipe should NOT be riveted. Our surface pipe is made with our famous double-locked seam that NEVER leaks—even if the pipe is crushed flat and opened out again. Write for illustrated catalog and irrigation circular.

American Steel Pipe & Tank Company

354-56 PACIFIC ELECTRIC BLDG. LOS ANGELES, CALIF.
Branch 1228 "H" Street, Fresno.

"Jackson MADE"

The pump you buy should raise the maximum quantity at the lowest cost per gallon, run constantly without repairs and with the minimum attention. "Jackson-Made" Pumps not only do this, but they are Self Payers because their saving in power and repairs will pay their first cost in a very few months.



There is a "Jackson-Made" Pump that will do the work you require at lower cost than other makes.

Write for Catalog No. 47A

Write us, tell us your pumping problem—our expert engineers, without cost to you, will help you.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

The KROGH Vertical Pumps

New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.

SAN FRANCISCO, LOS ANGELES

Pomona Deep Well PUMPS

For deep lifts as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Built and sold in California over 12 years. Hundreds of buyers will tell you they are always reliable and economical. Let us tell you why.

Write for Catalog 104 with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

LOS ANGELES OFFICE, 930 INVESTMENT BLDG., 8th and BROADWAY.

Our "made right" irrigation valves are good, and not costly.

It is well to overhaul the tractor thoroughly during the bad weather, and if new parts are necessary order them in time to put on before the good weather comes.

CASE-HARDENING WEARING PARTS.

[Written for PACIFIC RURAL PRESS.]

On a recent visit to the Holt Mfg. Co's Caterpillar School, we were shown the process of case-hardening the cylindrical bushings of the track. The object in case-hardening is to put a very thin layer of extra hard steel on the outside of those little cylinders so that the rubbing of the driver cog wheels on them does not wear them out so soon. The inside is left soft partly for economy sake and partly because if the cylinders were so hard all the way through any excessive jar would break them quicker, because they would be quite brittle. The hard casing needs the cushion of soft steel inside to help it withstand jars.

Charcoal made from bones and wood are mixed in just the right proportion so that when they are burned with the cylinders they will give up their carbon which will combine with the outside steel of the cylinders and thus make them especially hard. This charcoal is broken up into pieces about one-half inch long and packed in specially made iron boxes all around the cylinders, which are set on end just far enough apart to leave some of the charcoal between them. A number of the iron boxes are loaded at once and then put into a furnace which heats the whole outfit up to about 1650 degrees F., at which time the charcoal gives up its carbon.

The ends of valve stems often get a great deal of wear and these also are case-hardened, but in a different way, because the whole valve must not be heated as the bushings are. The end of the valve stem to be hardened is heated to a cherry red, the exact tint of which is hard to distinguish except by an expert, and it is dipped into potassium cyanide two or three times.

AVOID TRACTOR SLIPPAGE.

[Written for PACIFIC RURAL PRESS.]

When the track or wheel of a tractor is slipping it is a good sign that you are overloading your engine and it is a good sign that you will be paying a great deal more than the average for repairs pretty soon. This, of course, is modified by the conditions of soil through which the tractor is pulling, though those makes which have a track laying equipment are said by E. H. Rider to be loaded to their capacity when the track slips in whatever sort of soil they are in. The extra strain always tends to break whatever weak points there may be in the machine and if it doesn't break them is likely to leave them weaker for the regular work and a sooner subject to repair bills. On the track laying types there are few conditions under which "grousers" to prevent slipping are economical.

TRACTOR TURNS SQUARE CORNER.

A tractor is being tried out in California for marshy ground. It has a track-laying running gear and no guide wheel. It can turn an absolutely square corner or it can turn entirely around on a space two-thirds of its own length, This is made possible by the fact that the track on one side may be run independently of the other and faster.

This tractor makes possible the plowing of marshy land, since there is only three and one quarter or four pounds pressure per square inch. Such land would be allowed to lie fallow through the summer and would be good for cultivation next spring if drainage is possible.

Engine cylinders often get coated with carbon inside and the piston must be removed to clean out both the cylinder and piston rings. This should be done regularly, and whenever any unusual heating is noticed, so that the cylinder won't be worn so much that it must be re-ground. The piston rings on some engines are made to expand as they wear and for this reason if the piston is taken out there will be difficulty in putting it back unless there is a bevel edge on the end of the cylinder, large enough to receive the enlarged piston rings and compress them to the interior diameter of the cylinder.

A windmill wheel dethroned and an electric wire cross-arm set in its place on a San Joaquin county farm suggests the demise of wind power for pumping wherever the more expensive and more dependable electric power is available.

In shipping machinery parts to the factory for repairs, mark the bill of lading "shipped in for repairs," so the railroads will grant half rate on the return trip.

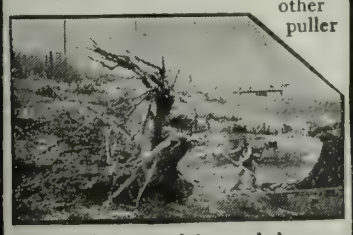
YOU CAN PULL ANY STUMP BY HAND

that one-inch steel cable will hold with a

"K" HAND-POWER STUMP PULLER

absolutely without horses, powder or digging, yet it weighs only 171 lbs. and one man easily handles it.

"The "K" is simple, compact, developing a straight pull of 48 tons. It is guaranteed to do anything any other puller



will do—better, quicker and cheaper I have used it myself on Pacific Coast stumps, the largest in the world, and I KNOW WHAT IT WILL DO. Used by U. S. Gov't in Alaska and by states and counties.

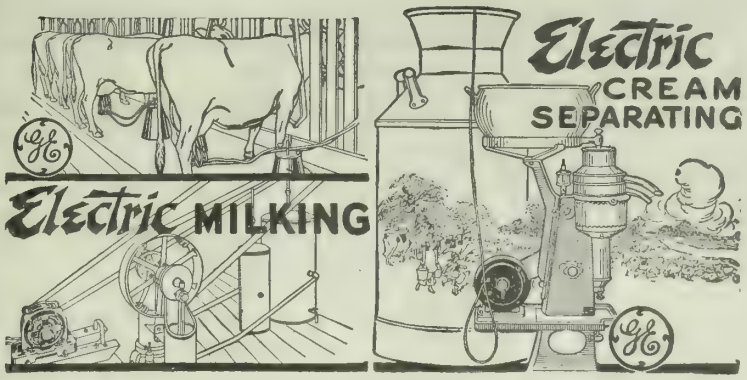
I Have Sold Hundreds Without a Single Complaint or even a Request for Repairs!

The "K" can't break or get out of order; made of forged Krupp steel, as simple to operate as rowing a boat. Works on side hills, marshy land, any grade or soil. If you have idle stump land YOU NEED A "K"!

No Extras to Buy

200 feet weather-proof steel cable and all equipment included. Write today for catalog showing actual photographs of the "K" at work, and special Direct-to-You Offer.

W. J. FITZPATRICK
Box 32, 1926 2nd Ave.
SEATTLE, WASH.



Save Labor on Your Farm This Winter

For less than half the cost of keeping an extra hand you can have your cows milked, your cream separated, and practically all your chores done by a

G-E ELECTRIC MOTOR FOR RANCH AND FARM

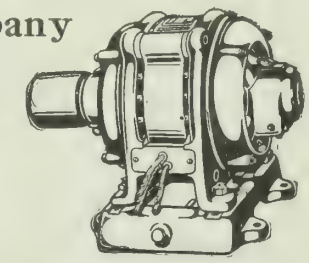
G-E motors will also drive irrigation or house pumps, circular saws, wood splitters, ensilage and feed cutters, corn shellers and many other farm machines besides household labor saving devices such as washing machines, food choppers, dish washers and the like.

A G-E motor is easy to operate, does not get out of order, and costs but a trifle to run. A G-E motor pays for itself many times over through savings in time, labor and wages.

"Let G-E Motors do your work"

General Electric Company

Los Angeles Office:
124 West 4th Street
San Francisco Office:
Rialto Building



The General Electric Company will gladly answer all questions relating to the use of electric power for ranch and market garden irrigation.

Address nearest office. 4963

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

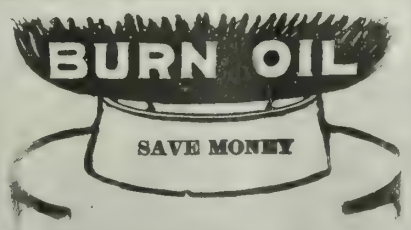
LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a water-tight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

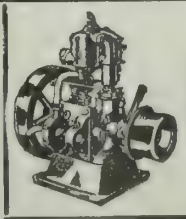
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.



Star Oil Gas Burner burns cheap engine distillate without smoke or dirt. Heat as intense as city gas—for cook stove or furnace. Cheaper than wood, coal or gas. Agents wanted. Sell burners to your friends and neighbors. All want them. Sold with our iron-clad guarantee.

STAR OIL GAS BURNER CO.
Pasadena, Cal.



CUSHMAN Gasoline Engine

for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.

Write for Catalog

Light Weight

THOMAS R. BROWNE,
Stockton, Cal.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY
211 Crocker Bldg.

Circular containing 100 mechanical movements mailed free.

Agricultural Review

CITRUS AND SEMI-TROPICAL.

Carpinteria, Santa Barbara county, took first prize for lemons at the National Orange Show last week.

Louis F. Farnsworth of Imperial county plans to plant 80 acres to grapefruit on his ranch three and a half miles northeast of El Centro this year.

It is reported that the owner of 200 acres of land near Porterville will plant to lemons this spring. He is making extensive arrangements for irrigating his orchard.

Mrs. W. F. Wright of Fair Oaks who has about the finest citrus orchard in that section, picked 72 tons of oranges this season on four and a half acres. Last year the crop amounted to 52 tons.

A record lemon crop for 1915 is predicted in the San Dimas district. From present indications, there will be at least 1000 more cars of lemons shipped from California this year than last.

The world's sweepstake prize for oranges was awarded at the National Orange Show at San Bernardino to Lindsay, Tulare county. This is the first time in the history of the National Orange Show that the first prize has been taken by a district outside of the southern California citrus belt.

A plan is under foot in Tulare county whereby California products can be put directly in the hands of eastern consumers. The movement has been started by the orange packers, who state that last year 100 to 300 per cent profit was made by the retailers in eastern cities through handling citrus fruits. The plan is to establish retail stores in all the larger cities in which will be handled California dried fruits, canned goods, and fresh fruits of all kinds.

DECIDUOUS FRUITS.

Hundreds of acres will be planted to apples in the Siskiyou district this season.

A Fresno man will plant apricots or his sixty acres of land near Arbuckle.

GRAPES AND SMALL FRUIT.

The Almeria grape season closed two weeks earlier in 1914 than usual, statistics showing the total exports for 1914 to be 1,785,271 barrels against 1,988,563 barrels for the previous season.

H. Bogigian of Boston is in Reedley making arrangements to plant his 140-acre tract there to olives, figs, and grapes this year. The land is undeveloped, but is considered of the very finest for fruit culture.

Muscat jelly, firm in texture like apple jelly, is a by-product which Frank Henry of Fresno county is making from grape juice, which may be preserved by his method until a convenient time comes to make the jelly.

A committee will be appointed from each business organization of Fresno to go out and urge the unaffiliated growers to join the Associated, and thus put the raisin industry of Fresno county on a sounder basis.

The Associated Raisin Company have completed arrangements with the Kings County Packing Company for the purchase of their raisin packing house. The former concern have bought the plant and equipment, and will make improvements there, but the Kings County Packing Company will still remain the selling agents of the Associated in its district.

OLIVES AND NUTS.

In the Visalia district three hundred and fifty acres will be planted to walnuts on one ranch alone.

It is estimated that the new walnut acreage of Goleta, Santa Barbara county, will be one hundred acres this year.

The owners of the Hills Valley Farm Co. near Dinuba have completed the planting of 100 acres to olives.

March 31, is declared as California's first annual olive day, and preparations are being made for the observance of that day.

GRAIN AND FIELD CROPS

It is reported that between twenty and twenty-five thousand acres will be planted to rice this year in Butte county.

Experiments in rice growing in the Imperial Valley have been very successful, one acre being made to yield fifty to sixty bags.

A large bean shipment is reported from Sutter county, consisting of thirty-four carloads, at $3 and $3.75 per cental.

A large tract of land near Arlington has been leased by the American Beet Sugar Company, and preparations will be commenced for extensive planting.

A rice mill is planned for Los Angeles within the next six months. Plans are now under way, and bids and specifications for machinery have been asked for.

Farmers of Fallon, Nev. have been urged to lend the necessary support to set in motion the wheels of the Nevada Sugar Company's plant by pledging the planting of 4000 acres, without which the factory could not operate with profit.

W. B. Nichols of Tulare county is

Electric Light
Operated by
Thomas A. Edison ELECTRIC LIGHT PLANT
Is Best for the Farm on Long Winter Nights—
When Father or Mother Reads,
When the Big Children Study,
When the Little Children Play,
When Company Calls.
The Edison Storage Battery makes electric light easy to install and economical to maintain. A trouble-proof battery and the ONLY one guaranteed to be capable of developing full-rated capacity at the end of four years. It will long outlive this guarantee. Send for Catalog N now.
Edison Storage Battery Supply Co.
Distributors.
441 GOLDEN GATE AVE., SAN FRANCISCO.
LOS ANGELES — SEATTLE — PORTLAND

Edison Storage Battery Supply Co., P. R. P.
Golden Gate Ave., San Francisco.
Send me Catalog N.
If information regarding complete plants is wanted, CHECK HERE. [ ]

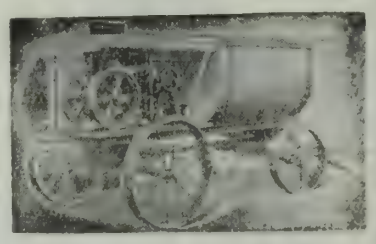
CONTROL BY SPRAYING WITH ZENO
San Jose Scale
Brown Apricot Scale
Scurvy Scale
Black Olive Scale
Oyster Shell Scale
Cottony Cushion Scale
Moss
Pear Thrips
Red Spider
Aphis
Send for Catalog
Standard Chemical Co.
Foot of 12th Avenue
OAKLAND, CAL.

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS.
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground Shield Brand High Grade
Phosphate Rock
The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

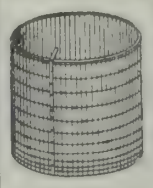
LIME FOR LAND
HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

Ideal Gopher Trap
Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always held. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.
E. J. CHUBBUCK, Dept. B.
731 Market St., San Francisco, Cal.

Hardie Sprayers

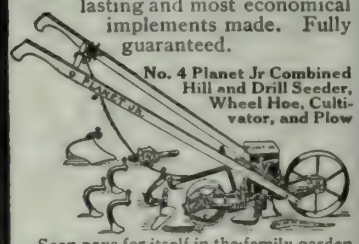


The Sprayer with the trouble left out. Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.
Write for Catalog.
THEO. POINDEXTER,
State Agent,
320 Market St., San Francisco

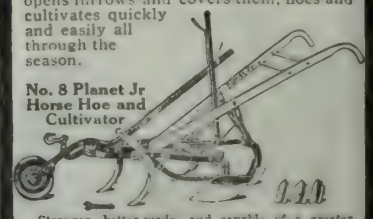


REDWOOD TANKS SILOS.
Water Troughs, Windmills, Frames, and Towers.
Steel and Wood.
Prices the lowest.
BROWN & DYSON
640 SO. CENTER ST., STOCKTON, CAL.

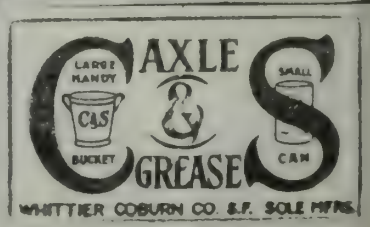
Planet Jr. Seeder-Horse Hoe
The farm and garden tools that save your time, lighten your labor, and get bigger crops—the longest-lasting and most economical implements made. Fully guaranteed.



No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator, and Plow
Soon pays for itself in the family garden as well as in the larger acreage. Sows all garden seeds (in drills or in hills), plows, opens furrows and covers them, hoes and cultivates quickly and easily all through the season.



No. 8 Planet Jr Horse Hoe and Cultivator
Stronger, better-made, and capable of a greater variety of work than any other [illegible] Non-clogging [illegible] Depth [illegible] and [illegible] A long frame makes it run steady. Adjustable for both depth and width.
72-page Catalog (168 illustrations) free
Describes 55 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard-and Beet-Cultivators.
Write postal for it.
S. L. ALLEN & CO Box 1203F Phila Pa
We carry stock in San Francisco and Los Angeles [illegible] in all principal Pacific Coast Cities



experimenting planting tomato plants between his rows of orange trees. The planting will begin at once, and if conditions are favorable for the growth of the plants, the crop will be ready for the market in May.

It is reported that 2000 acres of land west of Live Oak will be colonized and sold to Chinese, Portuguese and Italians for the purpose of raising rice. A company has been formed, to be known as the California Rice Farming Co.

Joe Berghone of the Manteca district is planting ninety-seven acres to sugar beets. He has had considerable experience in sugar beet growing, both in Germany and the United States, and states that conditions are most favorable for beet growing in that section.

Thinking of Irrigation?

Then allow our engineering department to give you advice and help prepare the plans. The service is free, but it saves you all the vexation, uncertainty and often actual loss of money that you can hardly avoid unless you have technical experience in irrigation problems.

Our experts will visit your land and tell you just which system is proper for your peculiar conditions, just how it can be cheaply but substantially constructed, and furnish complete estimates.

It makes no difference whether you have a truck farm, a chicken ranch, a large or small orchard, a small acreage, or an alfalfa ranch, we can help you.. And it's ABSOLUTELY FREE. Don't hesitate. Write us NOW.

Ames-Irvin Lock Seamed

Irrigation Pipe

is constructed without solder or rivets. Nothing but the sheet of metal itself is used. Each sheet is edged, locked together, and then set down under 3500 pounds pressure. Special machinery does the work.

When finished the seam is simple, solid and strong. There are no rivet holes in the steel and no solder to break—it can't leak.

Ames-Irvin lock-seamed irrigation pipe won the first prizes against all competitors at the Sacramento State Fair in 1913, and at the Fresno and San Jose country fairs in 1912.

Ames-Irvin Flanged Pipe

Is in every way as dependable as our surface irrigation pipe. Your should ask our prices before you buy. The very best obtainable anywhere.

Ames-Irvin Underground Galvanized Pipe

also without solder or rivets, and lock-seamed. No other construction can equal it in strength and dependability.

SEND FOR BOOKLET.

It tells all about irrigation pipe and its construction. After reading it your judgment will tell you which to buy. Get it—today.

Ames-Irvin Company
8th & IRWIN STS., SAN FRANCISCO

Reports from the various sections state that rice planting will be earlier this year. In the Sacramento Valley, the Corean Agricultural Company will plant two months earlier than usual and the land is already being plowed. In Kern county planting will start in May, and the crop will be ready for the mills in October and November.

HOMESTEADERS WANT CAPITAL.

(Continued from Page 270.)

year, last summer, I harvested 3 crops, in all over 100 tons from twenty-two acres. Again, last summer, I finished levelling and sowed seventeen acres. From this piece of land I got nothing, and I expect very little this summer. Now, the explanation of this, is, that the last seventeen acres levelled and sowed was made up of very hilly ground, the hills being as much as 6 feet high. I mention these things to show you the difference in selecting land, and to show you that you cannot expect to come here and fall into any snap. This land has to be handled, taken care of, all the improvements made and at the best this means some years of hard work and self-denial; don't expect anything else. So far, I believe I have shown you the darker side of the picture, personally, I have found there is a another brighter and better side and that is that for every hour you suffer, labor, and pray, you experience great joy, in that it is your very own home; that for every acre you level, every ditch you dig, every single stroke of labor you expend, you are doing it for your very own; that is to the average American, the most sacred word in our language, a home that will always be yours and your children's and no men on earth can take it away from you if you are willing to pay the price—work and save.

I speak in this vein because probably over 1-2 of the letters received, are from men who are renting and who say they can never hope to own a home of their own, where land is so high.

I wish to sum up by saying, that the Government within the present year, (so they inform me) will open up a tract of some thousands of acres of almost level land. The character of this land is practically the same as that in the Sacramento Valley, Cal., being composed of the alluvial deposits of the Carson River. It is full of old tule roots; and it is so nearly level that it can be what is termed roughed in, that is the highest places knocked off and levees thrown up to hold the water. Not only can this land be levelled for 1-2 the cost of any that I know of that has opened up for entry by the Government, but it is safe to say that at least a part of a crop can be raised on most of it the first year. I have bought spuds, onions, and grain raised the first year on every side of said land, and that adjoining; and I feel safe in making these claims.

I recommend this tract to you and would advise you to investigate thoroughly and if possible come and see for yourself, and be ready by the time it is opened up for entry.

KILMOL SQUIRLGOPHENE

Squirrels
Gophers

KILMOL
SQUIRLGOPHENE

WILL KILL' EM ALL

Waste Ball Method
or with
United States Destructor

Your Money Back
If Not Satisfactory

New Information

Result of Experiments that cost Uncle Sam over $100,000.00
It costs you nothing to learn the facts

A postal card today may save you hundreds of dollars this year
WRITE NOW—RIGHT NOW

HERBERT F. DUGAN
Dept. C
1170 Sutter Street San Francisco, Cal.

HIGH COST OF LIVING

It can be reduced by raising bigger crops and having more to sell. Also your labor and outlay can be made to pay much better by raising bigger crops and having more to sell.

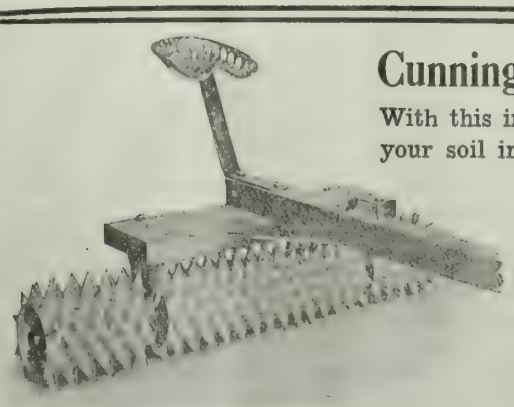
Fertilizer is necessary, just as is the rain and sunshine. The sunshine warms the ground and starts the growth. The rain furnishes the moisture necessary to plant development. The fertilizer releases the life in the soil and makes it fertile.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

Fertilizer of animal origin produces the most life, by returning to the soil that which was taken from it. GOLD BEAR fertilizer is animal fertilizer, made at our meat packing plant.

There is an interesting booklet on fertilizer, which we shall be glad to mail upon request.

Western Meat Company
704 Townsend, St.
San Francisco



Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

Diversified Interest and Hogs.

[Written for PACIFIC RURAL PRESS.]

The condition confronting many of our small alfalfa growers may be summed up in one question, "What shall we do to make a living?" Usually the dairy cow is considered and often adopted as the best means. Under ordinary conditions she has no doubt proved the surest way out. With dairying however, the labor trouble arises, even on the comparatively small ranch; and it was to overcome just this factor that E. Lamb, of Stanislaus county, gave up the dairy and turned to chickens and hogs.

Perhaps it would be more accurate to say that he has become a diversified rancher in every sense of the word, specializing on chickens and hogs, but losing no opportunity of making a dollar, whether it be selling a neighbor a bunch of lettuce or a ton of hay.

All of these changes have come gradually, the chickens as well as the hogs, having been one of the holdovers of the dairy, although the hogs have undergone a renovation as far as quality is concerned.

When Mr. Lamb, first moved to the country, several years ago, from the city, he had what most other city men have, a longing for a flock of chickens and the resultant dollars that they were to produce. As dairying was to be the main line however, he entrusted the care of the chickens to his wife, who like most women have a way of discovering small leaks with poultry.

In the first place, Mrs. Lamb discovered that there was a big difference in the price obtained from the hatcheries and the markets for eggs, especially if the hatchery was trying to build up a trade on some certain breed. Soon after this, arrangements were made with a hatchery in Alameda county, which was specializing on Rhode Island Red chicks, and an agreement was made with the owner whereby the Lamb eggs were to be purchased at five cents a piece, provided the flock was kept healthy and vigorous, as well as bred up by the use of good roosters.

By careful attention to the feeding and care as well as to the males used for breeding purposes this agreement proved highly satisfactory to all parties concerned. Since then all eggs from the Lamb flock have been disposed of in this manner at 60 cents a dozen.

But the supply from the Lamb flock was not sufficient for the wants of the hatchery; and as there was a limit to the time that could be devoted to that branch of the farm work, arrangements were made among the neighbors who kept chickens to raise their stock in a manner that would conform to the hatchery's demand and allow Mrs. Lamb the right to act as a middleman. The result of this system is that several hundred eggs a week are shipped to the hatchery, those that are produced on the Lamb ranch netting five cents a piece and those from the neighboring ranch also contributing to the annual income of the Lamb ranch, as a small charge is deducted from the latter for the trouble in handling, etc.

Purebred Duroc Surprises Them. Just before the dairy was relegated, a purebred Duroc Jersey sow was purchased by Mr. Lamb, only grade sows having been maintained before. Results from the one sow acted as an eye-opener, however, for during the first year $140 was received from neighboring ranches for her pigs at $15 a piece. Two or three of the gilts were kept for enlarging the herd. The result of this was more outstanding than usual on account of a neighbor who had a grade sow that farrowed at the same time. The purebred sow's pigs were sold at eight weeks old, but the neighbor's grade pigs had to be kept on the ranch for a long time before they were ready for the butcher. Even then they did not bring as much as the purebred pigs.

That one experience opened up a new way out of the labor difficulty and every effort has been bent since then in building up the swine herd to a point where it will furnish the chief source of income. Great care has been exercised in selecting gilts of exceptional merit for the breeding herd; and for that reason the herd is still small. Doing away with the dairy has naturally made it necessary to provide other sources of skim milk. This has been accomplished partly through purchases from neighbors who have an excess, and partly buying buttermilk from the creamery, some two and a half miles distant.

Practically all of the other feed is grown on the ranch, alfalfa naturally being depended upon largely. Pie melons, Egyptian corn, and barley are coming in for their share of the hog crops being grown.

So much for the future. "Now what is being done to furnish funds with which to carry on the ranch till the future bears fruit?" some may say; and that is really an important part and the chief stumbling block of many an ambitious small farmer.

Being located under the Turlock irrigation district, water for field crops can most always be depended upon, but garden truck is a different matter and the average farmer is pretty apt to depend upon his grocer to supply such wants.

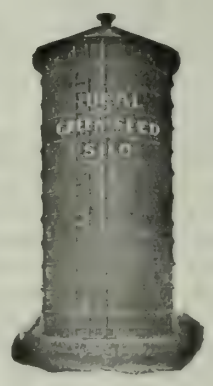
A small pumping plant at the tank house overcame the water difficulty with the result that berries and small vegetables have been grown in abundance, not only for home use but for the tables of neighboring ranches as well, who are always glad to buy direct from the grower and thus get fresh goods. Then, too, the water supply makes it possible to grow kale for the chickens, which has been found the most satisfactory green feed.

A small fruit orchard furnishes all of the fruit required for home use and is interplanted with spineless cactus which also furnishes a source of revenue from the slabs which are sold for planting purposes. As soon as the profit from this propagation stops, the cactus will furnish abundance of feed for the hogs who have already acquired an appetite for it.

All of these things are small, you may say, and in truth they do look small to a farmer who has a necessity to carry on things in a large way. But with the increasing numbers of small farmers in the State, which everybody is strongly advocating as a big step forward, we must expect to confine our efforts more and more toward lines which will furnish the small farmer with a means of livelihood.

The Visalia Co-operative Creamery Association paid out in January $23,500 for butter fat, in spite of the fact that the price of butter fat fell four cents during the month. Local officials attribute the drop in price to the large importations of Australian butter which are coming into California.

What Does a Silo Cost?



AN IDEAL GREEN FEED SILO will pay for itself the first year. That being the case it will cost you nothing.

AS A MATTER OF FACT, THE COST of a silo is really a secondary consideration, because if you are keeping dairy cows or raising stock for the market, there is no investment that you can make which will pay you better returns than an **Ideal Green Feed Silo.**

A GOOD SILO IS A NECESSARY PART of the dairy equipment of every cow owner or stock raiser who wants to realize a reasonable profit from his herd, and if the matter of cost has been standing in your way, please remember that it is really not a question of whether you can afford to erect a silo, but whether you can afford to do without one.

IF YOU HAVE NO SILO, a little investigation will be sure to convince you that you ought to purchase an **IDEAL GREEN FEED SILO** right away, and be prepared to save your first cutting of alfalfa. Then plant corn to fill it again this fall.

Write for new Silo Catalog B for full information.

ENSILAGE CUTTERS. ALPHA GASOLINE ENGINES.

De Laval Dairy Supply Co.

SAN FRANCISCO. Everything for the Dairy. SEATTLE.

Copro

Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

A Natural Food For Hogs, Dairy Cows and Poultry

Pure Cocoanut Oil Cake Meal

Made From Selected Cocoanuts By OUR IMPROVED PROCESS

Contains 16.4% Protein
All Digestible

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today

Address Department B

PACIFIC OIL & LEAD WORKS

Manufacturers

155 Townsend Street San Francisco, Cal.

English Shire Stallion

FOR SALE CHEAP

Pure bred, 3 years old, dark bay, heavy bone, stripe in face, weight 1820, good action.

S. E. RAILSBACK,
HANFORD, CAL.

FOR SALE

The Registered Holstein Bull

Lord Asa, No. 117335.

Because we have his heifers and require another sire.
He was sired by
SIR COLANTHA JULIANA.
Dam, QUEEN OF HOPLAND.
He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.

R. E. DRESSER, Mgr.
WOODLAND HACKNEY STUD,
Yolo, California,
or EDGAR J. DE PUE, Owner.
818 Merchants' Exchange, San Francisco

Dairy Hostilities Cease.

To the Editor: After reading your very lengthy reply to my previous letter, I presume I should be in full retreat, and probably would be only your charge was so fierce that you destroyed all means of retreat so I must camp here and wait for your reinforcements to come up so you can both be in at my funeral.

Meantime I'll look around and see how badly you damaged me. The first thing I notice is that you are not worth much as a soldier, for you do not attack the point you are requested to. Then you waste a lot of ammunition on a "thoroughbred" bull that isn't there. Then you "assume," which seems to be a fault of yours, that I am defending robber cows.

Now if you will only read my letter again, you will see that I have tested out of my herd nine cows and ask you to tell me how to so breed that my best cows will have heifer calves, so I can bring my herd back to twenty cows, and here you come charging down, horse, foot, and dragoons, round up those rejected cows and a "thoroughbred" bull, take my eleven tested cows over to a neighbor and bring back eleven more tested cows then say, "That's the kind of dairyman you are"—and then hold me up as a horrid example.

But you will probably notice now that you didn't come anywhere near the point of attack, so we will leave that for your reinforcements—and just suggest this other point. By using a registered bull, which cow would probably bring the best heifer, Old Spot, with her six gallons of milk per day, or Bess, the light producer of high-testing milk?

I'll apologize to your contributing editor. I did not know I came so close to him with that shot. It's doubtless a good thing for him and me that some Eugenic Society don't advise the chloroforming of all persons who do not earn above the average salary.—C. R. W., Hanford.

[Perhaps after all our diplomatic corps misconstrued the meaning of your ultimatum and that as a consequence our first charge was too severe. However, we have no apologies to make if you continue to "josh" the Babcock and tuberculin test out of existence as well as their advocates.

As you have been frank in telling us you have no means of retreat, we will also indulge in a little confidence about our lack of knowledge of how you are going to get all heifer calves from your best cows. Strange as it may seem, we do not know; although we are commonly supposed to know everything from A to Z and we might easily have acquired knowledge on this subject had we been willing to "dig up" and get in on the ground floor of one of the various systems which have been expounded by various people who claimed a method of determining the sex of livestock before they are born. We have often been advised by the discoveries that by so doing we could more easily pay the butcher and grocer bills than through pushing a pen. If we had, your only excuse for a longer struggle would have been knocked in the head at first.

Now about Spot's and Bess' calves. If you are selling butterfat and Bess has proved by the Babcock test and scales to be the best producer of fat, her heifer will probably prove to be the best cow for butterfat production provided the bull used was one carrying butter fat records back of him and has the ability to transmit those characteristics. On the other hand, if you want quantity rather than quality, Spot's heifer will be most likely to supply your wants, especially if she were sired by a bull whose ancestors were heavy milkers, but poor testers. Such cows are not as desirable as a medium testing one even for city milk trade, as many markets now base the price paid per gallon or hundred weight upon the butter fat content.

Like the ammunition manufacturers, we are grieved to think that our war is to end so quickly, for like them war means more ammunition and more ammunition more dollars. Any cessation of hostilities means a lessening of our revenue from the "dollar a word" trade which we will confess we have a liking for. However, we are ashamed to throw our heavy fire into the midst of our enemy who has been so completely routed by our first attack and thus commit butchery in its worst form. The ammunition factory will close down until the next uprising and in the meantime we shall pursue a watchful waiting policy.—Editors.]

IS THERE A RECORD TEST?

To the Editor: Do you know who owns the cow that holds the record for the highest butter fat test? I understand that he has offered ten thousand dollars reward for the cow that will beat her. I understand that this cow tests 9.2. I have a cow that tested 9.5 at the Orland Creamery. She gave when fresh about 35 pounds of milk. The feed consists of alfalfa hay.—N. P. P., Orland.

[We do not know of anyone who has offered any such reward, or for that matter anyone who has issued any defy. Perhaps some of our readers can enlighten us on the matter. We have found several instances where cow testing association records showed tests of over 9 per cent fat for some individual animals although it is not usual. Experiments show that a cow's test is not always uniform, her physical condition often being the reason for a high test one time and a much smaller one at the next test. It is commonly supposed that feed has nothing to do with the butterfat content. If your cow is a persistent milker and gives 35 pounds of 9.2 per cent milk she is surely a good animal and well above the average. If some one can beat this test let them step forward.—Editors.]

During the past two years, forest officers have killed nearly 9,000 predatory animals, more than three-fourths of which were coyotes.

Put a manger in front of the yard racks in which you feed the calves hay. Keep the manger off the ground.

America's Leading Horse Importers

In the past 18 months we have imported into California over 100

Registered Percheron Stallions

and they are now in service on the largest ranches and the leading stud farms of the State.

Our horses won every Championship and First Prize at the 1913 and 1914 California State Fairs in the Percheron classes open to Importers. Also the Reserve Championship at the 1913 Chicago International.

Boy Duke. Weight 2050 pounds. Foaled May 1, 1912.

HERE ARE A FEW PROMINENT OWNERS OF HORSES IMPORTED BY US:

Whitehall Estates, Inc., San Francisco and Tracy.
Manchester Percheron Horse Co., Pt. Arena, Cal.
Cazadero Percheron Horse Co., Cazadero, Cal.
Dixon Percheron Horse Co., Dixon, Cal.
Rio Vista Percheron Horse Co., No. 1, Rio Vista, Cal.
McGrath Estate, Oxnard, Cal.
Mrs. Anita M. Baldwin, Santa Anita, Cal.
J. H. Faught, et al., Windsor, Cal.
Phillipini Bros., Sonoma, Cal.
Peter & Perry Anderson, Rio Vista, Cal.
J. A. Franklin, Durham, Cal.
R. M. Diggs & Isaac James, King City, Cal.
Wm. Clark, Petrolia, Cal.
Petaluma Percheron Horse Assn., Petaluma, Cal.

We are now bringing out the largest and finest shipment of Registered Stallions and Mares ever brought to the Coast, and we will maintain a large display during the entire Exposition after March 13, 1915, at the Live Stock Show of the Exposition.

If you want the best, see us or let us hear from you.

Dunham-McLaughlin Company

EMERYVILLE RACE TRACK, OAKLAND, CAL.

With the Live Stock Men.

DAIRYING.

A total of $70,000 was paid to the dairymen of Tulare for cream delivered during January.

Ernst Luchning of Suisun has purchased the 400-acre Model Dairy Farm near Chico and will live on it.

Dairymen of Kings county received a total of $120,000 in pay checks for the month of January. This figure is a little below the average on account of the falling off of butter prices.

The regular monthly meeting of the directors of the Exeter Creamery Association was held last week. Reports showed a 50 per cent increase of butter fat received over December.

Attucha Ramona of San Luis Obispo county purchased a forty-acre dairy ranch near Modesto, the last piece of the Tom Hamilton ranch. It is his intention to improve the same with new buildings and to stock the ranch with dairy cattle.

A number of San Francisco capitalists have purchased the Model Farm dairy in Butte county, which consists of about 400 acres of what is considered to be some of the finest dairy land in that section. The owners will bring a number of German colonists to the land to engage in raising purebred cattle and hogs, and the dairy business will be continued.

HORSES AND SWINE.

B. F. Van Horn of Santa Clara recently purchased twelve draft horses at an average price of $200.

Merced county hog raisers met again last week to perfect an organization of the swine breeders of that county.

Geo. A. Smith of Corcoran recently sold to a meat market at that place fifteen purebred Poland China hogs, ten months old, averaging in weight 316 pounds each, for a total of $331.80 or about $22.15 each.

It was decided at a meeting last week of the Holstein-Friesian cattle breeders that the third day of the annual consignment sale to be held October 5, 6, and 7 would be devoted to a consignment sale of hogs.

MISCELLANEOUS.

All territory east of the Mississippi and north of Tennessee is quarantined for foot and mouth disease. No stock may be shipped from this section except for immediate slaughter.

Portland Union Stockyards receipts were 1055 cattle, 4437 hogs and 2221 sheep. Top steers sold at $7.85; top hogs at $6.90; wethers $7.15. Many light hogs were shipped in.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

MANURE
Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

CATTLE AND SHEEP

Great activity in purebred stock raising is being shown in Kings county recently.

Coyotes have been causing considerable trouble this year to the sheepmen of Alameda county.

Since August 15 of last year over 600 cars of stock have left Klamath Falls, Ore., for San Francisco, Portland, and Sacramento markets.

It is expected that the Nevada wool growers will receive twenty-five cents a pound for their wool this year, an advance of ten cents over the best price of last year.

Bert Crane of Stanislaus county has brought 600 head of cattle from Arizona for his range in that county. This makes the fifth trainload of cattle from Arizona to that ranch in the past few weeks.

A report from Tulare county states that 30,000 acres of the Tule river Indian reservation will be turned over to stock grazing this spring. It is estimated that the reservation will furnish first class pasturage for 25,000 cattle.

A strange malady has lately been affecting ewes in Tehama county, one man losing forty head in the past two weeks. The symptoms are those of poisoning, but the means are so far unknown, although a careful watch is being given the herds to determine how they are getting the poison.

COW AND HOGS WITH FRUIT.

To the Editor: Since the Press is constantly encouraging small farmers to keep a few livestock, I desire to get a little extra advice along that line. I am helping my father take care of his forty-acre farm, which has eight acres in Muscats; eight in Muir peaches; ten to be put in Thompson Seedless this spring; and the remainder in alfalfa. The soil is rich sediment, and is valued at $300 per acre. Taking the price of the land into consideration, would it be advisable to fence off three or four acres for hogs? The farm is pretty well fenced so the hogs could have access to all the land when they would not interfere with growing crops. Would it be advisable to let a milk cow run on the alfalfa with the hogs?—W. D., Visalia.

[We see no reason why you should not be able to grow hogs successfully under the conditions you advance, providing, of course you are fitted for the work. So much depends upon your ability that it is impossible for us to say what you can or cannot do. We can say, however, that there are many farmers who are making a financial success under conditions very similar to yours. We should advise intercropping in the young orchard and vineyard to root crops and pumpkins, applying all manure to these crops and using some extra.

It would be for better if you did not turn the cow on pasture, but fed her cured hay instead. It would certainly pay to keep a cow under such circumstances and more than one if you could accommodate them. A dairy in connection with hogs is of great value owing to the skim milk which is available. If you are adapted to the hog business and will gradually work into purebred stock of some of the standard breeds you need not be fearful of the financial results.—Editors.]

Kerosene emulsion kills lice on cattle, horses, and hogs when it touches the bugs.

Whitehall Estates Inc.
STUD FARM
OF
Draft Horses
Tracy, California

We are standing for Service this Season the following Three Registered Stallions:

1. LONDRICITOS (99574). 97561, Black, four years old, by Huchior, dam Mayonne, foaled March 1, 1911, bred by M. Gerbrau, Dept. of Orme, France. Imported into U. S. in 1913. Grand Champion, California State Fair, 1914. Grand Jr. Champion Chicago International, 1913. Stands 17 hands high; weighs 2200 pounds.
Service Fee (registered mares only), $50, with return privilege.

2. JACQUARD (87679) 97441. Black, six years old, by Espiegel, Dam Polka, foaled April 17, 1909, bred by M. Herodite, Dept. of Orme, France. Imported into U. S. August, 1911. First prize winner California State Fair, 1913; second, 1914. Weighs 2150 pounds.
Service Fee, $25, with return privilege.

3.. KAPET (92678) 96885. Black, five years old, by Georges, foaled April 20, 1910, bred by M. Chadhomme, Dept. of Orne, France. Imported into U. S., 1913. Weighs 2100 pounds. Service Fee, $25, with return privilege.

We have 150 brood mares, including 30 registered Percherons imported direct from France. Sale of 1, 2 and 3-year-olds will be held during the Summer of 1915. Announcement later.

INSPECTION OR CORRESPONDENCE INVITED.
WHITEHALL ESTATES INC.
74 New Montgomery St., Call Bldg., San Francisco.
Ranch at Tracy.

ESTABLISHED 1890. INCORPORATED 1914.

McLaughlin's Horses

The only stallions in California which won prizes at either Nogent or Paris, the two great Shows of France, in 1914, were imported by us.

Since their importation, these stallions have been exhibited at all the principal fairs in the Eastern States, where they won all the best prizes and every championship.

If you want the biggest horse, buy of us.

If you want the best horse, buy of us.

If you want to save money and deal with a reliable firm right at home, buy of us.

We are the only firm whose home office is in California that imports stallions from France.

Thos. D. McLaughlin Importing Co.
Oakland, California

Office: 3888 SAN PABLO.
Stables: 47th NR. SAN PABLO.

Veterinary Queries.

[Answered by Dr. H. B. Wintringham, Petaluma, Graduate San Francisco Veterinary College.]

HAS TROUBLE EATING.

To the Editor: I purchased a mare thirteen years old about a week and a half ago which apeared all right and in fair condition. She was fed then on alfalfa, but was not working. I found that she would eat only a few mouthfuls and then quit and go and lie down, many times lying there three or four hours and part of the time lying flat. She was barely able to keep up on what she ate without working. This week I have put her on a plow, as I had to get the work done. She now has begun to look gaunt. I have tried different kinds of hay and grain and last evening I tried dry bran and then wet it. She ate only about three mouthfuls and then whimpered. She drinks well, but never has urinated while on the plow. When she does eat, she eats very slowly. Can you tell me what is the trouble?—N. M. W., Chino.

[Have this mare's mouth examined by a graduate veterinarian. At the same time, have him prescribe a good tonic for her, as she will need stimulation.]

HOLDS BACK HER MILK.

To the Editor: Kindly let me know if there is any cure for a cow who holds back her milk most of the time. She went dry four and a half months last time. She is just fresh four weeks and sometimes she won't give down one drop. We sold the calf.—G. W., Sacramento.

[Ths is peculiar to individuals and there is no remedy which will act with certainty. Try massaging her bag before milking. If this fails to give results you had better dispose of her and get another animal to take her place.]

HAVE TROUBLE EATING.

To the Editor: I have three horses working, but it seems to me they have some ailment. A saddle horse, twelve years old, raises upper lip ocacsionally and stretches head forward in bull-like fashion; eats hay sparingly, chews it from side to side and drops some. A mare, nine years old, hearty eater, but turns upper lip up and stretches head forward. A mare, four years old, by shifting her around in the stable she raises hind leg more than ordinarily. When starting to work, she raises leg high for about one or two steps, but when in motion there is no sign of it. Can you tell me what these ailments are, and if there are any remedies for same?—A. J. K., Exeter.

[Saddle horse needs his teeth attended to; also nine-year-old mare. Get a graduate veterinarian to do this. Four-year-old mare has a mild case of stringhalt. There is an operation for this trouble which gives fairly uniform results, but would not advise its use until condition becomes more developed.]

LUMPY MILK, BAG SWOLLEN

To the Editor: In one of my cows the milk in one teat lumps for a day every six or eight days and lately the bag has also been swollen. She is a very heavy milker. I have been using some ointment salve without success. A remedy will be much appreciated.—H. J. N., Fresno.

[Your cow has mammitis. You had better consult your nearest graduate veterinarian, as these cases require special treatment.]

BLOODY MILK.

To the Editor: I have a cow that has been giving milk about eight months and her milk is getting clotty and somewhat bloody in two teats. Her bag has some fever and is very sore. I am feeding alfalfa hay.—T. N. G., Lakeport.

[Your cow has mammitis and will require special treatment impossible to give at a distance. Call in your nearest graduate veterinarian at once as this condition is very liable to endanger the life of the animal unless promptly treated, or to ruin the cow for dairy purposes.]

ESTRAY LAW.

To the Editor: What are the necessary steps to be taken in advertising an animal under the estray law of California.—J. D., Redding.

[Answered by A. E. Chandler of Symmes, Means and Chandler.]

[The present estray law of California provides that any person taking up an animal "shall confine same in a secure place and within a week thereafter shall publish in some newspaper of general circulation, printed and published in the county in which such estray is found, and also file with the County Recorder of said county a notice containing a description of the animal or animals taken up, with the marks and brands, if they have any, together with the probable value of such animal, and a statement of the place where the taker-up found and where he has confined the same. * * * The said notice shall be so published for two weeks. * * * If, however, the animal has the owner's mark or brand upon it, and such brand or mark has been recorded according to law, or if the finder knows the owner of said animal, or the person having charge thereof, then within five days after said animal is taken up he shall notify the owner of said animal, or the person having charge thereof, which notice shall contain the same information as the notice to be published and recorded."]

You'd think it ridiculous to deliberately throw away a good set of harness. Yet when you fail to keep your harness oiled you actually throw away years of its usefulness.

EUREKA HARNESS OIL

Leather is very porous. And unless you keep your harness oiled, sweat, moisture, dust and heat rot the fibre and thus shorten its term of service. Eureka Harness Oil preserves the original life, strength and elasticity of tugs, straps, and breechings—adds years to their life. Get your harness dealer to dip your harness occasionally or apply it yourself by hand. Dealers everywhere.

Standard Oil Company
(California)

The successful handling of dairy products requires co-operation from producer to consumer.

Never let the young bull learn his strength.

—Stock Buyer—

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE OR EXCHANGE—Percheron Stallion. Black. Nine years old. Weight 1800. Registered. C. H. Grupe, R. 3, Stockton, Cal.

FOR SALE—One mammoth Jack and fourteen mules. Jack Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns Prices on application. Hopland, Cal.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

SACRIFICE. REGISTERED JERSEYS—9 cows and heifers. One bull imported in dam. Noble of Oakland breeding. Bull worth price of herd. This stock all show stuff and prize winners. Price, $1,800, one-third cash. Box 31, Davis, Calif.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Con, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin. R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett. Breeder. Ceres. Cal.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

FOR SALE—One Full-blood Holstein Bull, 14 graded Holstein milk cows, 10 yearling heifers, 11 young calves. T. Stirewalt, Los Molinos, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J. Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

FOR SALE—O. I. C. Boar, eighteen months old, weight three hundred fifty pounds. Also a few fine fall boar pigs. All first-class. Address G. H. DuBois, San Martin, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality Herd boar won Gold Medal at Nevada State Fair, 1913 Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

BERKSHIRES REGISTERED—Young stock for sale from the following strains: Kennett, Longfellow and Masterpiece. J. Casey, Box 7, King Road, San Jose.

IMPERIAL STOCK FARM BERKSHIRES.—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in state. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS. T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

FOR SALE—Milch goats. Geo. Langlois, Sebastopol, Cal.

Efficient Feeding Methods.

[Written for Pacific Rural Press by Wm. Curtis Clark, Athlone.]

Owing to increasing land values and the consequent division of many large fertile ranges, the importance of intensive meat production is fast being realized in California. In view of this fact, the following few suggestions and details are offered upon a phase of this large subject.

Feed Yard Location.—Drainage is the determining factor in deciding upon a desirable yard location. If any success is going to result, it will depend largely upon having a dry, firm footing under the stock during the winter.

A steer, standing knee deep in freezing mud and water, with no place to lie down and comfortably chew its cud, is surely a difficult investment. It may struggle up to the trough and eat a ration balanced on the lowest prices, but the weight will not put on.

Any soil that possess little vertical or lateral seepage, that retains water in depressions, that works up thick and pasty in the hands, is not intended for yard purposes.

The formation of fixed ideas frequently prevents their adaptation to natural conditions. It is not absolutely necessary to have the feed yard location central or close to any existing buildings, if good drainage is elsewhere. The feeding plant is a sufficiently complete unit, in itself, to warrant its separate position.

The corrals should be arranged on opposite sides of an alley way running through the middle of the yard. In order to keep the stock as quiet as possible, the space should be restricted, but allow freedom of movement and individual comfort.

Three hundred and fifty square feet to the mature animal in the corral with thirty inches apiece at the feed trough will suffice. This would call for 125x140 ft. to accommodate fifty head with feed trough on the 125 ft. side. These dimensions combine to give nearly square corrals which reduces the amount of enclosing fences to a minimum.

Fences made of the best grade of two point barb wire, tightly stretched, with a single 2x8 in. panel bolted to the posts at shoulder height makes a very serviceable affair at reasonable cost. The panel acts as a fender and at the same time stiffens the fence.

The fence posts should be of large size, set 2½ to 3 feet deep, water-firmed, well tamped, and allowed to set, before stock is admitted. Using three wires, panel and top wire, the following has proved to be a very good spacing from the ground up: 10 inches—10 inches—11 inches—11 inches—6 inches. All corners must be well braced for severe usage. Staples should always be set to enter separate grains of wood, and hug the wires.

In order to relieve staple strain, the wires on partition fences are alternated on each side of the posts. All other wiring is on the inside.

The two posts at the water trough gap are connected by a 2x8 inch top and 2x4 inch bottom tie, bolted on before the posts are set. This permits the fence wires to be cut out for admittance of the trough without loosening the fence. At the same time, the top tie acts as a barrier over the trough.

Feed Trough.—An excellent type of trough may be built with the following inside dimensions: Vertical back 18 inches, floor 20 inches, front 11 inches sloping out 6 inches, using 2 inch Oregon pine surfaced one side. A 2x2 inch strip is nailed inside the front edge to prevent waste of grain and chopped feed.

This trough is supported by pairs of 4x6 and 4x4 main posts spaced 12 feet apart. The 4x4's are set on the back or alley side in 18 inch holes. The 2x6 posts are set along the front of the trough in holes 2½ feet deep. Intermediate posts are 2x4, set midway between in 6 inch holes containing square footing-blocks 6x6x2.

The trough is nailed to the posts and also to cross stringers beneath its floor, which is 10 inches above the ground. The entire trough is open and unobstructed. Nothing projects above it on the alley side (30 inches) to interfere with the overhanging clearance of the wide feed wagon bed.

A barrier plank 2x8 is bolted to the large posts leaving a space of 26 inches above the inside edge of the trough. This prevents the cattle from getting through and gives free access to the feed.

The cross section area of this trough is 330 square inches or 6.75 cubic feet to the running 30 inches which is ample for feeding twice a day.

Alley Way.—Upon both sides of the alley way, the feed troughs extend, entirely open to receive the feed as it is pushed or pitched off the wagon bed. The width of the alley is determined by the width of the wagon bed to be used, so that it may have a projection of 3 inches over each trough. A wagon bed 10 feet wide would require the trough posts to be set on 8-foot 10-inch centres across the alley.

The gates are set in the upper corner of each corral on the alley opposite each other. They swing in or out across the alley to chute the cattle into the corral, or two corrals at once, or from one corral into any other. After the cattle are once in the yard, two good men can handle several hundred head with no difficulty, shift them about as desired and all work is done with the least excitement and disturbance of the stock.

Gates.—A good type of gate is one built out from a 4x6 gate timber, having its lower bearing on the butt end of a beer bottle sunk in a ground block, which is set at the base of a hanger post, about 10 feet tall. The top swings in a yoke of

The Supremacy of the De Laval Cream Separator

Supreme in Skimming Efficiency

Over 35 years of experience and thousands of tests and contests the world over have demonstrated the De Laval to be the only thoroughly clean skimming cream separator, under all the varying actual use conditions, favorable as well as unfavorable.

Supreme in Construction

This applies to every part of the machine—to the bowl, the driving mechanism, the frame and the tinware. The De Laval patent protected Split Wing Tubular Shaft Feeding Device makes possible greater capacity, cleaner skimming and a heavier cream than can be secured with any other machine.

Supreme in Durability

The De Laval is substantially built. The driving mechanism is perfectly oiled and the bowl runs at slow speed, all of which are conducive to durability and the long life of the machine. While the life of other cream separators averages from three to five years, a De Laval will last from fifteen to twenty years.

Supreme in Improvements

This has been the greatest factor in De Laval success. Not a year goes by but what some improvement is made in De Laval machines. Some of the best engineers in America and Europe are constantly experimenting and testing new devices and methods, and those which stand the test are adopted.

Supreme in Service

With its worldwide organization and with agents and representatives in almost every locality where cows are milked, no stone is left unturned by the De Laval Company to insure that every De Laval user shall get the very best and the greatest possible service from his machine.

Supreme in Satisfaction

De Laval users are satisfied users, not only when the machine is new, but during the many years of its use.

Supreme in Sales

Because they are supreme in efficiency, construction, durability, improvements, service and satisfaction, more De Laval Cream Separators are sold every year than all other makes combined.

Order your De Laval now and let it begin saving cream for you right away. Remember, that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

DE LAVAL DAIRY SUPPLY CO.

101 Drumm St., San Francisco 1016 Western Ave., Seattle

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

"Good for what ails your car."

It takes the ills out of hills.

Red Crown the Gasoline of Quality

Durocs Cholera Immuned and GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay

ED. E. JOHNSON, TURLOCK, CAL.

HOWARD CATTLE COMPANY

BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE

55 New Montgomery Street San Francisco

Alfalfa Hay

FOR SALE.

A few cars of choice HAY

MANZANITA FARM

C. W. VANNOTE, Prop., Gridley, Cal.

¼x3 band iron set about 10 feet above the ground. A diagonal brace is dovetailed into the gate timber just below the yoke and slants across the gate to the opposite lower corner. A thrust brace extends up from the lower end of the gate timber diagonally to meet the first brace midway. From this point a cleat runs down across the panels. These are five 1x6 pine boards surfaced and counter sunk in a 4x6 gate timber. A cleat over the counter sinking and a double cleat at the latching end completes the gate. Carriage bolts are used throughout, double washered, cut off flush and crimped with bolt shears.

Feed Carrying Car.—A light steel track laid down the center of the alley to carry a flange-wheeled platform truck reduces the work of feeding to a minimum and enables a single animal to move a large load always in the same position over the troughs. The tracks are set close to the ground and do not interfere with the use of the alley as a roadway. They extend directly to the silos, granary, and hay.

Sorting Pen, Scales, and Chute.—A sorting pen with two compartments is necessary where a number of cattle are to be handled. The area of each should allow 50 square feet apiece for the number carried in one feed corral based on 50 minimum. The cattle are admitted from a winged approach through a pass gate and cut into either side at will. A six foot panel fence is used with no square corners. The pen is located at the upper end of the yard opening on the feed alley.

An alley containing the scales is located outside the pen so that it is accessible for general farm purposes. It leads directly back to the feed alley thus offering an easy means for checking up gains in any corral. The scale platform boxing should be carried up and then sloped out to accommodate platform wagons or cattle without without alteration.

A chute or squeezer is located in one of the compartments for branding, dehorning, and other close quarter work.

Feed Supply Location.—The silos are built in line alongside the track as close to the yard as possible to provide room for approach to the silage cutter by wagons from the yard side. The silos are filled from the back side and silage pitched into the feed car through the doors above the track.

On the opposite side of the track is the granary, built open inside for piling grain, space left in the forward end for mixing feed. This may also contain a mixer and crusher as the case warrants.

It is desirable to feed chopped hay from all standpoints. It is well to get a silage cutter with gears adjustable for this purpose. The hay can be hauled in and stacked to permit its being run through the chopper and blown into a storage barn alongside the feed track. This building should be of good height and not too wide to prevent easy car loading.

The storage barn need not necessarily hold hay for the entire season, but permits making a chopping run in intervals of fair weather. Chopped hay occupies but half the space of whole hay.

The hay building can of course be dispensed with if necessary. A pile of chopped hay is damaged by the weather to about the same extent as a similar stack of thresher tailings.

By the use of light portable track sections commonly sold on the market, close access may be had to open hay stacks or chopped hay piles whereby the car can be quickly loaded with the help of a portable derrick and the car animal.

Material for 12-inch trough, section as described:

Main post 1, pc. 4x6 in. by 8 ft., rough redwood; main post 1, pc. 4 x4 in. by 4 ft., rough redwood; middle post 1, 2x4 in. by 3 ft., rough redwood; middle post 1, 2x4 in. by 30 ft., rough redwood; mud blocks 2, 2x6 in. by 6 ft., rough redwood; stringers 3, pc. 2x4 in. by 30 ft., pine; floor 1, pc. 2x12 in. by 12 ft., pine; floor 1, pc. 2x10 in. by 12 ft., pine; front 1, pc. 2x12 in. by 12 ft., pine; back 1, 2x12 in. by 12 ft., pine; back 1, pc. 2x12 in. by 12 ft., pine; feed stop 1, pc. 2x12 in. by 12 ft., pine; barrier 1, pc. 2x8 in. by 12 ft., rough pine. Total 157 feet.

NUMBER OF SIRES NEEDED.

To the Editor: How many cows can one grown bull take care of? Also what are the number of sows for one boar?—F. J. M., Angels Camp.

[A vigorous bull, not unmature, should be able to breed 65 to 75 cows a year and keep in perfect health. A mature boar should be able to serve at least 60 sows in a season if they are not all bred too close together.—Editors.]

Give purebred calves family names that will tell their breeding.

A first class dairy ranch is to be established in Stanislaus county by Messrs. Arfsten and Petersen on 160 acres of alfalfa land. Two carloads of dairy cattle, one car load of hogs and a car of implements, etc., have been forwarded to the ranch by the owners.

Here's the new World's Champion.

MORE EVIDENCE of the Value of LARROWE'S DRIED BEET PULP

Mr. Dairyman,
Anywhere.

Dear Sir:—

The above photo is of Tilly Alcartra, the new world's champion milk producer, bred by A. W. Morris & Sons of Woodland, Cal. This cow's record for the past year was 30,452 lbs. of milk.

One of the principal items in her feed was Larrowe's Dried Beet Pulp.

Could we offer better evidence of the wonderful value of this splendid, succulent, vegetable feed?

Considering the present high prices of bran and other mill feeds now is a good time for you to start feeding Larrowe's Dried Beet Pulp. Order a single 100-lb. sack from your dealer today and test it on one cow whose milk record you know.

Sincerely yours,

THE LARROWE MILLING CO.

P. S.
Our booklet, "Profitable Feeding," giving valuable information about feeds, will be sent free if you address a postal to us at

607 Central Building, Los Angeles, Cal.

Grandsons of Tilly Alcartra

At Prices Within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocket-books of every dairyman wishing to improve the quality of his herd, whether it be a grade or purebred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and are the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

Salvador Stock Farm

Shire Stallions and Mares

I have a very good selection of SHIRE STALLIONS and MARES in my barns at present, and they are for sale at prices which you can afford to pay.

I buy for cash and sell for cash, and in this way I can give you better value than you can possibly get on time. Don't be misled by offers of two or three years' time, for you will certainly pay far more than the horse is worth on those terms.

To buy for cash is much the cheaper way, and if the horseman will give you time, your bank will advance what you need. For prices and particulars address.

HENRY WHEATLEY, Napa, Cal. Phone 665J.

Oak Grove BERKSHIRES

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM.
H. G. ARMSTRONG, Prop.
Woodland, Cal.

The Registered Hackney Stallion
Lord Lovelace No. 1665

will make the season of 1915 at the Woodland Hackney Stud near Woodland.
Mares will be properly cared for at reasonable rates, but at risk of owner only.
The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.
A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.
Service with return privilege, $25.00.
For further particulars call or address
R. E. DRESSER,
Manager Woodland Hackney Stud,
Yolo, California,
or EDGAR J. DEPUE, Owner,
818 Merchants' Exchange, San Francisco.

RHOADES & RHOADES
Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

TAMWORTHS

The Big Red Bacon and Block Hog.
Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

Stopping the $7,000,000 Loss.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Association of California.]

From the many interesting letters received, we select for publication and discussion the following:

To Secretary, E. J. Talbot: The mention of your proposed Federated Poultry Association in some of the agricultural papers has attracted my attention. I have been long connected with poultry matters in California, both as a poultry raiser and agricultural writer, and am familiar with the various difficulties which have beset the commercial poultryman these past twenty years on this Coast. But it appears to me that those past difficulties were trifling compared with what he is up against now. In fact, I can see the finish of poultry raising as a great industry on this Coast under the Democratic regime.

Look at its status even now—eggs running 10c per dozen below market quotations of even dates last year and feedstuff 25 per cent and up above last year's prices.

Tons of poultry products are being shipped in and many more tons are waiting means of transportation. It was an iniquitous act exposing our poultrymen to the competition of hundreds of millions of Orientals. As a correspondent in even the Democratic Philadelphia Record expresses it, "They put the farmer under free trade on what he has to sell, but kept him under the tariff on what he has to buy."

However, they will get theirs two years later, but in the meantime what have you to offer in the way of help in the present crisis?

Honest-to-goodness, I am not greatly "stuck on" poultry associations—they haven't worked out successfully, somehow. Take the Egg Exchange that was running full blast in Petaluma, just five years ago. Do you know that the members had to fish up about $500 each to meet the debts? The Petaluma Poultry Journal and other papers were mighty quiet about details when it collapsed—mum was the word. It was through one of the members that I learned the facts.

While I know nothing about the workings of the Santa Rosa associations, I do know that some of the members are dissatisfied and dropping out.

Again, I wish to ask what have you to propose that will help the plucked poultryman without taking even his remaining tail feathers?

If it were possible to form a national federation of poultry-raisers without leaders with an eye single to feathering their own nests, and a too great a tax on the overtaxed poultry raisers, the interests of the industry might be taken care of. Every group of interests is organizing and those that do not are likely to be crushed.

Yours in the interest of the commercial poultry industry—M. Russell James, Camp Meeker.

We are particularly pleased that this correspondent has afforded us an opportunity to answer these pointed questions, viz: "What have you to propose that will help the plucked poultryman without taking even his remaining tail feathers? What have you to offer in the way of help in the present crisis?"

The chief object of the Federated Poultry Association is to consolidate and unify all the poultry interests of the State. Without some organization embracing every branch of the industry, individual producers cannot undertake co-operative effort to advance their common welfare. By including every individual in California, who is in any way connected with the production and marketing of poultry, this Federation provides the channel through which not only the poultry farmers and fanciers, but also the handlers of poultry produce and commodities may all effectually co-operate.

We anticipate that the completeness of the scope we here assign to our efforts will invite criticism from some quarters. What! The poultry producer encourage assistance for their enemies, the dealers, and even welcome co-operation with them—absurd! Stop a moment, Mr. Poultryman,—are you not figuring on collectively appropriating the field of effort now occupied by these "enemies"? At this very moment, are you not seeking the opportunity to become dealers in poultry produce and supplies? Do you not expect to profit by any improved facilities or other advantages to be derived from the aid we ask from the State—our State, to which in some measure of degree we all contribute and support?

An Orphan Deserving State Aid.

Our correspondent mentions many years of experience with unsuccessful poultry associations and by inference confesses to a lack of satisfactory reason for failure. The most destructive element that has entered into the decay of previous attempts in this line has been selfishness—the spirit of unfairness cherished by one class or branch toward those engaged in one or more other divisions of the industry. Seeking special privileges creates situations favorable for the grinding of privately owned axes and cultivates suspicion—the advance agent of fraternal an-

California Vegetables. $2 postpaid. Pacific Rural Press.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

SEND FOR MY BOOK, "The Day-Old Chick Business and Description of My Plant and Breeding Stock." White Leghorns and Black Minorca Chicks my specialty. Breeding stock all kept on free range. Pullets for sale. Lasher's Hatchery, Petaluma, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

MACFARLANE STRAIN White Leghorn Eggs. $5.00 per 100, chicks Jan., Feb., $12.00, afterward $10.00. Order now, any quantity Cockerels, $2.00; White Rock eggs, chicks, cockerels. Write for prices. Big plant, best stock, lowest prices. Newton Poultry Farm, Dept. 1, Los Gatos, Cal. N. B., See article about us by Prof. Adams, U. C., in October "Poultrycraft."

TURKEYS Bourbon Red, White Holland, Mammoth Black, and the new Blue (Slate). In separate wire-covered yards. Range alternately. Males $8 to $12. Females, $5 to $6. Eggs $5 per dozen. Blue $1 each, $10 per dozen. Entered 13 turkeys at Los Angeles Show, 1915. Won 13 prizes. Mrs. B. Hocking, Guasti, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

LEAST SAID, SOONEST READ—Quality and price—good-will and satisfaction. Baby chicks. Hatching eggs from pure-bred, hardy, well-mated stock. Rhode Island Reds, Black Minorcas, White Leghorns. Circular with prices will interest you. Free. Roorden Poultry Ranch, Campbell, Cal.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for circular. Whitten Ranch, R. 5, Box 646, Los Angeles.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. RHODE ISLAND REDS—Tomokins strain. Bred to lay. First prize winners at leading California shows. Eggs for hatching. Year-old cockerels bred from my best layers at $3, $5, $7.50 each. Wm. Larm, 3854 39th Ave., Oakland, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. R. Tupper, Ceres, Calif.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

OUR SPECIAL White Leghorn Chicks are well hatched and strong, from healthy, vigorous breeding stock. Book our order now for coming season. San Jose Hatchery, 73 Meridian Rad, San Jose.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

SANTA CRUZ CHICKS are good chicks. We supply Anconas, White, Brown and Buff Leghorns, Barred Rocks, Reds, White Rocks and Black Minorcas. B. W. Archibald, Soquel, Santa Cruz Co., Cal.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wyckoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

WHITE ORPINGTONS, ANCONAS.—Eggs from specially selected Hoganized breeders. Settings, $2 and $1.50. Quantities also. Cockerels for sale. H. Lechten, Newark, Cal.

PINE TREE POULTRY FARM, Los Gatos, Cal.—Hatching eggs from S. C. White Leghorns. Selected stock. $6 per 100; $50 per 1000. Order now. No baby chix.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

LANGSHANS—Best on coast. Stock. Settings booked now. Lohr, 689 Kansas St., San Francisco.

HATCHING EGGS A SPECIALTY—From selected S. C. White Leghorns. 80% fertility reported by buyers. Price reduced for March and April. Pine Tree Poultry Farm, Los Gatos, Cal.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs C. M. Smythe, Route 8, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

WINTER LAYERS from Walter Hogal's White Leghorns, selected and bred by Hogan system. Eggs $6 per 100; chicks, $12. John H. Barber, Verde Farm, Livermore.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

BUFF LEGHORNS—Prize-winning, trap-nested, 250 egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

STAWETSKI'S White Wyandottes and Indian Runner Ducks. Winners Oakland, San Jose. Stock, eggs. R. W. Stawetski, San Jose, Cal., R. 2.

WM. LARM'S Rhode Island Red Yards moved to 3854 39th Ave., Oakland, Cal. Winners at leading California shows. Hatching Eggs and Stock.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second, Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland. Cameron Bros., 689 Vine St., Sacramento, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS — Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BUFF ORPINGTON Eggs, $1.50. Runner Ducks, $1. Chix, 15c; dux, 20c. Glendale, Fleming Ave., San Jose, Cal.

THOROUGHBRED English White Leghorn Cockerels from $2 to $3. David Rueck, R. 4, Box 53F, San Jose, Cal.

PRIZE-WINNING ANCONAS—Our birds win and lay eggs. Stock for sale. Harry Raines, R. 1, Folsom, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

BLACK MINORCAS. Cockerels, Eggs, Chicks. Reasonable. Chester Foogate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

THOROUGHBRED RABBITS—Sweepstakes Fresno, Modesto, Porterville. White Orpington chickens won all over Valley. Marshall's Parkside Place, R. 7, 246, Fresno.

FREE BOOK

Raising Calves without milk. Everytihng you need for stock and poultry raising. Write today.

F. F. SMITH & CO.,
1006 J St., Sacramento.

archy.

This Federation is not intended to promote the personal interests of any one or any division of the poultry people except in a manner calculated to affect the welfare of the industry as a whole. Neither have we to offer any royal road to success other than that followed by the genius of hard work and perspiration.

For the present the effort is supplied and the expenses are paid by individuals who are influenced to do so by public welfare sentiments, aroused by the present unfortunate condition of many worthy citizens of California engaged in poultry culture who through no fault of their own face disaster as a result of peculiar adverse conditions surrounding their occupation. In this emergency it is intended to encourage poultry farmers who are now discouraged, to remain in the business; with co-operative effort on the part of those engaged in the industry seconded by direct state aid and supervision, even if this is only afforded in a very moderate degree, there is no doubt that poultry raising can be continued in California as a safe and profitable occupation notwithstanding the present unfavorable outlook.

This seven million dollar annual loss and the crisis which at present confronts our poultrymen is in a great measure the result of lack of state aid, such as is extended to poultry culture by other governments and by this state to a number of California rural industries.

One of our members sums up the situation thus: "California poultry producers now must stand for a loss of over 30 per cent annually, most of which can be saved through education and legislation. The State should create a Commissioner of Poultry whose duties should in part be to teach how to cure ground that is infected with poultry diseases, thus saving one great waste. Better feeding methods must be taught so that eastern poultry will not command a premium over the California product. Poultrymen must learn that proper feeding for eggs would save a large part of the waste. Proper handling of the eggs, storing and selling should be taught. No one thing will place the industry upon a paying basis—a combination of many little things will, however, go a long way toward that end."

This indicates why this Federation, while not a poltical organization in any sense, has undertaken to obtain this necessary assistance. With this State aid, our poultry raisers are sufficiently intelligent and capable enough to produce results that will compare favorably with any country in the world and the annual value of their products should increase within five years to over forty million dollars annually.

Poultry for Profit

NATURAL AND ARTIFICAL INCUBATING.

[Written for Pacific Rural Press by Mrs. Susan Swaysgood, Pomona.]

Natural incubation is much more used among small farmers and poultrymen in the early spring than artificial incubation. For this reason we do want a few early chicks, but we do not want any great number to take care of until the weather is assured. Natural incubation looks much more simple than it is. It is true the old hen does the incubating, but unless the old hen is given a proper nest, fed and watered right, and made perfectly clean, the old hen is working under difficulties that she will not perhaps endure for the sake of raising a family.

Give Hens Comfortable Nests.—The proper way to set a hen is to set her according to the season and time of year. In the winter and early spring make a good nest of straw or some soft material, and if the box must be set on the ground it is better to put a board under it, as too much cold will penetrate through the one thickness of board the box is made of. Make the nest rather thick and scooped out in the center, put in two or three dummy eggs at first until you find out whether the hen means business or not. Having the nest box ready, place it where the hen will be kept dry and fairly warm, and if possible where she can get off and eat at her own pleasure. If this is handy, then put an amount of food there and a can of fresh water.

The Hen.—If you have several hens, choose a medium-sized, rather than a large one, and one that sits close to the nest.

Having selected the hen, take a dust box and thoroughly go over her breast, abdomen, back, head, neck, and along the back into the tail feathers. Don't leave as much space as a dime will cover at this first dusting. Having done this, set her down and let her go back to where she has been laying and getting broody until the evening.

How to Set.—Then get your hen and put her on the edge of the nest and give her light enough to see the eggs. If she gets on the eggs of her own accord, a good hen never leaves that nest, but if you put her on, and she is at all fussy she will be liable to go on a strike because this is a new place to her. Always contrive, if convenient, to set the hen in a box similar to the one she has been laying in.

Careful Treatment for Lice.—In ten days go over the hen again with the dust box, and again before she hatches. If this is done faithfully, there will be no lice to attack the young chicks until they get a start in life, and not at all if the hen is dusted once a week. Should there be mites in the building the hen is set in, spread a gunny sack under the nest box and saturate it with coal oil at the start, then once more when the three weeks are half way through. Mites don't like coal oil, but if it evaporates they will travel over it to reach the hen.

Feed.—Cracked corn or Kaffir corn, and a little rolled oats are among the best feeds for setting hens, very little, if any, green feed should be served as it causes bowel looseness.

Artificial.—A great deal concerning artificial incubation can be said in a few words. In the first place, carefully read the instructions that come with the machine. Fill your lamp and start up the machine; then watch so that you know just how it acts, and if it runs according to instructions. If not, find out what is the reason. Clean out the air chamber as soot may have accumulated in the passages, spray or wash out the egg chamber, trays, and everything connected with the machine.

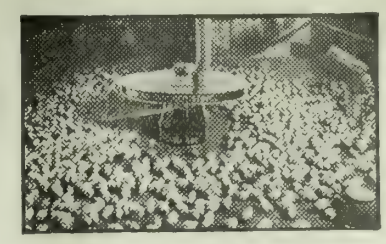
Taking Care of the Eggs.—When the machine is regulated properly, put in your eggs slightly on one side, small end down, and do not crowd in more than the machine's capacity. Run the machine at an even temperature; if you start it at 103, keep it there the first five days; if you start at 102½, do the same, and for three days leave the eggs quiet in the trays. Then turn once a day for three days and after the seventh day turn them twice a day, but not until the tenth day should the airing be of any length of time. The temperature of the room has much to do with the time eggs can be left out. If the room is warm, let them air longer, if cold a shorter time. After the tenth day a gentle rolling around, like the old hen gives the eggs, is good exercise for the chick and increases it's chance of breaking the shell. If the room is warm, this can be done several times a day to good advantage, but be careful about chilling.

SET YEARLING TURKEYS'

Are the first eggs of turkey hens any good for setting? How old are the turkeys before they start to lay?—Mrs. J. G. L., Santa Ana.

[Answer adapted from "California Poultry Practice."]

[Turkey hens should be over a year old before their eggs are used for setting. Having complied with this, the first eggs are all right and they usually come in time to hatch for the Thanksgiving market.]



The Fresh Air Brooder Stove

THIS is our NEW SELF-VENTILATING BROODER STOVE. AUTOMATIC TO THE MINUTE. Economy's climax. No more crowding around the stove at night. HEAT EQUAL in all parts of stove room. Petaluma's severest critics pronounce this new wonder the peer of all brooding systems. Bank and our personal guarantee always. Get our latest catalogue. We can help YOU. We ship direct to the user.

Fresh Air Brooder Stove Factory
J. E. KRESKY,
307 Wash. St., Petaluma, Cal.

"It's the Chicks You Raise That Count."

THE VICTOR BROODER RAISES EVERY ONE

Our Brooder is perfect; so is our Incubator. Send for free catalogue.

THE VICTOR INCUBATOR CO.,
Decoto, Alameda Co., Cal.

HOPLAND STOCK FARM, Hopland

Sanitary Conditions perfect. Largest Poultry Farm in California.

Hatching Eggs—S. C. W. Leghorns .....$ 5.00 per 100
Hatching Eggs—White Plymouth Rocks.....$10.00 per 100
Baby Chicks—S. C. W. Leghorns.....$10.50 per 100
Baby Chicks—White Plymouth Rocks.....$15.00 per 100

Incubator Capacity increased this year to 50,000.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

Eggs Wanted

Egg Producers! Egg Shippers!
STOP! LOOK! LISTEN!

Highest prices paid for clean fresh eggs.

Address

E. F. ZUERN
Wholesale Produce
Butter-Cheese-Eggs-Poultry
354 Fourth St., Oakland, Cal.

GET THE BEST

For Your Baby Chicks

Coulson's Poultry Foods

SPECIAL CHICK FOOD

Write for book "Chickens" to

COULSON CO., Petaluma, Cal.

Send for our booklet
"White Leghorn BABY CHICKS"
FROM HEALTHY HAPPY HENS
and that helpful pamphlet,
"FEEDING CHICKS"
Free on request.
Must Hatch Incubator Co., (Inc.)
419 Seventh St., Petaluma, Cal.

The Home Circle

LITTLE PEOPLE ON THE WALL.

When the coals all softly glow,
And the light is burning low,
Soon appear, as shadows fall,
Little people on the wall.

How they stare and scowl, or grin!
Young and aged, fat and thin;
From their bonnets queer they peep;
Oh, I cannot get to sleep!

Mother enters with a light,—
All have vanished—not a sprite!
"Simply fancy running wild,"
Mother says; "that's all, my child."

Then she cuddles me up tight;
When I wake 'tis morning bright.
Flowers and buds and leaves, that's all—
Are the people on the wall.
—Ruth Herrick, in Little Folks.

GREAT-GRANDMOTHER'S PIECE BAG.

Betty's feet dragged slowly along the hall.

"Why, what is the matter?" called mamma, cheerily. "Where has my little sunshine girl gone?"

Betty slipped quietly through the door.

"Mamma," she asked soberly, "why does God make some people, oh—so smart and other people just stupid?"

Mamma dropped her sewing and gathered Betty in her arms. "That is rather a big question for a little girl to ask," she said, "and a very hard one for mamma to answer. Suppose we just try to find out why one little girl thinks she is stupid."

Betty's head rested on mamma's shoulder.

"It's for Miss Gleason," she answered. "All the girls are going to give her a wedding gift next month when she is married. Margery has made such a pretty frame of German silver, Alice is crocheting her some table mats. Helen has made a little raffia basket, Beth has worked her two doilies, Hattie has painted a pretty plate; and I have tried so hard, mamma, but I can't do anything."

Mamma gave the little speaker a symathetic pat, and Betty continued in a voice that trmebled a little,—

"My fingers seem all thumbs in braiding raffia, my roses and flowers in painting look all sploshes, and I can't crochet, and I don't embroider: so what can I do?"

"You can sew," said mamma, thoughtfully. "I do not know a little girl of your age anywhere who can take such even, dainty stitches. Betty, I have an idea! We will go and call on Great-grandmother's Piece Bag."

"Great-grandmother's Piece Bag!" repeated Betty, looking at her. "Mamma, what is that, and how will it help?"

"My grandmother," answered mamma, "all her life always saved all the pieces from everything she made. As she sewed a great deal for her own four sisters and their children, and for five of her own, and six grandchildren, she had bags and bags full of scraps. When she died I went through all the bags, and picked out the prettiest pieces, and put them in a great big bag, which I labelled, 'Grandmother's Piece Bag.' The others we gave away. As she was my grandmother, that makes her your great-grandmother, so you see what I meant when I said we would visit Great-grandmother's Piece Bag."

They were soon sitting on the attic floor, with the contents of the big bag emptied on a big sheet between them.

"Let me see," said mamma, thoughtfully, "I think this piece of russet silk will do for one thing. That was a piece of your great-grandmother's wedding gown. There is a lot more of it, so we will use this.

"Here," mamma continued, holding up a piece of sheer, white muslin with pink rosebuds embroidered on it, "is the dress my mother wore to the party where she met your grandfather."

"O mamma!" cried Betty, holding up a piece of goods, china blue with a dainty white vine running over it, "what a pretty dress this must have made!"

"That," said mamma, "is called French calico. My uncle, mother's brother, brought it to me when I was five years old. Grandmother was visiting mother at the time, and made it up for me. This buff is French calico, too. I had some aprons made of it, bound with blue, to wear around the house. Grandmother always liked to see us take care of our dresses, and she made aprons like these for her daughters and grand-daughters. Now I think we have enough for to-day, and, if you are willing to sew an hour every day until school is through, I think you will have a nice present for Miss Gleason."

Every day after that Betty rushed home from school; and, when the other girls urged her to stay and play "tag" and "hide-and-seek," she would say: "I can't, girls. I am sorry, but I have something very important to do."

"Important," grumbled Hattie. "I suppose it's a big secret."

"You'll know some day," laughed Betty. "Alice, is your present for Miss Gleason finished?"

"I finished the last one last night," said Alice, proudly. "Mamma is going to tie them all up pretty today. We all give her our presents to-morrow, you know. What are you going to give her, Betty?"

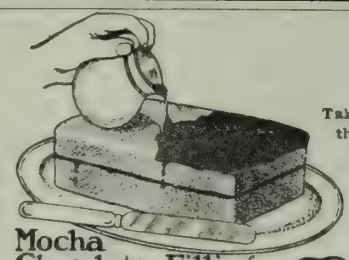
"Come over to-night, all of you," answered Betty, "and I will show you. Mamma says come early, so you can stay and make some candy."

Seven o'clock found the six girls ringing Betty's doorbell. Betty herself let them in.

"Let us see quick, Betty," cried Helen. "You've seen all ours, you know. And you never told us what you were doing," she added, reproachfully.

Betty's face sobered. "I couldn't, Helen," she answered, "because I didn't know exactly myself until mamma showed me; and she said not to tell until we finished. It does not sound anything to tell," she added "because I cannot make fancy things as you girls do, but it looks pretty now."

She led the way to the sitting-



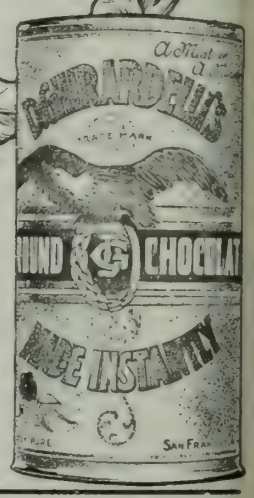
Mocha Chocolate Filling For Layer Cake

Take one cup powdered sugar and mix with three tablespoonfuls of Ghirardelli's Ground Chocolate. Then take three tablespoonfuls boiling black coffee, poured into two tablespoonfuls of butter, stir into above and beat well. Flavor with vanilla.

This recipe for a filling will make your layer cake deliciously different especially if you use

Ghirardelli's Ground Chocolate

The most economical of all chocolates; the original and genuine Ground Chocolate—pure and wholesome.



Ghirardelli's Ground Chocolate enables you to serve the most healthful, the most satisfying of all beverages.

Sold only in hermetically sealed tins.

Order it from your grocer.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

Why You Should Buy STILETTO

—STILETTO— tools are keener and better tempered, —STILETTO— tools work better and last longer, —STILETTO— garden and farm implements are longer lived, run easier and more satisfactorily, —STILETTO— paint goes farther and wears better and that word —STILETTO— spells quality and confidence, first, last and always.

If you do not know where —STILETTO— goods are sold write us and we will give you the name of the nearest —STILETTO— dealer.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

room, where, spread out on the centre-table, was a big sheet of tissue paper, and lying upon it were a number of bags. But such bags! Beth picked up a dainty bag of white muslin with a wreath of blue forget-me-nots on it. Attached to it was a card which read, —

"My first short dress in this you see;
Use it for spools, and think of me."

"Oh!" cried Hattie, picking up a bag made from the blue French calico, "what a pretty, pretty bag this is! And listen to this girls,—

"When from your sight dust tries to hide,
A useful friend you'll find inside."

"Oh, see!" she cried, opening it, and showing a neatly hemmed duster. "Isn't that a good idea?"

But Helen was already looking at the buff calico bag, with its drawstrings of blue ribbon. Taking up the card, she read,—

"For scraps. May they be the only kind you ever have."

"That's papa," laughed Betty. "He would put that on, and it is the only one that isn't rhyme. See, there are just a dozen bags, of muslin, silk, and calico; and each one is for some special thing. I made them every bit myself, too, afternoons. I do hope Miss Gleason will like them."

And Miss Gleason did like them. For five years later, when she came with her husband to live near Betty's home, when the girls called to see her, she showed them every single one of Betty's bags still in use.—Emma F. Bush, in Zion's Herald.

ODD USE FOR A POCKET.

Just at this bird-nesting season the man of the house wanted a coat that he had left hanging in a chamber but little used. When he relieved himself of the garment, hanging it beside the window, he was engaged in some warm work among the grain sacks, the window being open for air. That is the way things were left. A fortnight, perhaps, had passed; and, when the owner went to get the coat, as he was about to take it down from the nail, out came a pair of tiny wings and darted through the window. A bird had taken possession of one of the pockets. There was its silky-lined nest, and in the nest were three tiny speckled eggs.

Now this man had other coats; the bird had no other nest. What would be fair to do in such a case? As the father of some dear little children in the home, he was not long in answering the question. Perhaps he brought the journal to take just a peep at the nest and the eggs; but he would not abuse the confidence of the dear, sociable little bird, who, had she been a paying tenant, could not have been more secure from being disturbed. This man managed to do without his coat for the sake of lending her the further use of its pocket. And in that cosy place the mother-bird hatched and fed and reared her loved brood. When the little wings were enough grown, the young followed her into the beautiful world outside the chamber window, where now hung a coat with an empty nest in the pocket.—Watchman.

RADFORD ON WOMAN SUFFRAGE.

[The descent in this article is as ridiculous as the point sought to be made.—Ed.]

The home is the greatest contribution of women to the world, and the hearthstone is her throne. Our social structure is built around her, and social righteousness is in her charge. Her beautiful life lights the skies of hope and her refinement is the charm of twentieth century civilization. Her graces and her power are the cumulative products of generations of queenly conquest, and her crown of exalted womanhood is jeweled with the wisdom of saintly mothers. She has been a great factor in the glory of our country, and her noble achievements should not be marred or her hallowed influence blighted by the coarser duties of citizenship. American chivalry should never permit her to bear the burdens of defending and maintaining government, but should preserve her unsullied from the allied influences of politics and protect her from the weighty responsibilities of the sordid affairs of life that will crush her ideals and lower her standards. The motherhood of the farm is our inspiration, she is the guardian of our domestic welfare and a guide to a higher life, but directing the affairs of government is not within woman's sphere, and political gossip would cause her to neglect the home, forget to mend our clothes and burn the biscuits.

MARKETING CLEVERLY.

"Have you a nice cucumber?" asked Sandy, as he entered the market garden.

"Yes, here is one," replied the gardener, "that will be ninepence."

"Too much. Have ye no' one for about tuppence?"

The gardener showed him a small one on the vines. "You can have this one for tuppence," he said.

"All richt, here's the tuppence; but don't cut it off. I'll be calling for it in a fortnight."—The Youth's Companion.

The president of the university had dark circles under his eyes. "You look ill," said his wife. "What is wrong, dear?" "Nothing much," he replied. "But—I—I had a fearful dream last night, and I feel this morning as if I—as if I"—He hesitated and stammered. "What was the dream?" asked his wife. "I—I dreamed that—that I should pass the freshman examination for—admission!" sighed the president.

The doctor told her that what she needed was a good hearty meal at night and then to stop thinking about her stomach. "But doctor, only two months ago you told me to avoid dinner at night, and to take a light supper instead." "Oh, did I?" replied her medical adviser, reflectively. "Well, that shows what marvellous strides medical science is making!"—Boston Transcript.

"How would you classify a telephone girl? Is hers a business or a profession?" "Neither; it is a calling."

California Poultry Practice

by Susan Swaysgood

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

Panama Pacific 1915 Exposition

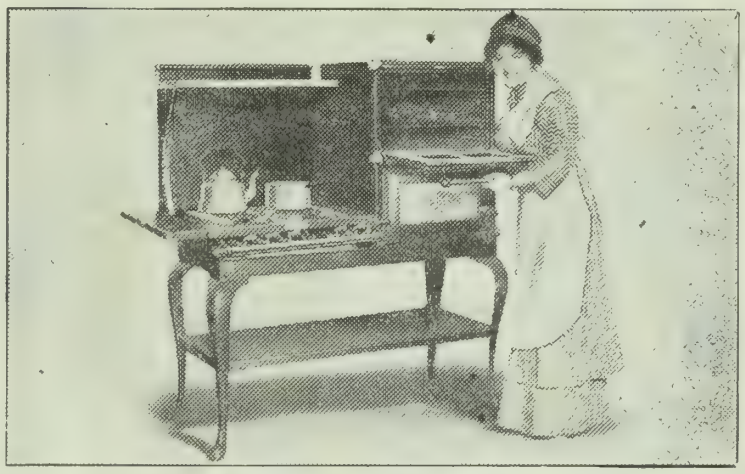
Does Your Wife Have the "Utility Smile"?

If not, Install

A Utility Gas Generator

And thus make your own Gas

FOR LIGHTING, HEATING OR COOKING.



ECONOMY AND SAFETY.

800 cubic feet of Utility Gas for the price of One Gallon of Ordinary Motor Gasoline.

Visit Our Exhibit in the Machinery Palace and Our Model Home at the Fair.

Or Write for Particulars To

The Utility Gas Appliance and Sales Co.

340 Sansome Street, San Francisco.

FREE

One Month's Trial Tuition Free. Metronome for Teaching Time. Big Illustrated Catalogue. Send for Our Book Today.

LEARN ANY INSTRUMENT.

Our course of extension instruction has been so successful that we know, if you try a month free, you will be eager to continue the course. We teach piano, organ, violin, mandolin, guitar, cornet, etc. The method of instruction is entirely new. If you take the course we will refund your money if you don't think it worth every cent charged. Send for the big free catalogue and month's free tuition offer today.

American School of Music

Suite 750, Commonwealth Bldg., Portland, Oregon.

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339.

Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Feb. 24, 1915.

WHEAT.

Further weakness is noted in the eastern and northern markets, with a decided tendency to react from the high levels reached early in the month, and a good deal of speculative selling. Local prices have not yet been affected, but the demand has naturally fallen off somewhat.

Cal. Club, Ctl.	$2.45@2.50
Forty-fold	2.50@2.55
Northern Bluestem	2.55@2.60
Northern Club	2.45@2.50
Northern Red	2.45@2.65

BARLEY.

This grain has been affected by the eastern decline in wheat, and both spot and speculative markets are lower locally. Offerings are liberal, and the demand at the moment is very limited.

Brewing & Shipping	$1.55@1.57½
Choice feed, per ctl	1.52½@1.55

OATS.

While values are well maintained, conditions at the moment are not favorable for heavy buying, and business is mostly of a small jobbing nature.

Red Feed	$1.60@1.65
Seed	1.80@1.90
White	2.00@2.05

CORN.

There is still a good demand for all grades for feeding, but buyers are disposed to take only what is needed in the immediate future, and trading is hardly as lively as for some weeks past. Values, however, are unchanged.

California Yellow	$1.85@1.90
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.85@1.90

BEANS.

The top figure on bayos has again been reduced a little, but everything else on the list stands at the former quotations. Business in practically all lines continues fairly active for this time of year, with a steady run of inquiries from all parts of the country, and the general situation is favorable to sellers. Stocks throughout the State are moving off in good shape, and are expected to clean up some time before the new crop comes in. Conditions bearing on the coming crop are very favorable, and the production will probably be much larger than usual, but this seems to be fully warranted by the demand.

(On Wharf.)

Bayos, Cal., per ctl	$5.00@5.10
Blackeyes	5.00@5.50
Cranberry Beans	4.25@4.50
Horse Beans	3.50@4.00
Small Whites	5.00@5.25
Large Whites	4.85@5.00
Pink	4.00@4.25
Limas	5.50@5.65
Red Kidneys	5.50@5.75
Mexican Reds	4.75@5.00

SEEDS.

Continued rainy weather is retarding the spring business a little, but the general demand shows some increase, and more activity is expected. Prices show no further change.

Alfalfa	16 @16½c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Arrivals have again increased during the last week, as holders in the country are very anxious to sell. These offerings find a very poor reception on the local market, as the demand has not increased to any great extent, and with the amount of hay available there is no prospect of improvement in the general situation, even though local requirements may pick up a little. Considerable business has lately been done in the country at low prices, and a great deal is offered without finding buyers, as there is no desire to pile up stock in advance. Undoubtedly a large tonnage will be carried over into the season, and the crop outlook at present is excellent.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

No oilcake meal is offered here at present. Prices for other lines are unchanged. Business continues active in a jobbing way, but there is no disposition to accumulate large holdings, as the present weakness of grain, if continued, will doubtless extend to all lines of feed.

Alfalfa meal, ton	$16.00@17.00
Alfalfa-Molasses meal per ton	19.00@20.00
Bran, per ton	33.00@34.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	41.00@42.00
Middlings	35.00@36.00
Rolled Barley	33.00@34.00
Rolled Oats	36.00@37.00

VEGETABLES.

The week opened with quite an active demand in all lines of garden truck, as the crowds in town through the holidays cleaned the market up in good shape. Offerings, however, are increasing, with a corresponding reduction of prices in several lines. The principal feature is the larger arrivals of asparagus, which is much cheaper, though the demand holds up well. Eastern shipments from the Delta will start next week. Rhubarb shows a wide range, the strawberry variety from Alameda county brings as high as $2.25, while some other lines sell as low as $1.00 per box. Tomatoes also show quite a range, with San Diego stock offered at $1.50, while Mexican sell up to $3.50. Southern lettuce is plentiful, but local stock is firmly held. Celery is steady at the old range, while hothouse cucumbers are a little higher.

Artichokes, doz., No. 1	50 @60 c
No. 2	40 @45 c
Asparagus, lb	10 @20 c
Peas, lb	10 @15 c
Peppers, Bell, lb	10 @17½c
Tomatoes, crate, Mex	3.00@3.50
Celery, crate	$1.50@2.25
Sprouts, lb.	2 @2½c
Rhubarb, box	1.00@2.25
Lettuce, crate	.75@1.25
Cucumbers, doz	.90@1.10

POTATOES AND ONIONS.

There is not much new in this line, onions being still in good supply at the old prices, while potatoes are coming in freely. Sweets are a little higher, and garlic still commands extreme prices.

Potatoes, Oregon, ctl.	$1.60@1.70
Salinas, ctl.	2.00@2.10
River Burbanks, ctl.	.90@1.25
Sweet Potatoes, ctl	1.75@2.00
Onions, yellow, sack	.90@1.00
Garlic, per lb.	17 @20 c

POULTRY.

There is a good strong demand for chickens this week, but arrivals have been large, both from local and eastern points, preventing any advance in prices. Turkeys are no longer in demand, and prices are off, especially for dressed birds. Belgian hares are a little easier, but find a ready market.

Live Turkeys, lb	17 @19 c
do, dressed	18 @21 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb.	18 @19 c
Small Hens, per lb.	17 @18 c
Young Roosters, per lb	17 @18 c
Squabs, per doz.	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz.	6.00@9.00
Belgian Hares, live, lb	8 @10 c

BUTTER.

The week opened with a very active market after the holidays, and there is still a lively demand. Arrivals, however, have been quite large, and prices showed some weakness at the start, though extras are now 1c. above last week's top prices, lower grades also showing an advance.

Almond Growers

California's largest almond crop was 3500 tons. Recent planting will increase this to over 15,000 tons. Are you awake to the necessity of co-operation to insure satisfactory market for this surplus?

CALIFORNIA ALMONDS GROWERS' EXCHANGE,

SACRAMENTO, CALIFORNIA.

Ask Your Dealer For

EL DORADO COCOANUT OIL CAKE

for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,

149 California Street, San Francisco

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	29	29	..	..	28	30½
Prime	26	26	..	..	27	27
Firsts	24	24	..	..	26	26

EGGS.

There has been a good lively demand, but the selling movement is still heavier, as production is increasing and heavy shipments are coming this way. Prices are accordingly lower. Another heavy shipment of Chinese eggs has just arrived.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	24½	..	..	22½	21½
Sel. Pul.	21	23	..	..	20½	20

CHEESE.

Supplies are plentiful in all lines, offsetting any increase in demand. Flats and Y. A.'s stand as before, while Monterey cheese is down again.

Fancy California Flats, per lb	14c
New Young America, fancy	15c
Monterey Cheese	12@13c

Los Angeles dairy prices:

	Wed	Thu	Fri	Sat	Mon	Tu
Butter	29	27	27	..	..	27
Eggs	24½	23	22	..	..	22
Cal. Cheese	14	14	14	..	..	14
Flats	14½	14½	14½	..	..	14½

DECIDUOUS FRUITS.

Business has been more active for the last few days than for some time previous, though the demand was very largely for Oregon apples. California stock, however, came in for a part of the business, though Belleflowers receive little attention and are even cheaper than before. Offerings in other lines are too large for any improvement in values.

Apples, Newtown Pippins	50@1.00
Belleflowers	25@ 60c
Baldwin	50@ 75c
Pears, Winter Nellis, bx.	1.25@1.50

DRIED FRUITS.

Local packers report a very satisfactory demand for this time of year in most lines of dried fruits, and a considerably larger movement is expected in March. Values are steadily maintained at the former level on all varieties, and in some lines advances are expected before the season is over. The only real weakness is in peaches, which are moving off very slowly. A little better demand is expected during the spring, especially in view of improving conditions in the South; but there is still a large supply around the country, and the outlook is not very encouraging. From some reports, packers are not very eager to take up current offerings of prunes at the moment; but everything of good quality will doubtless be needed before long. Apples are keeping well, and apricots are being held for higher prices. Raisins are moving slowly in the east, but there is a very good and steady general movement. In several lines there is still a demand from Europe, and shipments are leaving at frequent intervals. The New York Journal of Commerce says: An active inquiry for California prunes for immediate shipment from New York to Middle West markets is reported, but little, if any, business results, as buyers are reluctant to meet holders' views on prices. As Coast quotations, based on 6¼ to 6½c f. o. b. on the four sizes in bulk, are quite a little above present parity here the Western buyers, whose stocks appear to be at a low ebb, have been buying more or less freely in New York and heretofore have been paying the prices. Since the beginning of the year it is said they have taken a good many cars from here and seem to need a good many more, but owing to the stronger feeling caused by this demand and increasing requirements of local consumption, business for shipment to that section seems to have been brought to a standstill for the time being.

Neither peaches nor apricots seem to be getting much attention from the distributing trade in this section. The spot market for the latter not being overburdened with supplies is rather firm in view of the higher views recently expressed by sellers on the coast. Peaches are steady, but it is too early to look for anything more than a hand-to-mouth demand from buyers in this section. On the Coast the feeling among sellers is reported to be firm, but it does not appear that they are getting any business to speak of from any of the distributing markets at present.

Evap. Apples, 1914	5½@6
Apricots, 1914	6 @9
Figs: White, 1914	3 @3½
Black	2½@2¾
Calimyrna	5 @6
Prunes, 4-size basis, '14	5½@6½
Peaches, new	3 @4
Pears	6 @8
Raisins (in sweatbox):	
Loose Muscatels	4 @4½
Seedless Sultanas	5

CITRUS FRUITS.

The eastern auction markets for citrus fruits remain unchanged for the week. Owing to the heavy rains very little fruit is being sent east though growers are anxious to pick because of some decay developing. The eastern auctions are paying from $1.40 up to $2.70, average, for oranges, and lemons are bringing only about $3 per box, with little demand. Should the rain let up for a few days in the orange districts of the south, shipments will go forward in large numbers and soon catch up with last year's total at this time of year.

The local demand for oranges at San Francisco has been better than for some time past, retailers being well cleaned out after the holidays. Offerings, however, are large, and prices show no improvement, tangerines being a little easier. Other citrus goods are also moving rather better than before.

Oranges, navel, box	$1.25@2.00
Tangerines, small box	65c@1.50
Grapefruit, seedless, bx.	1.50@2.75
Lemons, box	1.50@2.50

NUTS.

The nut situation shows little change, as stocks in the country are now getting well cleaned up, and little business is being done, though there is considerable inquiry. Prices stand nominally as before. There is some business in Manchurian walnuts, which are quoted as before.

Almonds, 1914 crop:	
IXL	16½c
Ne Plus Ultra	15½c
Drakes	14 c
Texas, Prolific	14 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c

Ungraded	12½ @14	c
Manchurian	7 @9	c

HONEY.

The honey market here has been, if possible, even duller than before. Very little is being sold, and those who are carrying large stocks are unwilling to take on any more.

Water White, comb	10 @12	c
Light Amber	8 @10	c
Water white, extracted	6½ @ 7	c
Light Amber	5 @ 5½	c
Dark	3½	c

LIVE STOCK.

The only change is on yearling lambs, which are slightly higher. Spring lambs are expected in the market before long, but none are appearing so far. Sheep are very firmly held in the country, and few are being bought. Cattle are offered a little more freely, but remain steady in price.

Steers, No. 1	7 @ 7¼	c
No. 2	6¾ @ 7	c
Cows and Heifers: No. 1	6 @ 6½	c
No. 2	5½ @ 5¾	c
Bulls and stags	4 @ 6	c
Calves: Light	9 @ 9½	c
Medium	8½ @ 9	c
Heavy	7 @ 8	c
Hogs: Grain-fed:		
225 to 300 lbs.	7	c
100 to 225	7½	c
Prime Wethers	6½ @ 6¾	c
Ewes	5¼ @ 5¾	c
Yearling Lambs	7¾ @ 8	c

DRESSED MEATS.

Steers	10¾ @11½	c
Veal, large	13½ @14	c
Small	15 @15½	c
Prime Wethers	12 @12½	c
Ewes	11 @11½	c
Yearling Lambs	13½ @14	c
Dressed Hogs	11½ @12	c

HOPS.

There is still more or less buying, mostly of scattered lots in the Sacramento valley district, at about 11 to 12c, and a few new crop contracts have been made at about the same figures.

WOOL.

Local values are not very definitely established, but there are indications that the market will develop unusual firmness, and considerable interest on the part of buyers is reported in such scattered lots of fall wool as have not already been sold. It is understood that considerable business has been done. Efforts have also been made to contract for the spring wool, but growers are taking a very firm stand, and are disposed to hold off until the situation is better understood. Some large sales at high prices are reported in the mountain states.

HORSES.

Interest among horse dealers has centered this week in the sale at Davis, but earlier in the week some large shipments from northern California and Nevada, including some attractive heavy stock as well as more miscellaneous offerings, were offered here, and found a rather better reception from local buyers than offerings of the past few weeks. There is also more inquiry for mules than for some time past.

Publisher's Department

Again our subscription list jumps ahead a notch as the result of good work by our field force. During the past week we have added 230 new subscribers to the list. The leader in the field was Mr. Knox, who turned in 49 new subscribers, besides taking time to renew over 30 old ones.

Our new book, "California Garden Flowers," is meeting with a very flattering reception from the trade. The book is designed for the woman or man who loves flowers. It tells how to make a greater success, and we would like to furnish a copy to every Rural Press reader.

"California Poultry Practice" is selling rapidly these days and is being mailed to poultry people in all parts of the State. Send for a copy—it will help make your poultry profits larger.

If our readers knew just how careful we are in accepting advertisements for this journal, we know that they would have greater faith in the announcements made each week. You will help yourself by dealing with our advertisers, besides doing us a favor.

AGRICULTURAL FEDERATION STARTED.

A preliminary step in the federation of all associations, which include the whole production of the State in their respective lines, was taken Feb. 22 at the World's Fair grounds. Fifteen of the state wide associations had been invited to participate by letters sent out from State Horticultural Commissioner's office. About eight of them were represented at the meeting. These included the Walnut Growers' Association, the Wool Growers' Association, the Exhibitors' Association which was formed at Los Angeles at the last fruit growers' convention, the Dairymen's Association, the Farmers' Union, the San Joaquin Valley Water Problems Association, the Protective League, the Bee Keepers' Association, and the University.

A committee of seven was authorized to draft a constitution and by-laws with provisions for membership and financing such a federation, and for a meeting of delegates at which the constitution could be formally ratified for each association. The date of this meeting was left to the committee, but March 23 was favored by the gathering, on account of its nearness to the special days at the World's Fair, for the irrigationists and the National Live Stock meeting.

The advantages of such a federation, as pointed out in the discussions, are that the agricultural interests of the State could bring a great deal more pressure on the transportation companies, on the Legislature, and on the marketing agencies if the Federation's representative could say he were representing the whole state. It was also mentioned that we need statistics in regard to the profits of commission men who are not making so much money as is generally supposed.

The 1914 crop of honey exceeded that of previous years, the yield being 75 pounds per colony of bees. It is declared that the increase is due to the immense crop of wild and cultivated flowers of last season.

Last week the Chowchilla Farm Bureau met and discussed the devising of a more liberal rural credit system under federal or state authority.

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

FOR SALE—One of the finest and best improved alfalfa and dairy farms in Stanislaus County. 60 acres—3 miles from Modesto under irrigation ditch—all under cultivation. Beautiful, strictly modern 7-room bungalow, hardwood floors; fine, roomy, 4-room milkers' cottage; good home orchard; modern barn, concrete floors, accommodation for 50 cows; steam separator house; electric pumping plant; silo, etc.; everything up to date. This place is fully equipped with farming tools and implements, including hay loader, all dairy utensils necessary for a 50-cow dairy; is electrically lighted throughout; five minutes from school. Just the place you have been looking for, a beautiful home and a practical dairy farm in one. A bona fide bargain which will pay to investigate. The price is right. Terms. G. O. Hillier, 2900 Harper St., Berkeley.

FOR SALE—400 acres near Orosi, Tulare County. I offer tracts of 20 acres or more. If you will make improvements I will give you possession without paying one cent down on the land, and you need pay me nothing for three years except the interest and taxes. The soil is especially adapted to the growing of figs, olives, peaches, plums, grapes, oranges and many other crops, which are in full bearing on all sides of this 400 acres Price $150.00 an acre. First payment 1918, balance in annual installments. Investigate now. Planting time soon here. W. P. McKee, 546 Title Insurance Building, Los Angeles.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. E. C. Waller, 625 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97 Salinas, Cal.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

WANTED to hear from owners of good fruit ranch, or irrigated land well adapted for fruit ranch Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

FOR SALE—Three mountain ranches in Calaveras county Apply A. M. Davis, Esmeralda, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., Box 12, Nordhoff, Cal.

WANTED.

WANTED, BY A NEWCOMER—General plan information, showing most income results in live stock or combination, or special farming, with an investment of $10,000 capital Give location where plan can be carried out. $10 for best detailed answer and $15 additional when plan proves correct. Idea is to ascertain what gives best returns with $10,000 starting capital. Frederic, Box 771, Pasadena, Cal.

WANTED—Position as superintendent of Rice Farm. Four years as owner. Understand water distribution, checking, irrigation, harvesting, threshing, grading and marketing; upkeep of machinery, farm accounting and the handling of men. References. Box 42, Rural Press.

WANTED POSITION on Stock or Dairy Ranch by married man. Understands all kinds ranch work. Extra good hand with stock. Can give good recommendations. Box 41, Pacific Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

TEN THOUSAND Bartlett Pear Trees, 4 to 6 feet. Clean, vigorous stock. $16 per 100. Five thousand Mayflower, Southern Beauty and Red Bird Peaches. The earliest, best, most profitable peaches grown. Ripens sixty days before Elberta. No overstocked fruit market when they ripen. Sure croppers and commands big prices. Write for information. 10 trees, $2.50 $17.50 per 100. W. D. Rose, Fullerton, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Burbank's Crimson Winter and Wagner's Improved Giant Crimson Winter. We will soon be subdividing again. Now is the time to order. Burbank's, 75c per dozen; Wagner's, $1.50. Special low price on Burbank's by the thousand. For early orders, $40 per 1000. Wagner's $80 per 1000. Greatest profit per acre of any standard crop. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from 4 to 7 feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Calif.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Rivera, Cal.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts Ekstein Nurseries, Modesto, Cal.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal.

RHUBARB PLANTS—Burbank's Winter Crimson, yielding an average of eleven pounds to the plant. 20,000 plants for sale in any quantity. Address, John Bovey, Rhubarb Grower, Sebastopol, Sonoma Co., Calif., P. O. Box 383.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

SPINELESS CACTUS—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. R. Marshall's Nurseries, Santa Ana, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

MUIR AND ELBERTA PEACHES. $5.00 per hundred. French and Imperial prunes, on peach and almond root, $7.50 per hundred. N. M. Cunningham, Red Bluff, Cal.

FOR SALE—Choice, well-rooted grape vines. Thompson's Seedless, Emperor and Malaga. $15 per thousand. Special prices in larger quantities. R. L. Foster, R. D. 2, Modesto.

GRAFTED WALNUTS—Citrus. All kinds of deciduous and onamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

SECURE PRESENT PRICES by cash deposit now with Spring orders for Citrus Trees and Spineless Cactus. Robinson Citrus Nurseries, San Dimas, Cal. (Mention Rural Press.)

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

RHUBARB—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong one-year plants. Currier Bulb Co., Seabright, Cal.

FOR SALE—3,500 Eureka Lemons, one year buds raised in frostless belt. Trees first-class shape. T. W. Johnson, R. D. No. 2, Box 118, Orange, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

FOR SALE—Tepary Beans. The new bean of California. Will produce on any soil. 10c per pound. Delivery April 1st. Jas. McGrury, Mulberry, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

FOR SALE—200 fine 2-year-old Valencia Orange Trees. Fred E. Peterson, of Southern California Music Co., 332 So. Broadway, Los Angeles, Cal.

SOUDAN GRASS—Send for circular, free sample seed and lowest possible prices. Will take produce. Address C. Ullery, Lubbock, Texas.

KUDZU—Great forage plant. Fastest grower known. Lifelong, ever-increasing hay and pasture plant. Write J. L. Lawson, San Jose, Cal.

NURSERY STOCK—Navel Oranges, Valencia late trees. Seedless grapefruit. Reasonable prices. K. Matsuoka, Sanger, Cal.

FOR SALE—Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

BURBANK'S PATAGONIA STRAWBERRIES. Prepaid at 5c per plant. Thos. C. Still, La Panza, Cal.

STRAWBERRY PLANTS, "Dollar" variety. Close-out price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

INDIAN CORN SILAGE—200 tons for sale. Box 24, Butte City, California.

MISCELLANEOUS.

RANCHERS—Now is the time to act. Get ready for this season, canning up your entire crop of fruit and vegetables, getting from two or three times more cash for your entire crop, and save it all by using one of our machines. We have the experience and trade on the canned goods. Write or call and see us for full particulars. Demonstrating plant 223 E. 9th St., Los Angeles. CANNER'S SUPPLY & BROKERAGE CO.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

WILL SELL CHEAP—One new John Deere 12-inch Sulky Plow, floating front. Geo. B. Pinfont, San Martin, Cal.

FOR SALE—Baled Alfalfa Hay in carload lots. Write for prices. V. L. Wiser, Gridley, Cal., R. F. D., No. 1.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.

The Telephone Unites the Nation

AT this time, our country looms large on the world horizon as an example of the popular faith in the underlying principles of the republic.

We are truly one people in all that the forefathers, in their most exalted moments, meant by that phrase.

In making us a homogeneous people, the railroad, the telegraph and the telephone have been important factors. They have facilitated communication and intervisiting, bringing us closer together, giving us a better understanding and promoting more intimate relations.

The telephone has played its part as the situation has required. That it should have been planned for its present usefulness is as wonderful as that the vision of the forefathers should have beheld the nation as it is today.

At first, the telephone was the voice of the community. As the population increased and its interests grew more varied, the larger task of the telephone was to connect the communities and keep all the people in touch, regardless of local conditions or distance.

The need that the service should be universal was just as great as that there should be a common language. This need defined the duty of the Bell System.

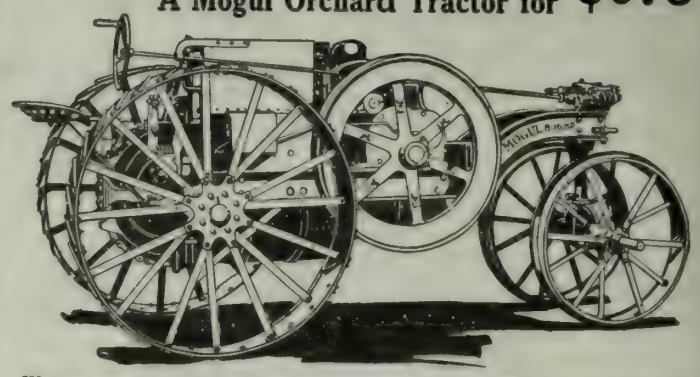
Inspired by this need and repeatedly aided by new inventions and improvements, the Bell System has become the welder of the nation.

It has made the continent a community.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

Our New Year's Announcement
A Mogul Orchard Tractor for $675



We announce for 1915 an all-purpose Orchard tractor with 8-H. P. at the drawbar and 16 on the belt—Mogul 8-16

An Easily Handled, Short Turning Tractor

THIS new Mogul 8-16 tractor will do the work of eight horses in the orchard.

Being a four-wheeled, all-purpose tractor, you can use it every working day.

It will do plowing and seeding as well as orchard cultivating.

It will draw manure spreaders, wagons, mowers or binders.

It will run a corn sheller, feed grinder, small shredder, thresher or ensilage cutter.

Any farmer can buy this new Mogul 8-16 tractor for **$675.00 cash, f. o. b. Chicago.**

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8-16 tractor can be sold.

If you want to use a Mogul small-farm tractor for spring work, your order should be placed now with the I H C local dealer.

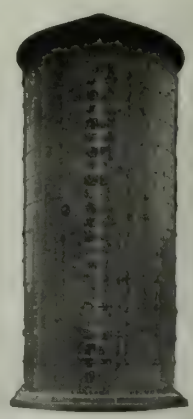
Write us for full information.

International Harvester Company of America
(INCORPORATED)

Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

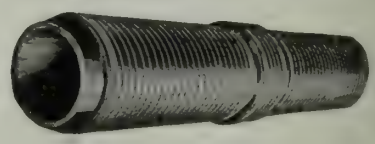
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR
CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



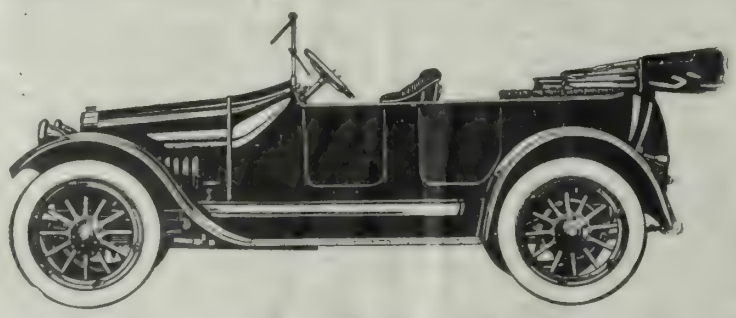
All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. 1st and St. James Sts., San Jose.

"CAMPBELL" GATES. DIAMOND GATES.

Anderson Flume Gate Co.

REDLANDS, CAL. Phone Black 96.

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure systems, when used in capped stands, requires no valves. Send for price list today. Sample Gate, postpaid, 10c.

Vol. LXXXIX—No. 9 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, March 6, 1915 LOS ANGELES

CALIFORNIA STATE LIBRARY
7-1-16
State Library

Feeding for Maximum Capacity.

Cumulative Effect of Feeding Concentrates with Alfalfa to Dairy Cows.

[Written for PACIFIC RURAL PRESS, by J. M. Bomberger, Modesto.]

Dairymen who feed alfalfa hay alone to their cows have often asked the following questions: "If I add ten cents' worth of concentrates to the alfalfa ration of my dairy cows, will the cows at once yield a profit over the extra cost, and if, after feeding concentrates with alfalfa for some time, I take from the ration 10 cents' worth of concentrates, will the cows at once decrease their yield to that extent?"

Experience in feeding dairy cows answers both of these questions "No." And yet, we find here and there a dairyman who is outstandingly successful; and upon investigating, we always find that he feeds his cows very generously of both concentrates and roughage. What's the answer? It is the cumulative effect of feeding concentrates to dairy cows.

The Bomberger Herd and Ranch and Future Herd Sire. Their Owner Believes the Jersey Cow Is the Most Economical Producer of Butter Fat. Scientific Feeding and Testing Have Been of Greatest Importance on This Ranch.

First, let us observe a few of the fundamental governing principles of dairy production:

The inherent producing capacity of the dairy cow is fixed largely by her breeding. It may be increased to some extent by proper care and feeding from birth to maturity, or it may be greatly decreased by improper care and feed from calfhood to maturity.

It may be said that a cow's permanent inherent capacity for production is fixed when she reached full maturity at the age of about four years. After that it cannot be further increased; but it may be decreased by disease and later by old age.

The cow having a low inherent capacity is the dairyman's boarder cow, and no amount of feed or care will induce her to pay for her board and care.

The cow having a high inherent capacity is the cow that pays her own boarding and the poor cow's boarding and the dairyman's auto.

Very few cows of high capacity are so fed and cared for that they can work to their full inherent capacity one year after another. Some cows are fed unsuitable feeds, or suitable feeds in wrong proportions, or insufficient feed, or are overfed and overstimulated for a short time. Many cows are roughly treated, housed in discomfort, or exposed to the rough weather.

These things do not so much decrease the inherent capacity of the cow as they prevent her from working to her full inherent capacity.

The temporary capacity of a cow for a certain lactation period is largely influenced by her physical condition and well-being at the time of freshening; and is further developed and fixed during the first four or six weeks after freshening.

Special Care after Freshening.—A cow that is in poor physical condition at freshening time, or is improperly fed or cared for during the first four to six weeks after freshening, will have her rate of production for that lactation period fixed far below her normal inherent capacity, and no amount of feed or care will greatly increase her yield during that lactation period.

A cow that is in good physical condition at freshening time, having been properly fed during the previous lactation period and during her dry period, and then well cared for at and after freshening time, and fed suitable foods in proper proportions in very gradually increasing amounts as her appetite increases during the first four or six weeks, will have her rate of production for that lactation period fixed at her maximum capicity, and will be profitable to the full extent of her inherent capacity.

From the above it may readily be understood why the addition of concentrates to the cow's alfalfa ratio is not always immediately noticeable in increased production, or why the withholding of concentrates is not always immediately noticeable in decreased production.

Dairymen have noticed that a cow well fed for one year and poorly fed the following year will produce more milk the second year than could be accounted for by the feed consumed during the second year, and could only be caused by the cumulative effect of the generous feeding during the previous year; the cow

(Continued to page 312.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges
J. C. Loomis - - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., February 23, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	1.04	35.58	32.02	54°	38°
Red Bluff...	1.46	27.65	17.86	66	40
Sacramento.	0.98	12.50	14.13	62	44
S. Francisco	0.64	20.60	16.58	64	48
San Jose...	0.78	17.35	11.87	62	36
Fresno.....	0.52	8.56	6.58	66	40
Indep'nd'nce	0.58	2.84	6.44	60	28
S. L. Obispo.	1.04	21.74	14.35	68	36
Los Angeles.	0.25	13.65	11.16	68	42
San Diego..	0.48	12.57	7.27	64	46

The Week.

The skies have cleared. After the last February storm, which threw down water widely and generously, the clouds have folded their enveloping tent and have stolen away. March comes in like a lamb and will go out in the same guise. No matter what the traditional behavior of the month may be elsewhere, in California March is always lamblike, even to the shearing thereof, as the scripture saith. And now that plant growth has been pushed by the abundant moisture so that one may stand knee-deep in grass on warm slopes, the perfumes of the hay and orchard blossoms may mingle here and there, to the delight of the tourists who are multiplying rapidly. Both the San Francisco and the San Diego Expositions are thronged with them, and one gets a little foresight of the multitudes of later coming. And we have a good foundation for their entertainment in the earth-full of water which is now stored away. From this onward, only showers will be needed to ensure a long season of wild flowers and a wealth of field crops and fruits, which the visitor can never forget and the thought of which will keep drawing him until he lands for good in California or in heaven, fortunate he in either destination. Therefore, we are glad indeed that the winter has so distinctly favored us this year, which will be the greatest of her history for California.

Two Great Things in California.

There are two great things with which the visitor will be deeply impressed in California: the distinctly honorable and influential position which belongs to women in the public mind and the distinctly honorable place which rural affairs occupy therein. We will not claim that Californians are unconsciously more polite and well-behaved than other people, and yet we have a lurking suspicion that even that is true—but we will not argue for it now. The point which does not need argument, because everyone can see it and feel it, is that women are higher held in common converse and that rural condition is an advantage rather than a social handicap. Our observation is that women treat each other better and that the consciousness of citizenship in a great commonwealth adds to something which is inborn in them, more or less—something which is commonly called "ladylike," and need not be defined. Our thought is turned in this direction because we chance to have read this paragraph and because it has to do with traveler's observations, which will be making this summer as never before in this State. This is the paragraph, written in the Middle West:

A man and a woman sat together at a theater one afternoon last week. He wore a cheap suit of clothing that fitted him poorly. Here dress was not in the latest mode? Plainly, they were from the country.

Right behind them sat two women of the city. One of them put her lorgnette to her eyes, bent forward and looked critically at the woman in front of her. Then she settled back in her chair and said in a voice evidently intended for the woman in front to hear: "Why do some people have such awful taste as to dress as they used to before the flood?"

The woman in front heard it and her face went red. The man with her heard it too, and he quietly laid his hand upon his companion's arm and patted it lovingly.

A man who sat near, and had heard and seen this little tragedy, told of it afterward. "I knew the man from the country, and his wife," he said. "I know that she is his partner in running that farm. Her vegetables, butter and eggs provide an important part of their income. Now they have come to the city for an outing. To my mind they belong to the class who are really our best people, and the woman behind them with the lorgnette is just a coarse, vulgar frump."

Of course, our Middle West contemporary has to preach upon the text this incident presents, but it needs no sermon here. In the first place, we believe our rural women are relatively better dressed than elsewhere, and therefore the incident would have no local foundation—but what can a man possibly know about that? But of this we are sure, that nobody but a freak Californian would act as did the woman with the lorgnette, while in the Middle West it seems common enough to preach against. Our point is that the contrast between rural and urban women in costuming is probably less in California than anywhere else in the world. And we are of the impression also that California rural women are not infrequently outfitted to do the lorgnette act toward the urban women were they not prevented by inborn politeness and by the consciousness of their place in the California social order. Therefore, we say to the man from the Middle West, who comes to the Fairs thinking to find our rural women red-handed and slant-skirted, to think again. The first thing he knows, if he is a likely chap, he will find one of them queening it over him until, in desperation, he will be telegraphing home for his evening clothes.

That Preaching About Farmers.

But the foregoing sermon about farmers is not the only one which has recently gone sadly awry. Take that matter of an embargo on wheat because farmers are starving the city people. We must have one more whack at that. It is now being made very clear that the New York mayor's outcry against the farmers returns upon his own constituents, who are starving each other. A dispatch from New York at the close of last week said this: "The wholesale price of bread, which was recently raised to 5 cents a loaf, is to be restored to 4 cents, according to reports published today. The fact that there was much agitation when the cost of bread was raised, followed by investigations into the bread industry, is one reason given for restoring the old prices. Another reason is that most of the smaller baking companies, instead of following the lead of the big concerns, continued to sell bread at 5 cents to their retail trade."

And this seems to mean that certain wholesale bakers tried to raise the price of bread and, to cover their iniquity, charged the farmers for holding back wheat and the scheme would have gone through, probably, if the small bakers had not seen their chance to profit by more trade. But the farmers were blamed for it just the same.

And another thing has come out which shows how much wheat farmers do hold and the effect of their holding it. It is telegraphed that Joseph Leiter, one of the famous grain plungers at the east, than whom no one has had a better chance to understand the inside of the wheat game, testified at the government inquiry last week that 75 per cent of the elevators were owned either by the big wheat operators or the railroads, while 25 per cent were owned by independent or small operators and farmers' co-operative societies. Mr. Leiter also gave it as his opinion that the "invisible supply" of wheat, or that which is in the hands of farmers and not recorded in the Government reports, has been a large factor in keeping down the price. This is true because what is held back keeps the gamblers from cornering the supply. And yet the Mayor of New York calls upon the President of the United States to place an embargo on wheat shipments because the farmers are starving his people! He ought to have a vacation: he is getting feeble-minded.

Great Days to Come.

Of course to have his day great this summer a hero of antiquity must be re-clothed with Exposition splendor: if not he will be too utterly out of it this year. George Washington was revived by an automobile race. St. Patrick will, we presume, be re-emeralded on the Towel of Jewels. Even if Uncle Sam himself cares to have his birthday remembered he will have to arrange for a Fourth of July celebration at the Panama-Pacific. But aside from that, how true is the remark of Edwin Markham which we quoted on January 30, that in California, "somebody, summer or winter, may always be found celebrating something." The true Californian really believes that he is the only fellow in the world who has anything worth celebrating and so he goes to it in great shape. We shall of course have "raisin day" in greater colors and ribbons than ever before; we shall have "blossom day" with unusual beauty and perfume, and so on through the old list—all with Exposition frills on them. And we shall also have many new days no doubt. Perhaps the first of the new series will be "Cal-

ifornia Ripe Olive Day" on the last day of this month of March.

Why Ripe-Olive Day?

It will be found to be a day of unique character and significance whether one looks backward or forward. It is intensely interesting to note, for instance, that, including the enterprise of our predecessors, the Mission padres, we had nearly 150 years of olive growing in California before we mastered the art of making the ripe olive a durable and dependable article of food. Before that we know not how many centuries the people on both sides of the Mediterranean struggled with the same problem, never mastering the art but going both ways around it: either serving the dried olive to Mediterranean people or the green pickled olive to North Europeans and Americans. The ripe pickled olives they ate themselves—not because, as we used to think, they wished to keep the best for themselves, but because they could not process a ripe olive without its going to the bad. Forty years ago we in California scolded those Mediterranean people roundly and declared that we would show the world that the ripe pickled olive was alone fit for food. Well, we have done it, but how long did it take? Almost forty years, and most of those who put effort, enthusiasm and money into the undertaking at the beginning are now where they can only enjoy the safety and peace which the olive branch symbolizes. No fruit-food victory in California, perhaps none in the world, equals in uniqueness and in its requirement of human patience, perseverance and outlay, the solution of the ripe-olive problem. It is fitting that such a victory should be annually celebrated by the observance of "California Ripe Olive Day" as is now proposed.

But all this would be of little moment were it not for its forward aspect. What has been achieved will not attain its significance for State development and prosperity unless it is demonstrated in the mouths of men and the product given its proper place in their dietaries. California has practically all the olive territory in the United States; only a little corner of Arizona shares our advantage. Therefore it becomes us to make most strenuous effort, to the end that all may know the delicacy, the nutritiveness and the wholesomeness of the ripe olive. There is no food which makes more for clearness of head, for smoothness and play of muscles, for grace and freedom of movement, and yet in this country, away from California, probably not one in a thousand knows of the joy and service of the ripe olive to mankind; and how shall they know except we teach them? The exhortation and the demonstration which will be embodied in the celebration of Ripe Olive Day are eminently fit to be made.

Recognition for Buckwheat.

Speaking of recognition for the ripe olive we are reminded that new recognition for various foodstuffs is arising in Europe. It is sadly interesting that with all that the German scientists have done for the principles and practices of nutrition, the war is forcing upon their attention things which they had not thought of. It is cabled that Professor Kuhl of Kiel, after a series of scientific experiments, has reached a conclusion that buckwheat can be eaten by humans. Except in some parts of South Germany, it is said, this grain is used exclusively as feed for animals. The professor finds, however, that a mixture of 20 per cent of buckwheat flour with wheat flour gives "an elastic, tough dough, which rises well with yeast and furnishes a well-tasting bread." How cold a thing science does sometimes seem in the rosy light of experience. Buckwheat bread! What could an American boy tell this savant about using buckwheat flour? What a new burst of patriotism would revive a water-soaked trench-grubber if he could be hit in the center with shot buckwheat cake wrapped around a slab of fried pig! Buckwheat bread! What a waste of good ammunition!

Who Wants a Well-Watered Country?

Sometimes people object to the semi-arid standing of California and say they prefer a "well-watered country." Oh, well, there is no accounting for tastes; but then Albert F. Etter of Briceland, Humboldt county, writes us under date of February 21: "We had a rainstorm this winter that made the natives sit up and take notice, even though we usually count our rain by feet instead of inches. Beginning at 6 p. m. Jan. 31 and ending at 10 p. m. on Feb. 1 it rained 17½ inches in 28 consecutive hours. So far this season it has rained between 7 and 8 feet. It is pouring down again tonight in a regular deluge."

California can surely suit anything from a salamander to an amphibian if the location is selected with discrimination.

Queries and Replies

Querists must give name and address.

RELATIVE PROFIT OF CROPS.

To the Editor: Will almonds pay better than alfalfa when they get to bearing?—E. L., Winton.

Such questions are in their nature unanswerable. Suppose that we thought we did know and should publish the information, do you not see that such a publication would itself prove that we did not know, because it would perhaps increase that production beyond the possible demand? It is hard enough to walk in the path of truth without setting traps for our own feet. Everyone must decide for himself what to plant for profit.

FOR VINE MILDEW.

To the Editor: I have twenty acres of Zinfandel grapes that were bothered with mildew last year and have been advised to spray with Bordeaux mixture. Would you advise the use of same, and if so, when to use it?—Subscriber, Santa Rosa.

As we understand it, experience has shown that treatment of the vine-stump before growth starts is a waste of material and time. Bordeaux after growth starts is less effective than sulfuring because the sulfur acts through its vapor which is successively set free by the sun and will catch the germs as the growth proceeds outward for a time. But in places where mildew is common and bad, the first sulfur has to be thrown or blown on early, just as the growth begins, and must be repeated to protect the growth as it keeps running out.

I am delighted with the "California Garden Flowers" book. It will give pleasure and profit to thousands of California flower growers, and it should be in the home of every farmer of a small, intensively cultivated place in the State. It is a worthy companion of your other books that have been and are most valuable factors in the development of western agriculture.. Sincerely,

W. S. GUILFORD,
Orland, Feb. 18, 1915.

To Prof. E. J. Wickson,
Pacific Rural Press, San Francisco.

INCREASING SIZE OF OLIVES.

To the Editor: How can I increase the size of my Mission olives so they will all be suitable for pickles?—E. C. P., Fair Oaks.

The olive, with the cherry, belongs to a group of fruits naturally too small to allow the expensive practice of thinning which is profitable with the large fruits, though, of course, reducing the number of fruits, by picking off those which start late and keep small, would increase the size of the fruits which are allowed to remain to mature. We presume, however, that it would cost more than could be gained. If anyone has worked out any profitable scheme in thinning the olive we shall be glad to hear of it.

If thinning, as we infer, is unprofitable, the fruit must be enlarged by cultural methods which stimulate the growth of the tree. These include pruning to remove excess of brush, which bears small fruit and too much for the strength of the tree; induce growth of stronger, thicker bearing shoots; irrigation, to make sure that the tree has moisture enough to break and push such shoots; manuring, to give the tree plenty of available plant food and regular and sufficiently deep cultivation to reduce waste of moisture by evaporation and to aerate the soil so that it may be kept lively in bacterial and chemical soil processes. In short, to get more uniformly large fruit one must get a more vigorous tree and regulate the amount and character of bearing wood, so that the tree is not allowed to over-bear. In the last analysis, as the philosophers say, good large fruit means good land, enough water and good farming.

SEED-POTATO CUTTING.

To the Editor: I saw in a recent issue something about cutting seed potatoes. I was shown how to cut them by a man who made a fortune raising potatoes. With a small blade he cut around one eye to the piece, using about one sack to the acre. Also how about putting manure in the hill? Is there anything in cutting seed a couple of weeks before planting.—D., Dixon.

Cutting to single eyes is not a good commercial practice. In certain prize contests, with a maximum of favorable conditions in soil and fertilizing and cultivation, the greatest yields have sometimes been had by single-eye planting. Under ordinary conditions the thriftiest plants come from eyes which started with a good amount of the plant-food stored in the tuber—therefore cutting into two-ounce pieces is commended by some, while most planters do not cut at all, unless the seed tubers are above average size. When things are otherwise favorable, the size of the crop usually bears relation to the weight of the seed used to the acre—therefore a good weight of seed is a good investment. There is no advantage in cutting long before planting; there is more danger of injury by fermentation. The man who made a fortune out of single-eye cutting has probably forgotten that he was helped more by big prices than by small pieces. Do not put manure in the hill; it is better to use the manure on a preceding grain or grass crop.

Graft Olive Trees When Bark Slips.

[Written for PACIFIC RURAL PRESS.]

"Any time from now all summer will be right to graft or bud olives if you have irrigation so that the bark will slip enough to make a whistle like we used to do when we were boys," says E. C. Phoenix, who has had fifteen years' experience grafting olives in Sacramento county and who does most of the grafting yet about the Fair Oaks colony. Mr. Phoenix has grafted even into September; but this would be impossible on unirrigated land, where the sap flow gets rather slow during the hot, dry weather, and the bark tends to tighten.

The best time to do it, however, is right now, because the sap is likely to be flowing most freely in the early spring or late winter. The olive tree to be top-worked from one variety into another must have the top cut off anyway, so it is well to cut it off early and insert grafts. Then if the grafts die, the stub will send out new shoots from the eyes near the cut. As soon as these are the size of a lead pencil, they may be budded with practical certainty of success.

It has been somewhat of a question whether to graft or bud. Mr. Phoenix has found that the grafting is quicker, but the budding more sure. Buds are sometimes successful inserted on old wood, but are much more certain if put into the current year's shoot.

Grafting Without Irrigation. In regard to the question of W. S. Gilmore, who has 40 acres of Redding Picholine on a dry ridge in Placer county, it is likely that they will have to be grafted pretty soon, if at all this year. However, it would not be advisable to work them to pickle olives until water is assured, both to keep the grafts growing, and because the fruit would be shriveled and undersized unless irrigated, except on especially deep soil.

Selecting Bud Wood. In cutting the bud wood, new growth, even smaller than a lead pencil, but better if considerably larger, up to 5/8 inch diameter, is most sure to be successful. The scions and bud wood should be taken from clean smooth, new limbs, not too near the tip and not using any that have twig branches. Those are best which have buds just starting in the axils of single leaves. About four inches length is enough for grafts. It is well to put several on each stub. Then if more than one lives, the weaker ones may be easily cut out later. Frank Henry of Fresno county puts scions in two inches apart because each one draws sap about an inch from each side. This permits the sap flow to continue all around the stub and build up new tissue encircling the stub so it will hold in windy times. A stub on Mr. Phoenix' place with one graft growing illustrated this point. The new tissue spread wider each way the farther from the top of the stub. But a great dead area of the stub was exposed to disease.

Cutting the Scion.—Mr. Phoenix cuts a square shoulder extending nearly half through the scion about one inch from the lower end, then slopes the cut to an edge at the end. On the outer or bark side of this sloped end, he cuts two flat surfaces at an angle to each other by cutting through the bark and very slightly into the wood from opposite the shoulder to the point.

In sawing off the top of a tree, he aims to make the cut just above some promising looking buds, which are likely to put out suckers in abundance, or above a limb ½ inch in diameter. Too large a limb just below the cut would rob the graft. None at all, exposes the stub to drying for lack of leaves to attract sap to the top of it. About three of the strongest and well placed "suckers" or watersprouts should be left until at least one graft has made enough growth to show that its life is assured. Then all the suckers may be cut off close to the bark. If, as sometimes happens, the grafts do not live, buds may be inserted in these suckers at any time when the bark is easily loosened.

In his early experience, Mr. Phoenix tried cleft grafting with poor success, so that he never uses that method now. To insert a scion, no cleft or notch is cut, but a narrow bladed knife is shoved about one inch and a half downwards between the bark and the wood and then pried outward very slightly. This stretches the bark some and may even expose its fibers; but it is not necessary to separate the bark, nor to cut it at all. Insert the scion in this place so that its shoulder rests on top of the stub, which should have been smoothed, and wrap it with waxed cloth or string. Then wax every cut surface thoroughly to prevent drying out. After two or three weeks, go over all the grafts and those that are growing will be strong enough so that the strings or waxed cloth may be cut, because otherwise they would be likely to choke off the sap and prevent growth.

Buds are inserted in the usual way, some inches above the base of the suckers. Sometimes a bud will not put forth leaves or make growth for even as much as five years, which was the case observed by Mr. Phoenix one time. Every month during the season, even until September, if irrigation is practiced, the buds placed in the suckers should be examined and those that are not doing well should be cut off and new buds inserted below them, if there is room on the suckers.

It will take about three years to renew the top to the same size that it was before it was cut off. Mr. Phoenix's experience is that the tops should never be cut entirely off at once before grafting, because trees treated in that way have died so that not even a sprout came up from the roots. There is no need to take off the entire top anyway. Leave some small brush to shade the trunk and draw sap until the grafts or buds have plenty of foliage.

Buds do not grow as much the first year as a graft, but during later years there is not a great deal of difference.

After Care. Grafts or buds which have grown a foot or so, especially in windy countries, should be topped back to prevent their blowing out the first season, or to prevent even the loosening of their union, which would weaken their growth, if it would not kill it. But in doing this it is well to observe closely, because oftentimes a sucker comes from very close to the base of the graft, and this sucker might be mistaken for a shoot from a lower bud of the graft.

In case grasshoppers are numerous, as they were one year, the grafts will have to be protected by open bottomed paper bags or some other device, because grasshoppers have killed Mr. Phoenix's grafts by eating their buds.

Other Methods in Butte Co.—In cutting the scions for grafting, F. S. Briggs of Butte county gets four eyes on the scion and sets more grafts on the south side of the tree because the prevailing wind is from that direction. He cuts a cleft with a budding knife into the bark and fits the scion into this cleft. It is cut with a shoulder, as Mr. Phoenix does his, and Mr. Briggs says to be sure that the shoulder fits closely down onto the stub so that no wax will get between them. He grafts from November until May or June.

Mr. Sheets of Butte county cuts his scions with a small slant two or three inches long and inserts them in the bark after making a slit about two inches long. He wraps them with waxed cloth just at the top of the stub, then around stub, scion and all, and waxes over all. He puts grafts about three inches apart all around a stub, whatever its diameter, so that if any should not live there will be plenty left. When all of them have gotten a good start the ones that show the best growth and the best position for balancing the tree are left and the others are cut off.

TREATMENT FOR SQUASH BUGS.

To the Editor: Someone in your issue of Jan. 23 asked about Squash bugs. The best remedy I have found is dry powdered sulfur. Take the vineyard sulphur machine which you can carry on your back, and you can force the sulphur under the leaves and on the ground.

I planted vines of Hubbard, Crook-neck, and Cow pumpkins in separate rows. The bugs take more to Hubbard than the others. But perhaps the way I plant has something to do with bugs.

I plant a crop of barley first, then the last of May, or first of June, irrigate, then plow to the beam, use barnyard fertilizer, and no trouble about a good crop. I irrigate twice after they commence to grow, or till the vines get in way of cultivating.

Acampo A. F. RODGERS.

A Royal Little Apricot.

[Written for PACIFIC RURAL PRESS.]

There is only one variety of California apricots to be found in any quantity on the early eastern markets, which are the only ones that make apricot shipping profitable. This variety is the Royal, which, according to C. E. Virden of the California Fruit Distributors, is the "whole works."

The reason for the success of this apricot in spite of its small size is that it has a fine flavor even when picked green. It is necessary to pick apricots very green in order to please the eastern buyers. When a crate of apricots arrives on the eastern auction markets, if it is ripe or nearly ripe it must be sold for immediate consumption in the city of the auction, because it could not be reshipped. Those which arrive green enough to reship in plenty of time so they will not be too ripe by the time they are retailed, bring 5c to 10c a crate more and sell when the others must go at a sacrifice, if at all.

Cincinnati is one of the auctions on which the rule for greenness is excepted because the buyers on that auction do not reship much fruit—it is all consumed in town.

The Royals ripen evenly and root and they carry well. These qualities have made them favorites in the fruit shipping sections, while the flavor and even ripening have made them commercially grown in at least twenty-six out of the thirty counties that grow apricots commercially. They are very good for drying and canning, too.

The Santa Clara Royals and those from the coast counties do not seem to ship well, which is the reason that this section does not ship except to the California cities. This year the apricot shipments from California totaled 382 carloads; the previous record was 279. Despite the extra amount, there was a safe margin of profits for the growers, owing to the efficient marketing.

[The Royal need not be such a very little apricot. If it is well thinned it gets a fair size. For canning, drying, etc., the Blenheim is constantly gaining ground.—Editors.]

GRAPES ON OTHERS' ROOTS.

[Written for PACIFIC RURAL PRESS.]

Muscats grafted on Sultanas and Zinfandels, according to Gustav Eisen, often partake of the nature of the old roots for the first year or two in manner of growth, but after that they come back to their Muscat heredity and bear as if on their original roots, or even better.

Muscats on Malaga or Feher Zagos also do very well in time and often bear better than on their own roots. He cites a case of one grower, who cleared $75 an acre in the third year from Muscats grafted on Missions, but this was an extreme case.

FEEDING ALMOND HULLS.

To the Editor: What is the feeding value of dried almond hulls? Fed to both cows and horses.—W. M. Gribble, Chico, Cal.

[We do not commend them. Before they become too dry they are of some value to cows, which take to them quite readily, but they should have plenty of other feed so as not to be starved to the hulls. We do not commend them for horses.—Editors.]

This letter carries to you my thanks for Professor Wickson's latest book, "California Garden Flowers." Long may the Professor live and write.
Corning. W. N. WOODSON.

Pruning Tokay Vines vs. Mildew.

[Written for PACIFIC RURAL PRESS.]

"Leave very few spurs on the east and southeast sides of Tokay vines," says H. J. Cooper of San Joaquin county, "especially if the vines are dense or if the canes spread to great diameter. The wind in this section is from the north and west all summer. We have noticed that the mildew is almost all on the east and southeast, and that is why we want to leave as few spurs there for fruit as possible. The best grapes grow on the west, north, and south anyway. The foliage and the vines naturally blow and grow toward the east side anyhow, so that it is not so bare, though few spurs are left there. The cause of mildew on that side is that the wind does not have so much chance to dry off the fruit and vines, thus killing the mildew or keeping it from generating.

"We have noticed, too, that a vineyard sheltered by an orchard on the windward side has much worse mildew than one planted entirely in the open so that the wind can have its effect. We have had to take out a big block of Tokays sheltered by a peach orchard; and also another block because it was sheltered by our large house and out-buildings."

For the same reason, in forming Tokay vines it is a good plan to save the vertical spurs after the arms are formed in order to get a good vine as high as possible off from the ground. This leads to keeping the grapes dry by exposure to the wind, especially if they are irrigated through the growing season. High pruning also helps to save the vines from late frosts because the air is colder and more still close to the ground in frosty weather. If shoots are not frosted past their lowest new bud, they are likely to recover. If they do, the base bud will sprout and may bear a little fruit.

Not So Easy as It Looks.—To the passerby who looks at a man pruning a Tokay vineyard, it looks like he is simply cutting off canes indiscriminately, leaving but three or four buds per spur; and occasionally leaving more than one spur per arm. It looks simple enough and seems like it would be easy for anyone to do it, yet there are many things to consider in deciding whether to leave two or six buds on a spur; whether to leave one or four spurs per arm; which canes to cut off entirely, and which vines to be encouraged to bear fruit rather than wood and vice versa. Careful consideration of the effects of every cut should be made before the vine is cut. As N. J. Shadle, who prunes for Mr. Cooper, says, "You must use your head. It is a general rule to leave one spur for each year of the vine's age, yet some young vines may need more than others of middle age or older."

In the San Joaquin country it is well to leave more of the spurs on the north and west for the reasons mentioned.

More spurs are needed on the west side too because the foliage they will produce will be needed as a protection against sunburn and this foliage in turn can support more fruit there. The fruit too will be better developed by reason of the extra heat and sunshine on that side.

Cut Close.—In cutting off the rest of the canes at their junction with the older wood, they should be cut as close as possible to prevent weak shoots coming from the basal buds that would remain if the stubs are left an inch long. Such shoots would be too much shaded to amount to much and they would not bear fruit anyway, but would take strength from the vine without returning much, if any, to it. Not everything should be cut out of the center of the vine, because then it would not be protected at all from the hot sunshine. Vine sunburn is not so apparent as on trees, but is nevertheless very real and injurious. However, if the canes from the center are weakening, strong suckers from the trunk may be left for shade and also for replacement of the weakened old wood. This will allow the stronger canes to bear fruit, using the food material elaborated by green leaves of the shoots, especially if the shoots are pinched back in mid-summer to prevent too rank growth.

All suckers should be cut off close, except enough to shade the trunk, taking into consideration the growth which fruiting canes will make. Others should be kept cut out in summer time. Tokays, especially young vines, are especially prone to sprout canes from old wood, which would likely not bear fruit anyway; and if allowed to grow, would not only rob the fruit of needed sap, but also misshape the vine.

Several Buds per Spur.—Canes which have grown extra long or extra large in diameter may be cut with considerably more length than those which have shown weak or spindly growth. In fact, the latter should be cut off entirely, if there are as many as two or three strong ones on the vine. The spindly growth, if predominant, shows that there is serious fault either in the food and water supply, the roots of the vine, or its trunk. Allowing them to attempt growth next season would further weaken the vine which is already handicapped. Fewer spurs on that arm, or on that vine if the whole vine is so affected, will furnish plenty of leaf surface to supply the food needed by the vine itself. These few spurs should be cut rather short, saving only two buds, in order to encourage leaf growth rather than fruit growth. This is effective because, while "most everything on a Tokay vine will bear fruit," still the water sprouts from wood over two years old, and the basal buds of the other spurs are not so likely to produce fruit-bearing shoots.

Regulating Amount of Fruit and Wood.—Thus cutting off the upper buds lowers the fruit-bearing possibilities of the vine and encourages it to spend its energy producing leaves, which will return elaborated food to the vine and strengthen it for bearing in the season to follow.

On the vine, or the arm of the vine, that has this season produced large and long fruit canes, and has perhaps sent out numerous water sprouts, the pruner can see that vigor has been wasted. His idea then will be to reduce the energy to be used in cane growth by diverting it into fruit. This is done by leaving more spurs, and by making them longer, to render available more of the upper buds, which are built to send out fruit-bearing shoots.

Mr. Cooper inclines to the use of long spurs on his Tokays because his vines are very healthy and vigorous even at their age of twenty-two years. The long spurs allow more of the fruit to set and allow it to be spread out more, so that circulation of air and sunshine may be encouraged around the bunches as they grow. This has a very good effect on mildew. It also tends, Mr. Cooper says, to increase the shipping qualities of the bunches by making them looser so that they will pack better, by reducing the shot grapes, by increasing the size of the berries and by making their skins tougher.

Mrs. Cooper, who has been her husband's helpmate these many years, adds that if, as very often happens, the hired man or the wind breaks off some of the spurs, there would still be fruit buds enough left. For this reason more spurs also are left on the vine. This precaution also aids in case of frost getting the first shoots, as there are more chances for new shoots to develop and produce a crop which, with shorter or fewer spurs, would be very much more reduced.

Mr. Shadle, who has been growing a little vineyard of his own since the earthquake, objects to the long spurs and thinks that two or three buds are plenty on each, leaving more of them if more fruit is necessary. This is because the long ones are likely to be in the way of cultivating. Also when they get loaded with fruit there is also much more leverage and danger of breaking off. But this has the disadvantage of crowding the fruit, for when the spurs are left shorter there must be more of them to use up the energy of the big vines and consequently the bunches are grouped so close together, that there is not enough circulation to have the best effect on mildew, or to ripen the grapes evenly.

"California Garden Flowers" is a volume I shall be very glad to have in my private library, and judging from what I have already read in it, I know I shall find it of real value.

LESTER L. MORSE.
San Francisco.

Spray for Fruit Trees.

All peach, almond and apricot trees should be sprayed with lime-sulphur just before the blossom buds begin to open in the spring. After the blossoms have opened this spray should not be used, but it is safe to apply until the buds have actually blossomed. This is for the control of pernicious scale, twig borer or peach worm, curl leaf and peach blight in peach trees, also twig borer and peach blight in almond trees. However, in case of peach blight infections the spring spray is only effective when the lime-sulphur spray or Bordeaux mixture has been applied before December 15th. In other words, two sprayings are necessary to control peach blight.

Shot hole fungus in the apricot trees is so similar to peach blight that the fall and spring applications are recommended for the control of this disease.

Growers now generally use the commercial lime-sulphur sprays, known by the trade names of "Ortho" and "Rex." They should be used at the strength of one gallon of "Ortho" or "Rex" to eleven gallons of water. If the spraying is followed by rain within twenty-four hours the work should be done over again. Bordeaux mixture is not effective against twig borers or scale.

In order to accomplish the best results in controlling the twig borer, a coarse nozzle should be used and the spray actually driven into the rough places on the trees under a pressure of 150 to 180 pounds on the spray pump. Hold the nozzle close to the limbs and cover the tree thoroughly with the liquid. The fine growth and twigs must be well coated.

Curl leaf and peach blight will not be controlled unless every part of the small growth is thoroughly covered with the spray. Always keep the liquid well agitated in the spray tank.

If rain prevents the use of lime-sulphur before the buds open, the Bordeaux mixture may be used even while the tree is in bloom without injury. This will control curl leaf, and, if the first spraying was done before December 15th, will control peach blight.

Formula for Bordeaux mixture will be supplied on application to the undersigned.

These two sprayings are the most important a peach grower can do and should not be neglected under any circumstances.

Yuba City. H. P. STABLER.
Horticultural Commissioner of Sutter County.

SOAKS ROTTED PEACH TRUNKS.

[Written for PACIFIC RURAL PRESS.]

"Here is the trouble in growing peaches," said J. H. Davis of San Joaquin county in driving past an orchard of old trees which were badly rotted in the trunks. "We have to be very careful to shield our peaches from sunburn and injury and not to make large cuts in pruning. Even so, the rot often gets a start and we have large numbers of decrepit trees on our ranch which can last only a short time and can last only a short time and can proproduce only diminishing crops. We stave off the end by sticking the nozzle of our spray pumps into the rotted places as well as we can while we are spraying the orchard and giving them a good soaking with fungicide, usually lime sulphur."

Brown apricot scale and black scale hurt trees only by robbing them of plant food. They hurt the fruit by exuding the honey dew on which sooty fungus thrives.

Behind each tree is our guarantee

THE SILVA BERGTHOLDT CO. CALIFORNIA

You Will Have to Hurry

It is only a matter of days now and then—

YOU LOSE A WHOLE YEAR FOR PLANTING FRUIT TREES.

Send today for our revised FEBRUARY STOCK LIST.

We are fruit growers and shippers as well as nurserymen. Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree. Our years of experience, knowledge and observation as nurserymen and fruit growers are at your service. We show you how to succeed.

If you already know just what trees you want, do not wait for the STOCK LIST. Send in your order. If the trees you want are still in stock, your order will be immediately filled.

Don't delay Order today.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE CAL.

SILVA, BERG-THOLDT Co. NEWCASTLE, CALIFORNIA.

Planting Citrus Trees.

[Written for PACIFIC RURAL PRESS.]

From about February until June citrus trees may be planted successfully. A. J. Cook, State Horticultural Commissioner, prefers the earliest date because at that time the trees are dormant. It is, however, a fact that most citrus planting is done in April and May and even until June because, as Prof. Wickson points out, the warm temperature of spring helps the trees to get an immediate start rather than waiting through a period of cold weather after having had their roots disturbed.

A cardinal point in setting fruit trees is to avoid injury to the roots and to avoid drying them. This is the reason that so many citrus trees, especially when shipped to a considerable distance, are put up in balls of dirt tied in sacks.

Henry Hoover of Sacramento county planted pomelos about the middle of April with no water at all because the subsurface dirt was moist and the hot weather had not yet come. Out of one hundred and fifty set in May by the same man only one wilted and that wilted at once and died because the ball seemed dried out.

G. E. Fetters of Sacramento county and Mr. Overhulzer also planted from March to May and Frank Cousins was also planting oranges in April, when a representative of Pacific Rural Press visited his orchard.

Handling Loose Roots:—In cases where the roots are not balled; but are shipped naked, the loose roots should at once be heeled in, pointing at an angle toward the southwest to avoid direct sunshine on the bark, which might burn it. An easy way to heels the trees, is to turn a deep furrow so that the sloping side is on the southwest. That furrow may be filled in with moist dirt on top of the citrus roots which are not allowed to dry out. By this means, if they are well watered and spread out when planted in the orchard, there is a good chance for them to grow. Mr. Overhulzer planted 750 such trees, using only a gallon of water per tree. Some of them were partly dried out when received; but only eight of them were doing poorly a month later.

If the furrow is turned long before the trees are heeled in, the dirt dries on the top and is likely to allow the roots to dry to a certain extent. While this may not kill the tree directly, there is likely to be a slow, sickly growth for many years, stunting the tree so that it may never do as well as it ought to.

Pruning.—Shortly before setting out the trees, the roots and tops should be balanced by pruning the tops. With balled trees, the roots and tops have not been injured so much. Therefore, as Mr. Fetter does, the leaves may be left on the tree; but the branches should be cut back to a few inches and only four or five branches. All leaves should be taken from the trunk of the tree. Trees with naked roots should be stripped entirely of leaves if they show the least signs of wilt either at planting or afterwards. Mr. Fetter makes it a practice to strip them before planting. He says that they will put out new leaves more vigorously than they can support old leaves.

If there is any scale or disease on the trees, this should be cut off or the trees dipped in insecticide before planting, since it is much easier than afterwards to do a thorough job. Mr. Cousins has sometimes found gummy spots and brown rot on the young trees. This he cut off with a knife far enough from its outer edges so that he felt safe in planting the trees. This is a somewhat dangerous practice; but is better than planting trees with a disease on them.

Order Early.—Whatever time the trees are planted, it is wisest to order them as early as possible—right now, if not sooner. If it is convenient, it is well to look over the trees in the nursery you are buying from and select those that you want, with reference to the place and methods under which they have been grown. These should be kept by the nurseryman until you are ready to plant them.

Give Trees Enough Room.—In laying off the ground for planting, the triangular system allows more trees per acre when set the same distance apart, because all are equally distant; but it is considerably more trouble. The square system is almost universally used. The tendency is to plant, however, too close together. They are often set in 20 foot squares; but they should be at least 22 feet apart and many growers set them as far as 26 feet. This reduces the cost of trees per acre and allows a better development of each tree. Intercrops may be planted to save the extra space, provided plenty of fertilizer and humus are returned to the soil to take the place of the crops taken off.

The holes should be dug extra deep and the top dirt mixed with that lower down. On the Cousins' ranch in Sacramento county balled trees were set in holes 16 inches in diameter and 16 inches deep. This is little enough; with naked roots, the holes should be made considerably bigger and perhaps deeper in order to spread the roots in a uniform netting over as much space as possible. The balls or roots should be thoroughly saturated, as Mr Cousins does at the house just before hauling the trees to the field.

Since citrus trees require so much fertilizer, it is well to apply this before the land is plowed for planting. Mr. Cook recommends at least 10 big loads per acre. Mr. Hoover does not apply it broadcast; but places it around the young trees before applying the water at planting. In either case, it should be thoroughly mixed with a large amount of soil before being placed where the roots can get at it within a few months.

Setting the Trees.—In digging the holes, he has set two stakes at equal distances from the stake set for the location of the tree and far enough from the holes so that they do not interfere in the digging or planting. The top string of the sack, which is tied below the bud union, is cut and the tree held up by one man to a light board laid across the hole between the stakes

Importation from Europe

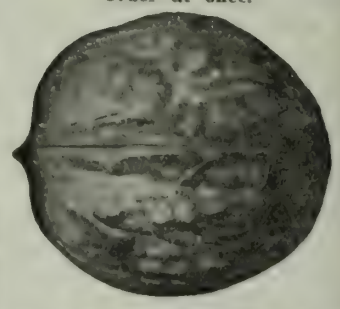
Just Arrived in First-Class Order.

Some of the best-bearing varieties of FILBERTS; also two varieties of RHUBARB, the stalks of which often measure 4 ft. long and 3 inches in diameter.

Personally selected by the head of the firm while in Europe.

CONCORD and SAN JOSE MAYETTE WALNUTS.

Write for Prices. Order at once.



LEONARD COATES NURSERY CO. INC.
MORGAN HILL, CAL.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St., San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco.
CALIFORNIA SEED CO., 151 Market St., San Francisco.
SUNSET NURSERY CO., 92 41st St., Oakland.
VALLANCE BROS., 31 Glen Ave., Oakland.

Easy to own an Engine Now

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Prices F.O.B. Factory

WITTE Engines

Kerosene, Gasoline and Gas

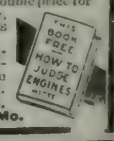
Stationary, (skidded or on iron base), and Mounted Styles. Long-wearing, separable, semi-steel cylinders and 4-ring pistons; automobile ignition, spark shift; vertical valves; variable speed; and other merits without which no engine is now up-to-date grade.

Liberal 5-Year Guaranty

Cash or Easy Terms. Why pay double price for any good engine, or take a poor one, for any price, when the WITTE costs so little and saves you all the risk?

New Book Free. Tells you the "inside" of engine selling as well as manufacturing. Get the facts whether you buy from me or not.

Ed. H. Witte, Witte Iron Works Co.
2861 Oakland Ave., Kansas City, Mo.



California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

and notched at its center. The concave part of the tree is usually pointed toward the west and north and this seems to be logical where the wind from that direction does not interfere. The afternoon sun beating down on the concave side would heat it more than if shining directly on the convex side. Mr. Fitzgerald of the Palermo Citrus Association says that it is best to set the concave side toward the south and west, partly to avoid the sunshine striking the point of union; but probably more because their strongest winds at Palermo are from the north. This position helps in such a case to resist the wind.

With one man holding the tree up to a board at the Cousins' ranch, the loose dirt is shoveled underneath, the surface dirt having been shoveled off in order to get good, moist dirt. It is packed tightly around the ball, the sacking being left on. It is necessary to leave the buds above the general surface of the soil because in settling with water everything sinks to a certain extent and the bud union must after that be above the general level. It is necessary, too, to keep the roots as near the surface as they can obtain moisture consistently. Trees have often languished or died seemingly without reason because the roots had been placed too deep.

Settling the Dirt with Water.—Having set the tree and thrown in dirt almost enough to fill the hole, the next thing is to turn in irrigation water to settle the tree thoroughly close to their rootlets. This may be done, as on the Cousins' ranch, by running a small stream from the hydrant down the row and turning it in the little reservoir near each tree successively. It may be done, as Mr. Overhulzer did, with a bucket so that water would not be unnecessarily wasted, if it is scarce or expensive. Use of a little ditch and a small stream running the water from one tree to another is not economical of the water unless one needs water in the soil anyway.

When the water in the little reservoir has soaked away, enough of it so that one is confident that the roots are well soaked to the bottom and the tree well settled, fresh dry dirt should be thrown on top in order to prevent the soaked soil from baking. It is necessary not to lose by evaporation the water that is so necessary now and for some months to come.

Unless the trunks are very short, they should be protected from sunburn until they have leaved out so that they can protect themselves. Because the trees are so easily injured in transplanting, every care is necessary in cultivation and irrigation also, the first season, to give them a running start towards productivity.

CARBON BISULFID FOR WOOLLY APHIS.

To the Editor: If carbon bisulfid is good for oak fungus, why shouldn't it be used for woolly aphis on apple roots?—H. E. N., Watsonville.

[Answered by Prof C. W. Woodworth, University of Cal.]

[You will find carbon bisulfid often recommended for woolly aphis. There is certainly no substance that will kill insects in the ground as well as carbon bisulfid, but it is likewise certain that the cost per acre will be found prohibitive. No commercial grower of apples in California or elsewhere, as far as I know, uses carbon bisulfid or any other treatment for woolly aphis in the ground.]

PAINT ON YOUNG TREES.

To the Editor: Would white paint injure young trees?—A. R. F., Garrison, Tex.

[Any oil paint is dangerous to young trees because the oil penetrates the pores, and takes the place of water which should be used in carrying plant food. Try white wash, as recommended in another article. —Editors.]

Irrigation Plans FREE

Our engineering department will give you its advice and help you prepare your irrigation plans free of charge. Our experts will visit your land, investigate your problems thoroughly and tell you just what system is proper for your peculiar conditions; just how it can be cheaply and substantially constructed and furnish complete estimates.

This service is a wonderful help to all who lack technical experience in irrigation problems. It saves you all the vexation, uncertainty and often actual loss of money that can hardly be avoided by the inexperienced.

Whether you have a truck farm, a chicken ranch, a large or a small orchard, a small acreage, or an alfalfa ranch, this service will be of the utmost value to you. It costs NOTHING. Don't hesitate. Write us NOW.

Ames-Irvin Lock Seamed

Irrigation Pipe

is constructed without solder or rivets. Nothing but the sheet of metal itself is used. Each sheet is edged, locked together, and then set down under 3500 pounds pressure. Special machinery does the work.

When finished the seam is simple, solid and strong. There are no rivet holes in the steel and no solder to break—it can't leak.

Ames-Irvin lock-seamed irrigation pipe won the first prize against all competitors at the Sacramento State Fair in 1913, and at the Fresno and San Jose country fairs in 1912.

Ames-Irvin Flanged Pipe

is in every way as dependable as our surface irrigation pipe. You should ask our prices before you buy. The very best obtainable anywhere.

Ames-Irvin Underground Galvanized Pipe

also without solder or rivets, and lock-seamed. No other construction can equal it in strength and dependability.

Send for Booklet

It tells about irrigation pipe and its construction. After reading it your judgment will tell you which to buy. Get it—today.

Ames-Irvin Company

8th & IRWIN STS, San Francisco.

Roeding's True TREES TAKE THE RISK OUT OF PLANTING

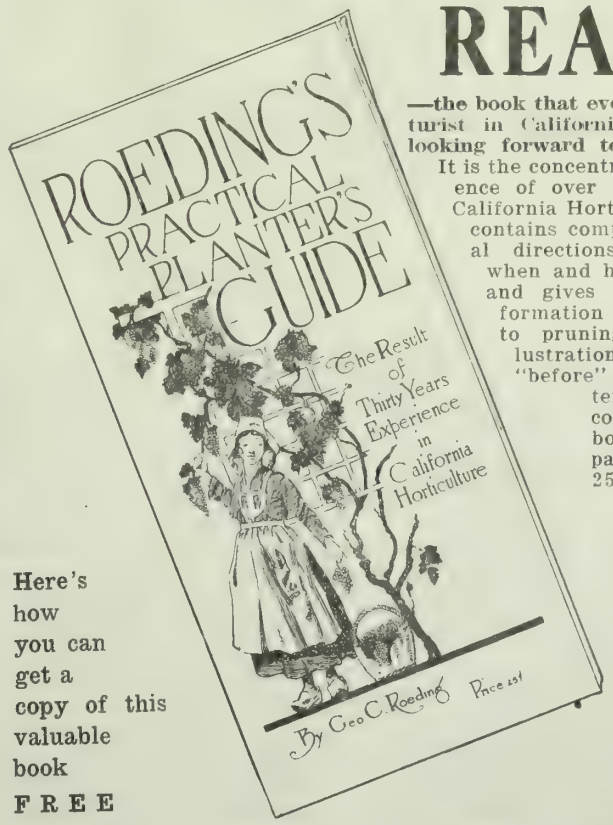
When you buy from us you get the finest trees that time, money, brains and experience can develop—trees that will grow true to name and produce profitable results.

Two thousand acres in the very heart of California's most fertile valley, used exclusively for the growing of Roeding true fruit trees, vines, shrubs and plants, as well as ornamental stock. Millions of trees grown in a scientific way.

We Grow Everything that Grows

It makes no difference what you have in mind to plant—whether it is citrus or deciduous fruit or ornamental trees, vines, plants, etc.—we can supply you in almost any quantity and with the most magnificent stock ever grown in the State of California. If you haven't already received a copy of our 1915 illustrated price catalogue, we will be glad to send you a copy free on request.

OUR NEW BOOK is now READY



—the book that every horticulturist in California has been looking forward to for years. It is the concentrated experience of over 30 years in California Horticulture and contains complete cultural directions. It tells when and how to plant and gives detailed information in regard to pruning, with illustrations showing "before" and "after." It is a complete text book of 48 pages. Price 25c postpaid.

Here's how you can get a copy of this valuable book FREE

Send us a list of whatever you intend to plant this season—unless you have already placed your order. Tell us what varieties you expect to plant and how many of each and give us an opportunity to figure with you on your requirements. We have set aside a limited quantity of these booklets for prospective Fancher Creek customers and will be glad to send you a copy free of charge if you will send us a list of what you expect to plant this season. The supply is limited. Write us now.

ROEDING TRUE TREES FRESNO, CAL.

FANCHER CREEK NURSERIES, Inc.

Geo. C. Roeding, Pres. & Mgr. — Paid Up Capital $200.000.00

Box 18 Fresno, Calif.

Telling Frosted Fruit.

[Written for PACIFIC RURAL PRESS by John J. Fox, Horticultural Commissioner of Napa County.]

The only time we may expect any damaging frost in Napa Valley is from about March 15 to May 1. It may possibly be that we have fruit injured in the bud before this, but if we have, it has not been noticeable. Last year—the worst I have known in my eleven years' residence in this county—the frost and an unusually heavy heat wave which preceded it reduced our prunes to 20 per cent of a crop.

So little have we feared frost that until now no steps have been taken to heat the orchards; but this year there will be pretty close to 10,000 orchard heaters in this valley as an insurance against frost. They may not be needed; let's hope they won't—but they will be there if needed. Last year the only crops injured were prunes, cherries, and peaches, and these were only curtailed. Grapes, apples, and pears were a fine full crop of excellent quality.

Generally speaking there are only two or three nights in the whole year when our crops have been imperilled; yet it is well worth while, our orchardists are now testifying, to take a little trouble and assume a little extra labor and expense to guard against any injury by frost.

Now, as to the appearance of fruit that has been frosted. Prunes or plums will show just a slightly shrivelled skin, the complexion has lost its lustre, the sturdy green stem has become lighter in color, and if it has been badly frozen, there are black spots on the fruit within 24 or 48 hours of the injury. If the fruit has not been sufficiently injured to blacken, break it open with your thumb nail and if there is the slightest stain on the skin of the seed, the fruit will fall. It may grow even to double its size; but it will surely fall off and never reach maturity.

In the bloom, the pistil freezes first, so that if this is blackened at the tip in the slightest degree, you may be perfectly sure that, no matter how bonnily the tree blooms thereafter, every blossom with an injured pistil will drop off. It cannot set the fruit because the vitalizing spark has been destroyed. This pistil may be frozen before the bud has opened into full bloom or it may be frozen afterwards, but the effect is the same. Where the blooms—frost or no frost—have very short stems, you can count them out, for they will not mature.

In 1913, a frost came on us when prunes were about the size of a Lima bean and the fruit was slightly injured on the outside, producing light colored spots where the tissue under the skin had been injured. A percentage of this fruit matured and made good fruit, where the injury had not penetrated to the seed, though the discoloration was apparent at maturity while not damaging the quality of the finished article. Those with weak stems—presumably from weak buds—fell off.

Thus, to be certain, any yellowing of the stem or any kind of stain on seed, may be taken as the death warrant of any plum or prune fruit.

The above symptoms also hold good on the cherry—a yellowing of the stem, or, in fact, any debilitated appearance and the fruit falls. It is very rarely that apples and pears suffer much from frost in our fair valley. Occasionally there is a little, a very little russetting of the fruit from this cause, but it is negligible. Pears are occasionally hit, but it is easy to tell if the pistil is injured. If the fruit has set and an injury takes place, it is often very little noticeable, except that the fruit contains no seed. Apple petals may be destroyed and yet fruit develop if the pistil is uninjured.

With regard to peaches, if the fruit is injured in the bloom, the injury is apparent to anyone, for the center is palpably shrivelled and discolored. To the novice the earlier varieties are more easily discernible. In examining the set fruit, the very slightest discoloration of the skin of the seed, other than its natural color, means that the fruit will drop or would have dropped if it had not been picked off. It may stay on the tree when so injured and grow till it attains the size of a hen's egg, but fruit so discolored at the pit will not mature, so it is no use indulging in vain hopes.

In Napa Valley we have so few really injurious frosts at the season when frost will hurt us that one cannot help but admire the pluck of those men who are willing to put in frost fighting plants to protect themselves from the chances of grave loss.

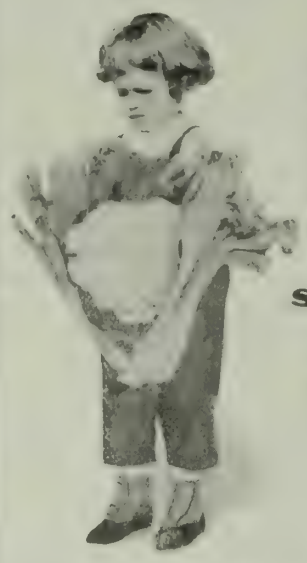
I do not think that the adverse chances warrant a vineyardist in putting out a frost fighting plant in Napa County.

If any kind of fruit buds go into the winter in perfect condition, due to proper management in cultivation and fertility, they will stand more of either heat or frost than if devitalized from drouth and neglect.

STUMP PULLERS

CALIFORNIA STUMP PULLER COMPANY
704 Bryant St., San Francisco

GARDEN COLLECTIONS MADE TO ORDER



Economize. Produce is high and every vegetable you buy is money lost. You can grow clean, fresh, crisp vegetables, flowers and fruits in your back yard or on that little ranch, with profitable pleasure. School children make it a success. So can you. To help you we offer our latest and best innovation, "Made to Order Garden Collections" of insecticides, trees, plants, flower and vegetable seeds; all

SEASONABLE IN MARCH

Our offer allows you to make your own selection from a large variety of seasonable vegetable and flower seeds, trees, plants, insecticides, etc., at one-third less than regular price. Every Collection includes our new and beautifully illustrated catalogue which is so complete in descriptive matter and cultural directions as to earn the title of

GARDEN ENCYCLOPEDIA—FREE

We issue a special pamphlet explaining our "Made to order collection" offer. Write NOW for PAMPHLET P

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

WE RAISE 60 AND 70 BUSHELS OF CORN PER ACRE

and GUARANTEE you the same. HOW? Get acclimated, pedigreed seed. Note results. 1904 bought 80 bushels per acre Nebraska pedigreed seed. See our yield same year 25 bushels. 1905 selected and planted. YIELD 35 bushels, etc., until now we have the above results.

Price F. O. B. our station:

Select on car $4 per 100 lbs.
Select shelled $4 per 100 lbs.

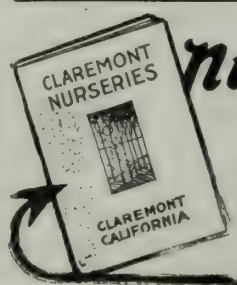
Rough's Greenfields, Arlington, Riverside, Cal.

FINEST NURSERY STOCK IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.
TUSTIN, CALIFORNIA.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening.
It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California



Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

Vines Too Much Repressed.

To the Editor: I am a newcomer to California, having been here about two years, and purchased a small farm on which is a vineyard of Thompson Seedless, Muscat and Flame Tokay grapes. The Thompsons were trained on wires and a vine of about 3 feet left running in either direction from the vine head. The other vines (Muscats and Tokays) were pruned right down to the ground, having no stem left whatever, and I was instructed to prune that way. Is that correct? If a stem or trunk of a foot or two should be left, how can I change the habit of the vine of branching out at the ground? The vines all make such a rank growth that cultivation is out of the question after they grow a while in the spring. The Thompsons run vines 20 to 25 feet in a season. Would it do to prune back the ends of the vines during the growing season? I note very few grapes on the very long vines. I also note that many of the grapes so near the ground dry up or become "raisins" on the vines. What would you advise?—H. O. D., Chico.

[Your Thompson's Seedless do not seem to have much trunk, and judging from their description they do not have enough arms, or main branches at the head. Two branches cut off to three feet are scarcely enough for a good vine of bearing age. We would suggest that you leave two or three more canes on each vine; and in the winter pruning, which may be done at any time now, leave them four or five feet long. This will increase the number of buds which will bear fruit, taking the energy of the vine for fruit instead of for extensive wood growth. It will be well after blossoming time to cut off a foot of the vines that are the most vigorous. This will check their growth endwise and may result in some laterals, especially near the tip. These laterals may be pinched back later without removing many of the dark green leaves. Such treatment will tend to put the energy of the vine into fruit. Waiting too long before cutting off the canes would involve removal of many of the older leaves, which would weaken the vine. This would reduce the vigorous growth, but there is no use of wasting that vigor. The Muscats and Tokays seem to have been pruned wrongly. They should have a trunk. We believe that the conviction is growing that the Muscats should be headed about one foot above the ground and the Tokays about two feet. You can do this by allowing the strongest shoot to grow this spring, pinching it back when it is one foot tall, and then cut it off along in July or August back to about where you want the head of your vine to be. This late topping back will induce the growth of laterals from which you can form the desired head of your vine. The first topping back will simply check its growth and make it stockier. To prevent the growth of other suckers from near the ground, keep them off entirely for the first two or three years by cutting them out close to the trunk before they have grown more than a foot tall. This will prevent the making of dormant buds at the base of these shoots, all of which would make you later trouble. You should also avoid weakening the vines by removing much good leaf surface. We would refer you in regard to the Thompsons to an article which appeared in Pacific Rural Press October 31 and also to another one which will soon appear. More also will be published soon in regard to pruning Tokays and Muscats.——Editors.]

POOR CHANCE WITH MUSHROOMS.

To the Editor: Can you give me the address of some firm that handles mushrooms?—J. C. B., Ingomar.

[J. E. Lawrence of this city advises us that there is no chance to make a profit raising mushrooms, at least for the San Francisco market, because there is an abundance of them growing wild. The San Francicso supply comes pretty largely from the peninsula south of the city. We do not doubt that by devising a way of growing them out of season and persistent advertising in our classified columns you could work up a select trade which would take your mushrooms for the sake of knowing they are safe. A little personal correspondence would help this along, and we think it might be worth while under these conditions.—Editors.]

DECIDUOUS HONEY BITTER.

To the Editor: I have been told almond blossoms make bitter honey. Is it true? If not, can I place supers on hives in February?—S. A. N., Acampo.

[Answered by L. D. Walker, Sacramento.]

[In regard to almond bloom, it does produce a bitter nectar, not pleasant to many people's tastes, but some people like it very much. It would not be advisable to put on comb honey supers for fruit bloom, but put on extracting combs as fruit blooms do not make a desirable grade of comb honey. After all fruit blooms have gone except lemons and oranges, put on comb honey supers, as oranges and lemons generally bloom one to three weeks later; then you will secure a fine grade of honey.]

INSECTICIDAL WHITEWASH.

To the Editor: I want to whitewash my pear trees. Is there any insecticide or fungicide I can put on to help kill obnoxious growths? Would carbolic acid or corrosive sublimate be of any use?—H. H. P., Grass Valley.

[Lime sulphur is the best thing to apply to trees now for insect or fungus diseases. This can be mixed with lime as described in a recent article on "lime sulphur for walnut aphis," and will make a very insecticidal and fungicidal whitewash.—Editors.]

TREES
Slaughtered

25,000 Surplus fine trees cut low in prices. Prunes, Peaches, Bartletts, Apples, Cherries, Figs, Olives, Walnuts. Prices reduced very low. Stock in fine condition. Want to close out yard quickly. Wire reservations, write or phone for low prices on your wants.

TABLE GROVE NURSERIES
Healdsburg, Calif.
Res. Phone 12F3. Office Phone 33

OLIVE TREES
Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.
THEODORE PAYNE,
345 S. MAIN ST., LOS ANGELES, CAL.

Armstrong Nurseries
ESTABLISHED 1889

Your
Olive Trees
Are Ready

I am prepared to make immediate shipments of Mission and Manzanillo Olive trees in all sizes from three-eights to one inch caliper, and in any amount desired, having several thousand trees, pruned and otherwise prepared for digging, shipping and planting. If you plant Armstrong Olive trees you will be planting the best stock to be had in the State—trees that will start right off and grow—no waiting—no disappointments, and the best results to be obtained will be yours with no additional cost to you, as my prices are the lowest, consistent with the quality,—my trees are all scientifically propagated from the best fruit-producing trees throughout the State. Send in your orders now, or write me relative to your requirements, and I will quote you my "Rock Bottom" prices.

Notice to Planters

A recent report has been received by me, stating that some unscrupulous agents throughout the State are soliciting orders for olive trees, stating that same are to be supplied from my nurseries at Ontario, California. In connection, will say that unless the agent or salesman can show you his authority in the matter, and assure you beyond a doubt that your trees are to be ARMSTRONG TREES, then "turn him down," and send your order direct to me; thus protecting yourself, and assuring you the best stock to be had in the State.

My 64-page Illustrated Catalog, Planter's Guide and Price List combined, of general nursery stock, together with my Booklet on the Olive and its culture, will be mailed free, on request. Write today.

John S. Armstrong, Proprietor
406 Euclid Ave.
Ontario California

Planting Sprouted Walnuts.

[Written for PACIFIC RURAL PRESS.]

Forty acres of black walnuts planted five years ago to graft into English walnuts, may be seen on the farm of J. F. Ricketts in Sacramento county. These trees are planted 60 feet apart and almonds interplanted both ways.

Before setting them out, holes were blasted for the purpose of breaking up the hardpan which lies six inches to five feet under the surface in a layer averaging twelve to eighteen inches thick. This hardpan layer is underlaid with sand so that explosion of dynamite must be made in the center of the layer; otherwise a pocket is blown in the sand beneath and the dynamite wasted.

In planting the forty acres, Mr. Ricketts lacked just 35 trees. To take the place of those he put black walnuts in a box of sand at about this time of the year and sprouted them before setting them out, four or five in a hill along in April. He found it no trouble to sprout the nuts.

After leaving them in the hills for a year, the tops were about eight or ten inches tall, but when he pulled the weaker ones out by the roots in order to leave only the strongest trees in each hill, it seemed to him as if he never would get all of the root pulled out. These little yearling seedlings had roots over four feet long. They are now five years old. Mr. Ricketts says that they have caught up with the nursery grafted stock which was set out at the same time the seedlings were planted However, he doesn't recommend such a practice unless one is willing to take a chance of losing some of the hills, thus putting him a year or so behind and giving him an uneven stand, and unless he is willing to take a chance of getting uneven size of his young trees.

WILLSON'S WONDER DEFENDED.

To the Editor: Owing to erroneous and misleading statements and descriptions of the Willson's Wonder walnut, which have crept into different publications from time to time, I, as originator of this variety, wish to make a brief statement in justice to myself, and for the information of many of your readers who wish to know the truth about it.

I think a quotation from one of my customers may answer the purpose better than my own words. "After getting several lots of Willson's Wonder walnut trees from you, and testing them in different places, I can say that it is all you claim for it. If there is anything wrong with it, I have yet to discover it. It is a strong grower, begins to bear very heavily almost at once, the largest and finest walnuts I have seen or tasted. The foliage is very dense and large, and I have never seen any sign of blight or other disease. This is prompted by statements in the press which are wrong, and evidently by those who do not know the variety, or 'have an axe to grind.'"

Because this walnut has so many good qualities combined in one variety, some people expect the impossible. Owing to the extreme precocity of Willson's Wonder, it begins to bear even the same year it is planted from the nursery. Some planters make the mistake of leaving the nuts on, because, as they say, they "hate to pull them off." But they should not let the nuts stay on until the tree gets established and gains some strength, else the tree will not be as large as it otherwise would. They have the assurance it cannot help bearing when they will let it. This tree is an exceptionally stocky, stout grower, and if it has anything like an even show with other strong growing varieties, will not be found behind them in growth. It asks no favors that ought not to be given any other variety of "English" walnut to make a success.

Sunnyvale. F. C. WILLSON.

WALNUTS IN ALFALFA.

[Written for PACIFIC RURAL PRESS.]

Young walnuts planted 50 feet apart in the spring of 1913 in an alfalfa patch four years old are to be seen on the ranch of A. D. Christian in Glenn county. They made 12 to 18 inches growth the first year, but Mr. Christian thinks that they would have done 100 per cent better if the ground had been cultivated five feet each side of the row and the water run down a furrow. With such a system he would plow an additional round every year to accommodate the growing roots of the trees.

NORTH COAST FRUITS.

To the Editor: Could olives be grown successfully around Fort Bragg, Mendocino county? If not, what fruit would it be profitable to grow?—H. L. C., Fowler.

[No olives are grown in that section. Apples, pears, plums, quinces and cherries are probably best adapted to the local conditions.—Editors.]

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

Pioneer Roofing

"The roofing that covers California."

Pioneer Roofing is sun-proof, rain-proof, warp-proof, and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."

WRITE US for samples and prices—or ask your dealer

Pioneer Paper Co.

Manufacturers,

247-251 SO. LOS ANGELES ST., LOS ANGELES.

HIGH COST OF LIVING

It can be reduced by raising bigger crops and having more to sell. Also your labor and outlay can be made to pay much better by raising bigger crops and having more to sell.

Fertilizer is necessary, just as is the rain and sunshine. The sunshine warms the ground and starts the growth. The rain furnishes the moisture necessary to plant development. The fertilizer releases the life in the soil and makes it fertile.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Fertilizer of animal origin produces the most life, by returning to the soil that which was taken from it. GOLD BEAR fertilizer is animal fertilizer, made at our meat packing plant.

There is an interesting booklet on fertilizer, which we shall be glad to mail upon request.

Western Meat Company

704 Townsend, St.

San Francisco

SEED POTATOES

If you intend planting potatoes, be sure to get seed that is selected and true to name. We have that kind of seed.

WRITE FOR PRICES.

Our 1915 Catalog telling how and when to plant is now ready. Mailed free upon request.

Alfalfa Seed a Specialty

VALLEY SEED CO.

510-512 Jay Street, Sacramento, Cal.

40-ACRE EQUIPPED

Farms

On every 40 acres we install a pumping plant, provide trees and seed adapted to the soil, and necessary farm implements to begin your work.

This establishes you at once on good land in the early fruit district of the upper Sacramento Valley, and assures you of crop returns the first year.

Everyone who wants a farm should investigate this offer.

WRITE TO

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Oil and Pickle Olives.

"The Mission is the only olive there is for flavor," says E. C. Phoenix of Sacramento county; "our only trouble is that about three-fourths of them are below the good, pickling size, and we would like to know how to increase the size. Of course, we can use the small ones for oil and they yield 35 to 40 gallons of oil per ton of ripe olives, but this does not pay."

The Nevadillo and the Manzanillo have nearly as high an oil content as the Mission, if allowed to stay on the tree until ripe. These varieties are of larger size and have this advantage for pickling, but all varieties are inferior to the Mission for flavor.

It must be remembered that the Mission is a heterogeneous variety. Seeds were brought over and planted at the early missions and these, as usual, varied more or less in the quality of their fruit. Through long years the best trees were selected and the others cut off, but there is yet considerable variation, and in getting Mission olive nursery trees it is well to inquire as to the fruitful qualities of their parentage.

Ascolanos, and Sevillanos are of good pickling size, but are hard to pickle ripe because they are likely to get soft. The trouble with making ripe pickles from these large varieties is that they must be picked green commercially, and simply colored by exposure to air during the processing.

A certain olive company even in 1913 bought olives, orchard-run, in Sacramento county at $100 per ton and picked them in October. The earliest varieties are just beginning to ripen in October, and when they are picked green and colored up, you might as well attempt to chew a stick as to enjoy these olives, which you expect to find oily and full of flavor.

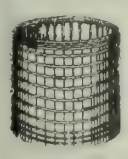
The Manzanillo has a pretty fair flavor as a ripe pickle if picked after it has turned red and is well on its way toward the black color, but for green pickles is poor.

Mr. Phoenix has one variety called Uvaria, which is very low in oil, running down to 20 to 25 gallons per ton.

F. S. Briggs of Butte county has a fine, old orchard of Missions, but he has become interested in the Ascolano for green pickles and he says the difference in price between that variety and the Mission is so great that he is willing to sacrifice a crop or two and graft over alternate Mission trees to the Ascolano.

ALFALFA VARIETIES AND IRRIGATION.

Tests conducted by F. B. Headley of U. S. Dept. Agr. with alfalfa grown on the Truckee Carson project in Nevada for soil-improvement and forage purposes show Grimm, Peruvian, Western Grown, Caucasus, and Montana to have been the best five. Data show that three cuttings a year secure a larger yield than two cuttings, but, Mr. Headley concludes, not sufficiently large to cover the expense of the third cutting. Irrigation experiments on a small scale showed weekly irrigation to be more productive with alfalfa than at two, three, four, five, or six week periods. It is noted, however, that these conclusions are drawn from only one year's work.



Redwood Tank

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.

NEWCASTLE, CAL.

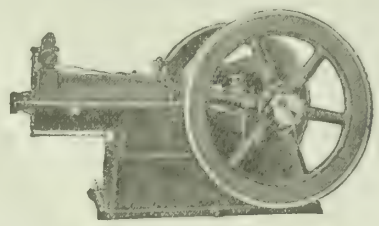
Fuel and Power Economy

Alpha Gasoline and Distillate Engine

READ THIS

NO BATTERIES,
NO COIL,
NO CRANKING,
NO TROUBLES.
A BIG HOT SPARK,
A QUICK START,
RESULTS

Equipped with a built-in, gear-driven, gear-timed, magneto, which is guaranteed for the life of the engine.



The Viking Rotary Pump

All Sizes.

NO FOOT VALVE, NO PRIMING,
HIGHEST EFFICIENCY.
POSITIVE DELIVERY AT VARYING HEADS.
ALPHA ENGINES & VIKING PUMPS.
A combination hard to beat.

Before you install a pumping plant it will pay you to investigate. Our Engineering Department will work out your pumping plant problem without any obligation on your part.

Write for Special Engine Circular 2B.

De Laval Dairy Supply Co.

SAN FRANCISCO, SEATTLE.

Walnuts Are Dollars

Plant a Walnut Grove that will grow into Dollars while you sleep. The Vrooman Franquette bears at three years and sells for 25 cents per pound—is smaller than an apple and sells for more money. Get in with the tide, and get rich. At forty feet apart, it only takes 28 trees to the acre. Is cheaper than an apple orchard to plant, and makes your land more valuable. True Vrooman Franquette Walnut Trees at Bargain Prices at

Mira Monte Nursery

SAN JOSE, CALIFORNIA.

SURPLUS TREES

AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of Grape Vines.
Fine supply of Olive and Citrus trees; also Grape Vines in Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha, etc., etc.

Mission Olive Trees in our Nursery at Fresno, propagated from selected large Mission Trees.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast this spring, wire us (our expense) for quotations on your orders. If you will need some stock

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

Costs of Growing Almonds.

[Written for PACIFIC RURAL PRESS.]

Personal attention to individual trees at all times of the year gives J. T. Caldwell of San Joaquin county much satisfaction and a good living on ten acres of twenty-year-old almonds. These are set 22 feet apart on sandy loam ten to sixteen feet deep underlaid by a kind of clay or shelly hardpan. The water level as shown by his irrigating pump is 35 to 50 feet below the surface, depending on the season.

Most of them were set on bitter almond roots, some on peach roots; and Mr. Caldwell calls attention to the more healthy appearance, long lived trees, with better root systems, on the almond than on the peach roots. In digging his soil some four years ago, he found almond roots fourteen feet below the surface. Most of the trees were IXL's until ten years ago and they made a fine orchard, good to look upon, but they never bore nuts enough to speak of. Ten years ago, 500 trees scattered about the whole orchard were grafted to Drake seedlings, with some Ne Plus Ultra and Texas Seedlings.

The first season the grafts bloomed there was a great difference in crop, which during the past nine years has yielded $700 to $2300 per year excepting one year which was a total failure. Last year the crop was $1150 worth of nuts.

Non-Staining Variety. — There is also in the orchard a scattering of a hard shell variety called the Le Roy seedling, which bears heavily, hulls, and bleaches easily; and does not stain when wetted with rain. For these reasons they are usually the latest ones gathered, some of them being picked up last November in first-class condition, not stained at all. Mr. Caldwell says that the shells get softer, too, with the added years.

Prunes Every Year. "I do not like to wait several years and then butcher my trees," says Mr. Caldwell. "I prune a little every year, watching all the time for limbs that are in the way or getting too thick. If I see such limbs that need cutting out, I take them out entirely, whatever size they may be, but there are seldom any big ones in the way, and seldom any large ones that have to be cut out for any other reason. It doesn't matter much whether it is summer or winter that I see the need of cutting out a limb, for I do it right then. I figure just on thinning out the brush, taking out the suckers, but never topping back because that would induce a growth that would be too whippy. The nuts on those whips would be knocked off in windy weather by their blowing around; and the same is true if too many top branches are allowed close together so that the full force of the wind will catch them. We figure it takes about twelve days every year to do the pruning on my old trees.

Spraying Lime Sulphur and Lye. —"Excepting once some years ago when I tried a carbolic acid spray for brown mites, I use nothing but home made lime sulphur. This is applied in connection with a can of ordinary lye per 200 gallons when there is not enough foliage on the trees to hurt. We use a power spray pump with two nozzles, requiring three men to run it. Four years ago in September we sprayed the whole orchard at once in three days, but usually we just spray here and there wherever there seems to be need. Our biggest trouble is red spider and brown mites, for which we use the same spray, weakened, whenever we find them all through the summer. In addition to the regular spray, I have a hand spray pump to carry around on visits of inspection, and I give the insects a dose wherever I notice them. It requires four to six barrels of fine lime per year, costing $2.25 per barrel; 100 pounds of sulphur which costs about $3.25 and about fifteen cans of lye at a cost of three cans for 25 cents, so the spraying is not expensive here.

Cultivates Less.—"An old orchard does not need so much cultivation as a young one, and some years we just disk and harrow once in the winter and then again in the spring after most of the rain is over. We began cultivation last fall a little while before Thanksgiving. Sometimes we use a plow, but do not like that because it catches too many of the roots. One disking can be done in a day by a man and team at a cost of $4. For the cultivations we sometimes use a vineyard cultivator followed by a harrow, just to loosen the top surface. The weed cutter that we used to use was unsatisfactory. We figure that the cultivation, for the last four years only, cost us over $50 per year.

"We irrigate by means of a 6-h.p. pump from a well 85 feet deep, but the water lift is only about 40 feet. Working twelve hour days we get the whole place irrigated in about twelve days, but we do not think it is necessary in this country to irrigate young trees until twelve to fifteen years old. That gives them a good root system if they have been properly cultivated.

"We feel that the application of water around the trunks of the trees is the cause of black knot and other diseases, so we apply it through a double furrow plowed half way between the tree rows. To make it seep in properly we dam the furrows until it has soaked the ground enough clear to the rows. We test for that condition by jabbing a long-handled shovel into the soil. When it has enough water we can run it down three feet deep.

"The harvest last year cost more than usual per pound because it was rather light. This amounted to about three cents per pound for gathering and one and one-fourth cents per pound for shelling by hand and bleaching with sulphur.

"The almonds are hauled to town with four-horse teams, taking two to two and a half loads per day at a cost of $6 per day. This year we sold our crop too early, contracted it to buyers outside the Almond Growers' Exchange. The IXL's brought 16c f. o. b. Lodi and the Ne Plus Ultras 15c."

An electric power line has just been completed from Hutton Dam in Nevada to Rochester, to supply power for mines and for Lovelock valley farmers.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS
Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press.. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged, and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

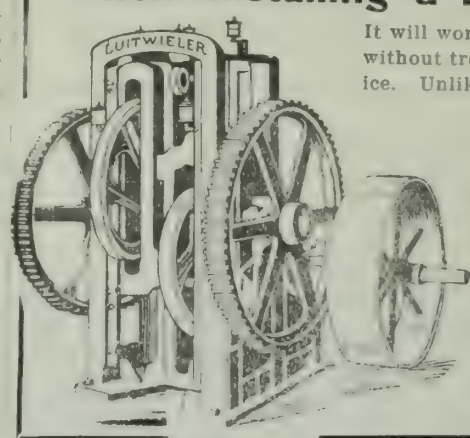
"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

You Make an Excellent Investment When Installing a Luitwieler Pump



It will work perfectly year in and year out, without trouble, rendering the best of service. Unlike other makes, there's always a

Big Demand for Second Hand Luitwieler Pumps

—in fact the demand exceeds the supply because a second-hand Luitwieler gives just as good service as a new one. Write for our 3 Free Irrigation Booklets.

Luitwieler Pumping Engine Co.
711-713 No. Main St., Los Angeles
SAN FRANCISCO AGENTS:
Simonds Machinery Co., 117 New Montgomery.

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.
DON'T BUY CHEAP FAKE STOCK.
We are selling,
GUARANTEED CITRUS TREES
at reasonable prices.
Substantiated by 20 Years in Business.
Write, wire or call, you take no chances.

POLLARD BROS.
Mission and Los Robles, South Pasadena, Cal.

This Spray Hose Stands the Wear.

Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is

Bean High Pressure Spray Hose

Made to withstand high pressure and constructed especially to withstand the action of spray materials and to give long service. Costs no more than ordinary spray hose—but lasts twice as long. Write for prices. You can order from your dealer—or direct from us.

BEAN SPRAY PUMP CO.
211 West Julian St., San Jose, Cal.

Renewing Old Pear Trees.

[Written for PACIFIC RURAL PRESS.]

An old pear tree that is failing in its upper story needs renewing. The upper failure may be due to a failure underground, such as woolly aphis, crown gall, gophers, etc., but that's another story.

A neglected pear tree usually needs its hair cut entirely off with the shears. If this is done right, there will be a lot of naked limbs too big for the shears and these should be cut off low enough to cut through live wood all the way around, according to J. F. Sarmento of Alameda county. Take out entirely enough to let plenty of sunshine to the inner buds.

Regrettable as big stubs in a pear tree are, their cut surfaces may be painted with heavy lead and oil, which won't need renewing for a year. Don't leave any dead or weak wood in the tree. Maybe you will sacrifice a crop, but if it isn't much of a crop that you would sacrifice, better tear down thoroughly enough so you can rebuild satisfactorily.

If there's any ginger at all in the roots, the tree that was full of weak wood and is topped back heavily will send out a lot of new shoots. Some of these will be good; others bad—some will be in good position to keep. Don't bother any of them much till the winter after the trees were cut back. Then thin them out and leave only those on the outside of the limbs, which will fit nicely into the new framework of the tree. Cut off again all the stubs, down to the bases of the shoots that are to be left, and as you value your orchard and the work you have spent on it, don't fail to paint the newly cut surfaces and whitewash the trunks.

Cut the new growth which is to remain back to a foot length, leaving the top bud on the outside. Bartletts grow naturally too perpendicularly. We can help them spread out in this way.

The topping will induce laterals, and there will be some fruit in the season following. You will find buds and spurs forming at unexpected places on the old wood and soon there will be fruit wood for a considerable crop, located all the way down to the crotches, for that is the nature of the tree. The severity of cutting must be adjusted to the weakness of the tree as judged by the amount and fatness of its previous year's growth. Cut weak trees back more than strong ones. The latter cut back too heavily will send out too many and too vigorous shoots.

While cutting off the branches, shorten the fruit spurs too, but it is well to leave at least one healthy looking bud on each.

Mr. Sarmento has seven pear trees about 30 years old. One is small because on hard uncultivated ground. None are sprayed on account of commercial flower beds under them. One was sheared of all its spurs and much of the wood thinned out. It has now filled out with new wood almost as large and more healthy than the others.

From the seven trees in 1913 thirty-eight 75-pound lug boxes were picked, from each of which about 40 pounds of pears were selected for foreign export.

HOW TO PREPARE HOTBED.

Collect unheated manure from the horse barns and mix with the pure manure an equal amount of straw that has been used for bedding. Fork this over well and pile in a heap and let stand for about two days. If it does not start to heat in this time moisten the entire pile with warm water.

Prepare a pit for the manure bed. This should be located on the south side of buildings with a good exposure to the sun. The pit should be about two feet deep, not over six feet wide and as long as desired. It is preferable to have the long measure east and west. As soon as the manure has started to heat well, it should be placed in the pit and carefully tramped. This is the best method of packing the manure evenly in all parts of the bed. If it seems dry add enough water to dampen, but do not apply enough to saturate the bed. Let the bed stand until it is heating well throughout, then cover with five or six inches of good garden loam. Let this stand for three or four days and then work down the surface with a rake and the bed is ready for seeding.

A broad frame, 10 or 12 inches high on the south and double that on the north, should be placed about the bed when the pit is prepared The glass sash or cloth covering used should be placed on as soon as the manure is packed in.

A bed prepared in this way will furnish heat about six weeks. The temperature will run high at the start and gradually go down. At the end of six weeks the hot bed becomes a cold frame and will protect plants from frosts but not hard freezes. O. M. MORRIS.

Wash. Expt. Sta.

STICK TO THE CROP.

[Written for PACIFIC RURAL PRESS.]

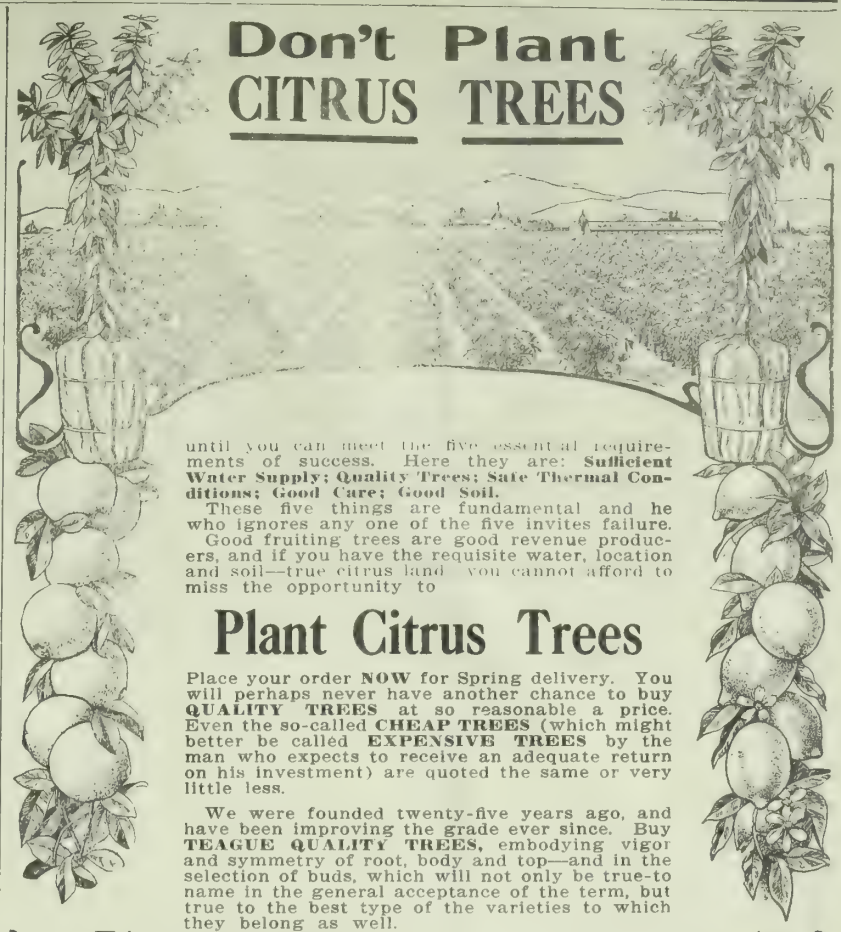
A farmer in San Joaquin county some years ago planted a considerable acreage to Zinfandel grapes. The first crop that they bore brought in $5 per ton and he dug up the vines at once. He replanted them with Tokays. The first crop brought a ruinous price and he dug them up at once. Alfalfa was planted the following season and the first crop brought a good price. The second crop was raised in 1914. The gentleman sold out this winter, at a time when his neighbors in the cooperative table grape association declared a considerable dividend both on stock and on tonnage shipped.

DIGGER PINE.

To the Editor: Is the so-called Digger Pine pinus sabiniana or sabris pine; and is it found on the east side of the Sacramento valley? —F. O., Napa.

[Answered by U. S. Forest Service.]

[Pinus sabiniana, commonly known as gray or digger pine, may be found on the east side of the Sacramento Valley. Its range extends from Humboldt and Shasta counties southward through the foothills and lower mountain slopes of both the Coast Ranges and Sierras to San Luis Obispo and Kern counties.]



Don't Plant CITRUS TREES

until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES,** embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively San Dimas, Cal.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Fruit Trees ! Fruit Trees !

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. Cor. First and Cedar Sts., Chico, Cal.

MAXWELL'S NURSERIES, Napa, Cal.

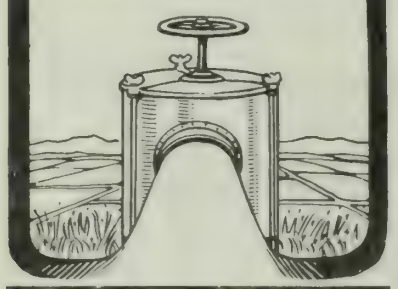
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.
FIRST CLASS STOCK TRUE TO NAME.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.

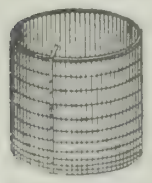
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. **If not for sale by your dealer, write us.**

TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, San Francisco, Cal.

KT
IRRIGATION SYSTEM
THE 20TH CENTURY METHOD OF IRRIGATION.
As superior to old methods as the modern method is to the ox cart.
Saves Water, Land and Labor
Don't experiment -the best is the cheapest in the long run.
Illustrated Catalog and full particulars on request.
Kellar-Thomason Co.
"Originators of the Valve System of Irrigating."
1234 EAST 28th ST., Los Angeles.
(Ask your Dealer or Contractor.)



Large Shipment of
Water Pipe
Received by Los Angeles Pipe Firm.
300,000 Feet Ready for Immediate Shipment.
The Adams Pipe Works of Los Angeles, which recently changed management, announces they have just received one of the largest shipments of Water Pipe received by any one firm in a single week. All sizes are included and all pipe absolutely guaranteed. Special prices on various sizes as follows: Riveted Dipped Pipe: 10-inch, 30c; 4-inch, 12c. Sandard Pipe: 8-inch, 45c; 6-inch, 35c; 5-inch, 30c; 4-inch, 25c; 3-inch, 15c; 2½-inch, 12½c; 2-inch, 7½c; 1½-inch, 6c; 1¼-inch, 5c; 1-inch, 4c; ½-inch, 2c. Tubing: 2-inch, 8½c. O. D. Casing: 10-inch, 70c; 8-inch, 45c; 4¾-inch, 22c; 4-inch, 17c; 3½-inch, 13½c; 3¼-inch, 13c; 3-inch, 12c.
Mail orders and quotations given prompt attention. Adams Pipe Works, 2025 Bay St., Los Angeles, Cal. Broadway 1264. F-1917. Night and Sunday phone Vermont 1291.



REDWOOD TANKS SILOS.
Water Troughs, Windmills, Frames, and Towers.
Steel and Wood.
Prices the lowest.
BROWN & DYSON
640 SO. CENTER ST., STOCKTON, CAL.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

What Are the "Delta Lands"?

To the Editor: Will you kindly tell me about the "Delta Lands" in San Francisco bay—how they are reclaimed and what they are worth? —H. E. Lewiston, Montana.

[Answered by John P. Irish, President Delta Association.]

[There are no Delta lands in San Francisco bay. These lands are in the Delta of the San Joaquin and Sacramento rivers above their respective mouths, which open into Suisun bay. There are about 600,000 acres of these lands. About all that can be reclaimed is now under levee or in process of reclamation, the area being about 300,000 acres.

Reclamation is effected by levees built with clam shell dredges. The cost is from $50 to $100 per acre. The price of these lands varies with above cost, and is all the way from $125 to $400 per acre.

When reclaimed each tract is an island, surrounded by navigable fresh water. For irrigation, the water is let in, either by siphons or iron floodgates.

Drainage is effected by a main drainage canal and power laterals. Out of this canal the surplus water is pumped by centrifugal pumps, run by electricity.

The soil of the Delta is peat, in some places pure and in some mixed with sediment.

As to flood conditions, the levees have a base 120 feet wide and a height determined by the maximum flood plane.]

APPLY NITRATE EARLY.

To the Editor: When would be the best time to apply nitrate of soda on citrus orchards? I hear it would hurt blossoms if applied at that time. —Subscriber.

[Answered by C. C. Teague, Santa Paula.]

[Nearly all authorities and citrus growers of much experience agree that the best time to apply nitrate of soda is early in the spring. Nitrogen in that form is particularly desirable for application at that time because of its availability. With other forms of nitrogen, such as blood, it is absolutely necessary that the soil be very warm when the application is made in order that best results be obtained, but with nitrate of soda, or nitrate of lime, or sulphate of ammonia, the nitrogen is supposed to be in a form that the plant can immediately take up. I have never heard of any danger of weakening of blossoms by applying in the spring and should think that the tendency would be just the opposite, as anything that would tend to make a strong, vigorous condition should tend toward setting a better crop.]

RIGHTS OF RIGHT OF WAY.

To the Editor: Is there any limit to the number of gates an owner may build on a right-of-way which passes through his land? Has he the right to use the right-of-way as part of one or more corrals? I have to pass through the land of a party who has just built a cow stable for the benefit of one of his hired men. The corral includes the right-of-way. If the owner above mentioned builds cow stables and corrals for all his help on the right of way, I fear I am up against a hard proposition, as he has quite a few men employed.—A. B. C., Burke.

[Answered by A. E. Chandler of Symmes, Means and Chandler.]

[The rights of an owner of land over which another has a right of way can only be ascertained by studying the instruments granting the same, if such there be, or by studying all the conditions under which the right of way has been used, if it rests upon actual use and not upon a regular grant. It is, therefore, impossible to give any concrete answer in the present case. The writer should consult an attorney and place before him all of the facts.]

TEPARY BEANS AND FETERITA.

To the Editor: As I have had considerable experience with the Tepary bean for the last five years, I would like to tell my brother farmers what I think of it. I have seen Teparies grown in Mexico and on the deserts of Arizona and have grown them two years here in Stanislaus Co. While they will grow here and make a very good crop, I consider them a very poor bean for California, except, perhaps, for a small part of the State, on the deserts.

What makes the Tepary bean of value to people in Mexico and Arizona? They have different climatic conditions. They have to plant the latter part of July and August and the beans between the showers which come at that season, and under a scorching sun, where other beans would not grow at all. So I will say, if you have ground that will grow other varieties, don't plant too many Teparies until you have tested them for yourself.

As to Feterita, I received about a bag of seed from the government seed department, and I planted it in the field along the side of Egyptian corn. So I think I gave it a fair test. It will not yield any more than Egyptian corn nor will it stand drougth any better. As for chicken feed, fed as I did to chickens, without threshing, the chickens will not eat it as long as there is any Egyptian corn to be had. My advice is, then, do not let these new varieties get you too hard until you have tested them on a small scale.

Modesto. W. E. BEIDLER.

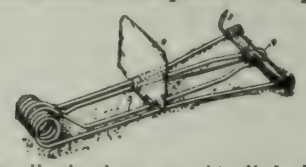
CACTUS SLABS TO PLANT.

To the Editor: I have some two-year-old cactus plants which have about 50 slabs on each. When I plant them next summer, should I break all of them off, or how many should I leave on the old plant?—W. W., Modesto.

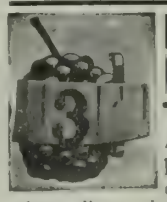
[It will be quite permissible to use all of them except the mother plant, but we should prefer to leave two or three slabs just for the extra space on which to support new ones in the following year.—Editors.]

In buying a disk gang plow, get one with disks so located with reference to the wheels that when they strike a hard place the weight of the wheels and frame will ride on

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by
Z. A. MACABEE, Los Gatos, Cal.



PLANT BERRIES
Alfred Mitting has had 47 years experience with berries from all over the world. His new berry, Macatawa, is the wonder, to all that see it in fruit. It is 3½ inches one way by 3¾ inches the other way. Send a postal card today for his 1915 catalogue with 1 colored plate, including the cream of all berries from a commercial standpoint or for home requirements.
ALFRED MITTING
8 New Street, SANTA CRUZ, CALIFORNIA

Bee Keepers Supplies
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco

Send us a List of your needs and get our Special Quotations
SPECIALTIES:
Deciduous Fruit Trees, Grape Vines, Grafted Walnuts, Olive Trees, Shade Trees of All Kinds, and Palms.
LARGE CATALOG, Full of Iinformation, mailed free. We give every one a square deal and their money's worth. Write us and make known your wants.
HONEST NURSERY STOCK FROM THE ROOTS UP
The FRESNO NURSERY Co. INC.
FRESNO, CALIF.

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. Mailed Free.
C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO
Morse's Seeds, both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

Farmers and Rural Credits.

To the Editor: I have noted your articles on "Rural Credits" and it is encouraging to know there are people who have optimistic views in regard to what the farmer would get if he went after it.

But please remember the following facts: That these farmers who need cheaper money so badly have to hustle week days, Sundays and holidays, to meet their obligations, and if they did put in time and money traveling over the county to interest the better established farmers in the measure, both time and money would mostly be wasted, as those farmers as a rule are very indifferent. As the fate of the mass of farmers, it seems that the helpless are expected to help themselves, but it can't be done. Unless a man is a little ahead in the race he has practically no influence in getting help from that quarter.

The state and government issue bonds and appropriate money to aid far less worthy objects than the farmers, and as a rule only benefit a very small minority, and worse still, a special class. Yet rural credits, if passed, would benefit not only the farmers themselves, but every other industry would be benefited greatly.

As for the few farmers that loan their money to banks, there are few indeed, I think, and now much better security they would have if they would buy state bonds instead.

In reading the daily papers, hardly a week passes that one does not see some bank in serious business straits, and the money of the depositors in danger.

If the state will issue bonds to finance rural credits, there is no doubt of being able to dispose of them readily, and it would not be many years before they could be retired. L. KUEBELER.

Yountville.

[We admit that farmers running around singly would waste a lot of time and money without accomplishing anything. But if they would join granges or farmers clubs and give half a day every fortnight in working together, they would hear something drop.—Editors.]

OBSERVATIONS ON UPLAND RICE.

To the Editor: Having read several articles recently in the Rural Press about growing rice, and intending to make some experiments along that line this summer on Elsinore lake bottom lands, I am seeking further information.

In the extreme southern portion of Mexico and in Guatemala I have seen rice growing on the hillsides, in fields much resembling fields of wheat or barley. This rice receives no flooding whatever, getting the same amount of moisture as the corn in adjoining fields from the summer rains.

This rice is planted in June, which is the beginning of the rainy season, which lasts until September—raining from 40 to 150 inches, owing to locality, during this period. In September the rice is in the dough and hardens with the hot sunshine of October, when it is cut and stored, to be cleaned out as occasion demands, by mauling in wooden troughs with heavy wooden mauls.

The rice is a larger grain than the commercial rice in this country. It is of a creamy white color, and appears, when cooked, to be full of glucose and richer in flavor.

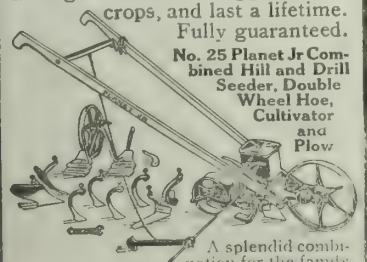
Is this rice of a different species from our rice? or is the difference caused by different soil and climatic conditions?—H. L. Vaughan, Los Angeles.

[The rice to which you refer is "upland rice," so called, which grows, as you say, without flooding, under conditions of very heavy summer rains in Americal tropical countries, also in Eastern Asia. During the last half century various kinds of "upland rice" have been brought to the United States and distributed with some sensation, but none of them have made good—the crop inferior and the production more uncertain than lowland rice grown by flooding, so upland rice in this country is a relatively unimportant affair. Upland rice has been grown in California, but so far has never behaved in a way to warrant attention except by those inclined toward experimentation.—Editors.]

Where the holes for young orchard trees have been blasted in the fall before planting, the trees should be set two or three inches higher than they were in the nursery to allow the ground to settle and finally move them to the same height that they were. If blasted in spring, which is poor policy except in emergencies, a mound ought to be built in which to plant the tree. It will settle to proper levels.

Planet Jr Seeder:Harrow

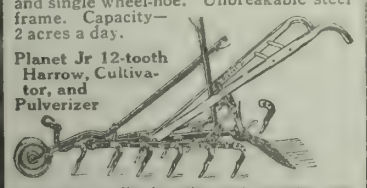
Planet Jr tools are the greatest time-, labor-, and money-savers ever invented for the farm and garden. They pay for themselves in a single season in bigger better crops, and last a lifetime. Fully guaranteed.



No. 25 Planet Jr Combined Hill and Drill Seeder, Double Wheel Hoe, Cultivator and Plow

A splendid combination for the family garden, onion grower, or large gardener. Is a perfect seeder, and combined double and single wheel-hoe. Unbreakable steel frame. Capacity—2 acres a day.

Planet Jr 12-tooth Harrow, Cultivator, and Pulverizer



Stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Now [illegible] steel wheel. Invaluable to the market gardener, trucker, tobacco or small fruit grower.

72-page Catalog (168 Illustrations) free

Describes 55 tools including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard and Beet Cultivators. Write postal for it.

S L ALLEN & CO Box 1203F Phila Pa

We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast Cities.

MANURE

Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or Write
PACIFIC MANURE & FERTILIZING CO.
429 Davis St., San Francisco.

Killefer Beet and Bean Hoe Cultivator

Killefer Quality

Killefer Efficiency

Our 1915 model is made of the best material and is the strongest Beet and Bean Cultivator for sale on the Pacific Coast.

STRONG STATEMENTS?

Yes, they ARE strong and we will back them up in every particular. The frame is made from one continuous piece of steel, trussed to the main castings, which support the front wheels. With no joints in the entire width of the frame, it is impossible to break or spring in the center and the wheels are always in line and under control.

The lower frame or tooth bar is from high carbon steel with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows, and is adjustable to conform to the weight of the driver. The foot control of the front wheel is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns.

An important item for the beet grower is that the sweeps, hoe steels, chisel points and all repair parts are carried in stock. You do not have to wait for them to be sent from the Eastern Manufacturer.

The Killefer Manufacturing Company

2221 SANTA FE AVENUE. LOS ANGELES, CAL.

California Garden Flowers,

Trees, Shrubs and Vines.

By Prof. E. J. Wickson.

In this new book the amateur flower grower of the Coast will find just what he wants to know about the care of his garden, with detailed instructions, telling how to get the best results from the soil.

No new book is receiving the endorsement of the authorities that has already been accorded "California Garden Flowers." Here are same of the endorsements:

John W. Gregg of U. C. at Berkeley, says: "The literaure dealing with floriculture and landscape gardening for California is extremely scarce, especially that which is in a form to be of assistance to the amateur gardener. We appreciate your contribution because I believe it will materially help in furthering the interests in California Gardening."

Carroll B. Smith, Redlands, says: "There is daily need of just such a book, and I am sure better gardens will follow."

Luther Burbank, Santa Rosa, writes: "This book meets with my hearty approval, as it will be of great use to amateurs, and is also of more or less use to specialists as a reference book. There is a call for this class of books."

W. Vortriede, Sacramento, says: "There is nothing that could have pleased me more in this line. I have been an ardent admirer of Prof. Wickson since 1887, since which time I have been a reader of the Rural Press. I am always glad to recommend the Press and its books, because I know I can do a great deal of good to many Californians."

The book contains 260 pages of text; also a dozen full-page plates and other illustrations. It is handsomely bound in cloth with two-color cover.

No plant lover, be he farmer or suburbanite, can afford to be without this book. **The price is $1.50 postpaid.**

The time for your spring work is at hand, and you should have this book to help make your work more successful.

Pacific Rural Press, Publishers

525 Market St., San Francisco.

Mechanical Power on the Farm.

TRUCKS BUILD FARM BUSINESS.

[By George F. Whitsett of the International Harvester Co. of America.]

When we consider the advantages of farm marketing by motor as compared to the advantages of city gasoline delivery, it is hard to see why the city man beat his country brother to the method. The man in town has better streets and shorter hauls, yet he was first to adopt motor truck delivery.

But the difference is fast disappearing. Rural competition is increasing and ways and means for increasing the speed and decreasing the cost of delivery are becoming as popular among the orchards, lettuce fields and poultry farms of the countryside as they are among the manufacturers, wholesalers and retailers who make their deliveries over brick pavements and asphalt.

The man who raises berries and fruit soon comes to wonder how he ever managed to stay in business with his old-fashioned methods of delivery. His motor truck enables him to rise later in the morning and get to market at the customary time. It enables him to gather his tender fruit, such as berries and peaches, in the cool of the day, and get it to market or shipping point the same afternoon. It not only moves him up closer to his customary market but puts him within easy striking distance of other markets.

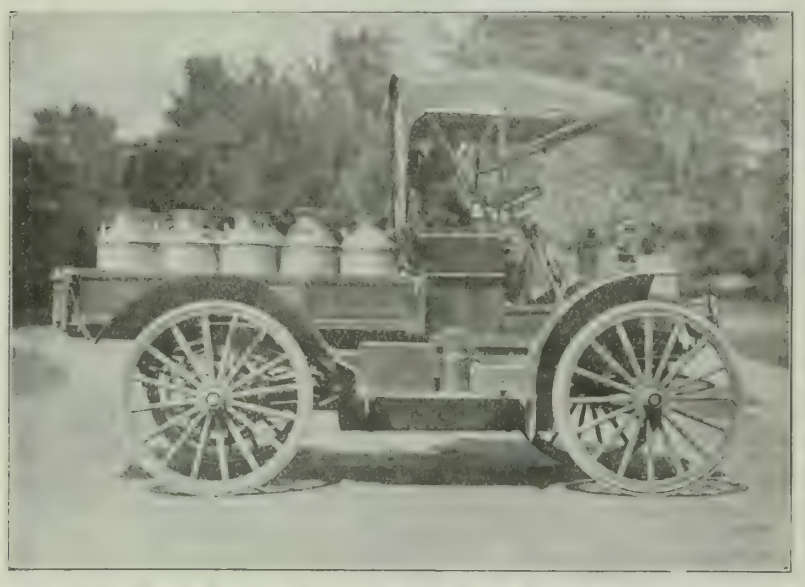
These conditions apply with equal force to the producer of truck and garden vegetables. The motor truck makes the raiser of radishes, green peas, and roasting ears master of his early morning marketing. It lets him get as much sleep as every man deserves, and yet enables him to get into market before it already is glutted. It makes him independent of local buyers, and enables him to go where he can get the best prices and conditions. Furthermore, it enables him to get there more easily, quickly, and economically.

Every man who produces milk, cream, butter, or cheese to any extent is, or soon will be, the owner of a motor truck. It gives him the power and speed necessary to make quick deliveries in the cool of the day and cover, if necessary, long distances. The motor truck as now built will travel over all kinds of roads in all kinds of weather, and will encounter any hill. The motor truck has become an all-year proposition, and one which will relieve the dairyman of the tortures of slow and tiresome delivery.

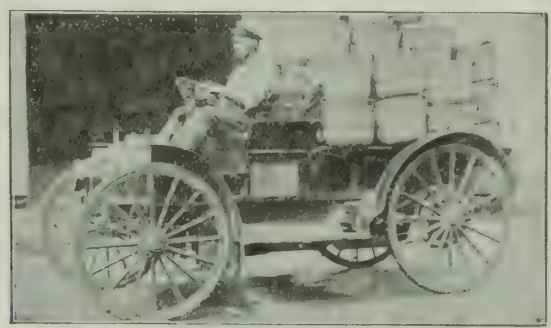
The poultry farmer is a natural member of the motor truck club and finds that his business can be handled with alacrity and economy this way. It enables him to market daily, when desired, and to answer and to fill special orders on short notice. It makes a full-fledged business man out of the otherwise handicapped poultry farmer.

A farmer need not be an all fruit, all vegetable, all dairy or all poultry farmer to come in under the classification of those who need specialized delivery. Being engaged in several lines of specialized farming does not keep a man from being a candidate for specialized delivery.

No one need be surprised then to observe an increase in the number of motor trucks purchased for farm use. As the kind of materials marketed change, the means of marketing will differ. The more farmers who become engaged in specialized farming of any sort, the more farm-

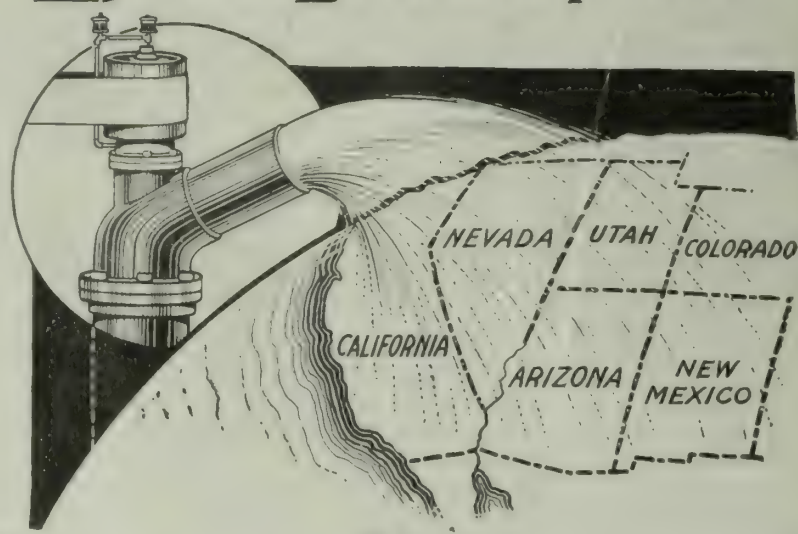


The motor truck gives the man who produces milk the power and speed necessary to make quick deliveries in the cool of the day.



The fruit grower with a motor truck moves up closer to his market.

LAYNE & BOWLER PUMP



The

Leading Irrigation Pump

Its past record is the best evidence of a pump's efficiency and economy. The Layne & Bowler has long had the reputation of being the leading irrigation pump, not only here in the great Southwest, where all manner of rigid conditions must be met, but all over the world. Positively the cheapest water produced. No pit. Constructed to go inside of well casing 9⅝ to 30 inches in diameter. Write today for valuable irrigation booklet No. 25.

The Layne & Bowler Pump, is the Only One Pumping from Wells on the San Francisco Exposition Grounds.

Layne & Bowler Corporation

900-910 Santa Fe Ave., Los Angeles, Cal.

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a water-tight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe— and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.

Box V, Gilroy, California.

Pomona Deep Well PUMPS

For deep lifts as well as shallow lifts, combined with high heads above surface and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

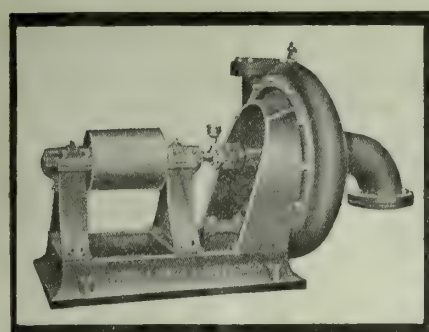
Built and sold in California over 12 years. Hundreds of buyers will tell you they are always reliable and economical. Let us tell you why.

Write for Catalog 104 with valuable information on irrigation.

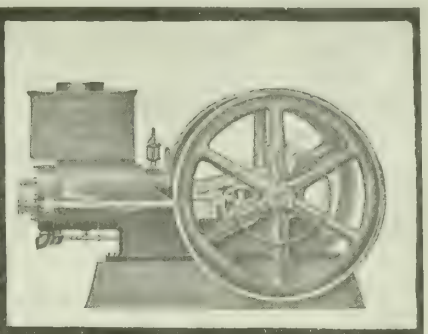
Pomona Mfg. Co., Pomona, Cal.

LOS ANGELES OFFICE, 930 INVESTMENT BLDG., 8th and BROADWAY.

Our "made right" irrigation valves are good, and not costly.



WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.



er owners of motor trucks will there become. What is more, motor truck delivery holds as it grows. More than 90 pr cent of all who take up motor truck delivery keep it up and never go back to the ways of their forefathers. The motor truck builds up the very businesses which demand it, and therefore becomes a self-perpetuating species.

PLOWING BY CABLE.

A new tractor has been recently put out for the purpose of working in pairs to plow large fields by means of cables stretched from an engine on one side of the field to one on the other side so that the plow can be pulled backward and forward without the engine itself compressing the field by any of its own weight.

It has been tried out in Kings county on a big scale and worked satisfactorily, as the same system has been used in England. These engines are of the 125 H. P., and simply move forward along the side of the field as each swath of furrows is cut in the field. The cables run over drums which are connected to the same motor that propels the engine.

Various adaptations of the cable idea are made, such as pulling stumps, dragging logs from inaccessible places, etc.

WIRING OLD BUILDINGS.

Rewiring an old building is usually a difficult problem. It is hardly ever desirable to run the wires exposed, and cutting up floors and ceilings is an expensive process. For some time we have been making use of metal molding for this purpose, especially in offices, class rooms, etc., and have found it entirely satisfactory. By a little careful planning it can be so installed that it is hardly noticeable and, when painted or tinted the same color as the wall, looks very well.

Wiring done in this way costs less than wiring in conduit and is fully as safe, provided it is properly installed. Buildings in which molding or exposed wiring would always be objectional should be wired in conduit when first built. If this is properly done, any defects in the wiring may be repaired without damaging the building in any way whatever. —F. J. Rankin, Colo. Agr. Col.

ANTI-FREEZING ENGINE COOLER.

Where a farmer does not have his gasoline engine in daily use during the winter, much annoyance and trouble may be avoided by the use of an anti-freezing mixture, according to Frank M. White, of the Wisconsin College of Agriculture.

A mixture of 30 per cent wood alcohol, 25 per cent glycerine and 25 per cent water will not freeze at a temperature of 10 degrees below zero. Wood alcohol evaporates more rapidly than the other ingredients, consequently it will be necessary to replenish this more often than the other ingredients. Another mixture sometimes used consists of two pounds of calcium chloride to a gallon of water.

Difficulties with hard cranking may be overcome by pouring enough warm water into the cooler to just cover the cylinder. After the engine starts and gets warmed through then to fill to full capacity of the cooling system.

CHECK LEVEES IN ROWS.

An innovation observed recently in two localties for checking to irrigate orchards is that the levees are banked up along the tree rows rather than between them. This keeps the water from coming into direct contact with the bark of the trees and still gets it directly at the roots. This is especially necessary in citrus orchards and others where trees are subject to foot rot. An olive orchard checked this way in such large sections that some rows were in the centers as usual, seemed to show no difference in growth or in number of replants put in.

MACHINERY BUSY AT FAIR.

[Written for PACIFIC RURAL PRESS.]

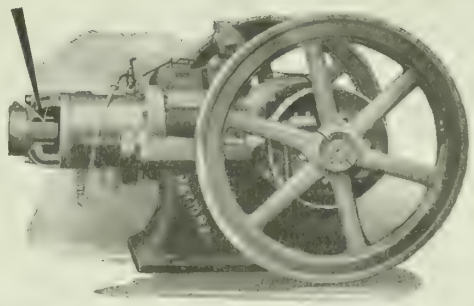
One of the most alive sections of the World's Fair agriculture is that end of the Agricultural Hall where the farm machinery exhibits are each trying to outdo the rest in producing visitor-attracting motion and more noise.

Several of the track laying types of tractors are there, set up so that they are running full blast without marring the furniture in their respective locations. Some of them are built with glass windows to show the salient features of their insides and all of them have demonstrators nearby. The wheel types are not outdone in these respects. One machine looks big enough to hook onto a mountain and walk off with it.

Two tremendous combined harvesters are displayed, with windows showing the way these machines work inside. Gasoline engines are doing their share in the noise and motion production and all other types of cultivator machines and plows are close together for inspection and comparison.

Tightening of the bearings on an engine at regular intervals saves loss of nuts, breakage of loosened parts, and the damaging vibration of the engine.

The National Oil Engine



Runs On 2½c Fuel

Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

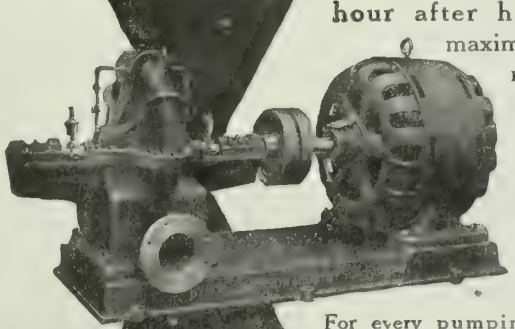
We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

National Steam Pump Company
Upper Sandusky, Ohio.
Address California Distributor, J. C. WIGHT,
4927 Budlong Ave., Los Angeles, Cal.

"Jackson MADE"

The fidelity and regularity with which a "Jackson Made" pump does its work is almost human—no attention is needed—it simply goes on pump, pump, pumping—hour after hour delivering the maximum amount at the minimum expense.



Tell us your pumping problems and our expert engineers will gladly help you free of cost.

Write for Catalog No. 47G

For every pumping condition there is a "Jackson Made," which, in satisfactory results, absence of repairs and costly upkeep, excels every other make.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

SECOND HAND PIPE

Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.

WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENT AGENCY
PATENTS
911 Crocker Bldg., S. F.
Circular containing 100 mechanical movements mailed free.

Irrigation Machinery
Pumps-- Motors--Engines
Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION." Expert Engineers.
Three Stores to Serve You.
California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco
31 S. Briar St., Lindsay.
AMERICAN PUMP CO.,
129 No. Los Angeles St., Los Angeles.

Agricultural Review

CITRUS AND SEMI-TROPICAL.

Robert Adams of Tulare county is planting 200 acres of his ranch to lemons.

The commercial possibilities of oranges and lemons will be tried out in both Yuba and Sutter counties this season.

Thirty matured pomelos on a branch not over two feet from where it was cut to its farthest tip were brought to the Dinuba Chamber of Commerce by E. M. Ely.

A record bearing lemon tree has been found on the orchard of T. F. Frye in Sutter City, Sutter county. This season he picked and sold from this tree 2800 lemons, which at 15c per dozen netted him over $30.

Extensive planting is reported in the San Fernando valley. Two carloads of lemon trees were received there recently for planting on the Jepson ranch, and it is estimated that twenty-two carloads of trees will be required to plant the tract.

Several orchardists of Imperial county are preparing the ground for the setting out of hundreds of young grapefruit trees in the near future. It is their opinion that the raising of seedless grapefruit will become one of the most important industries of the Imperial valley.

Sacramento Capitol Superintendent, Geo. Radcliff, after three years' experimenting, has perfected a method of storing lemons grown in Capitol Park. The method consists of placing the lemons in boxes filled with sawdust and keeping the boxes in a place where the temperature is even. In this way, the fruit will keep in good condition for ten months, and possibly longer.

Reports from various sections of the South state that orange picking is now in full swing and heavy shipments are going forward. Last week there were 146 cars of oranges and one car of lemons shipped from Riverside, by far the heaviest week's output for the season. Redlands shipped 197 cars of oranges as against 127 cars for the same week last season. In Pomona, packing is being carried on briskly and the crop is turning out to be fully as large as it was last season. In Rialto, the oranges were held back somewhat on account of marketing conditions, but are being shipped out rapidly now.

DECIDUOUS FRUITS.

Bowman, Placer county, has been assured a cannery in the near future.

Last week the Porterville Co-operative Cannery shipped seven carlots of canned goods to points in the south and southwest.

A twenty-acre orchard in Rocklin, Placer county, has recently been purchased by M. J. Krantz, of Strome, Alberta, Canada.

Apricot orchards east of the bay are in full bloom, and almond orchards in Fresno and Tulare counties are shedding their petals.

C. N. Ramm of Dinuba will plant five acres to Burbank plums this season. Between the rows of young trees, he will plant black-eyed peas which will be allowed to dry on the vines, threshed and sacked.

At a meeting in Fresno last week of the California Green Fruit Association, announcement was made of a reduction of 20 per cent on the packing rates of green fruit, which will represent a saving of $150,000 to the growers of the State. This reduction has been brought about largely through the activity of the officials of the association. The fruit growers who attended the meeting voted to tax their product to raise a fund of $10,000 to widen the market of the association and extend the scope of its work.

GRAPES AND SMALL FRUITS

With 54 acres of Emperors in full bearing, F. H. Wilson of Dinuba is planting 18 acres more, 7x12 feet apart.

J. S. Woodrough of Fresno county recently sold to Erick Ovaskainen of Astoria, Ore., a ten-acre Thompson Seedless vineyard for $4,000.

Lodi was visited last week by four representatives of some of the largest eastern companies who will handle the Lodi Tokays this season. They were all optimistic over the prospects for the coming season.

OLIVES AND NUTS.

The Ehman Olive Co. of Shasta county will set out 612 acres to olives, interset with peaches.

Chas. Bernhard of Oroville recently purchased 35 acres at Durham which he will plant to almonds this season.

It is reported that Chico may have an olive plant to handle the crop from Chico and Paradise. The crop is now either shipped to Oroville or southern California for pickling.

A new town, to be known as Mission, its future built upon the possibilities of the Mission olive, is to

Did Grandfather Dig Out His Water Pipes

every few years because they were rusted out and all the water was going to waste? No sir. You can't remember that he ever took them out at all.

They used *pure iron* in those days, not modern steel with its content of manganese, sulphur, copper and carbon.

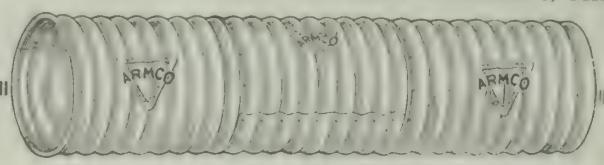
ARMCO AMERICAN INGOT IRON CULVERTS

are made from iron in which the *total* of impurities is less than one-sixth of one per cent., and which is made even more carefully than was the pure and durable iron of our grandfathers' time. The tests of service in every State of the Union and in a dozen foreign countries have shown that they are

Tough, Reliable and Lasting

Insist on seeing the triangle brand on every section. It is your protection against the substitution of inferior metal.

There is an Armco manufacturer in your vicinity. Write him or ARMCO CULVERT PUBLICITY BUREAU, CINCINNATI, OHIO



CONTROL BY SPRAYING WITH **ZENO**

San Jose Scale
Brown Apricot Scale
Scurvy Scale
Black Olive Scale
Oyster Shell Scale
Cottony Cushion Scale
Moss
Pear Thrips
Red Spider
Aphis

Send for Catalog

Standard Chemical Co.
Foot of 12th Avenue
OAKLAND, CAL.

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS.
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground — High Grade
Shield Brand

Phosphate Rock

The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.

UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

LIME FOR LAND

HYDRATED LIME AND GROUND CARBONATE (LIMESTONE)
See University of California Circular No. 111—One Ton Hydrate equals 2 Tons Carbonate.
PACIFIC LIME AND PLASTER CO.,
807 MONADNOCK BLDG. SAN FRANCISCO, CAL.

GIANT WINTER **RHUBARB**

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

No Pit

is required with the

Krogh Deep Well Turbine Pumps

For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company

SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

be established eleven miles north of Marysville and sixteen miles south of Oroville.

GRAIN AND FIELD CROPS.

Last week Glenn county shipped her first carload of rice to market.

The season's first shipment of asparagus left Antioch last week for New York.

Extensive planting of lima beans and sugar beets will replace celery in the Orange county section.

Last week R. C. Hansen of Petaluma shipped 5000 cactus to Honolulu.

Tulare county growers recently received four carloads of beet seed from Germany.

Chas. Johnson of Los Banos, after experimenting, has found that Soudan grass will thrive in soils where alkali is prevalent.

A contract has been let for the planting of 700 acres of beans in the Fremont acres in Sacramento county.

The Pacific Pea Packing Co. of Oakdale has planted 500 acres of peas this season, and will plant several hundred acres more when the ground is in condition.

The Island Transportation Co. of Stockton shipped 1,000 tons of barley last week, valued at $30,000. The firm of Garvin & Eyre will reship this barley to England.

Experiments in rice-growing will be carried on in the Oakdale District by three Japanese rice magnates. They have leased several hundred acres of land for this purpose, and if the venture proves successful will go into it more extensively next season.

Wm. Robertson, secretary of the Chamber of Commerce of Fresno, estimates that six or eight thousand acres will be planted to rice this season in that part of the San Joaquin valley between Merced and Bakersfield.

The success in rice growing attained by growers in the Corcoran section last season has led them to increase the acreage this season to 750 acres. Should this prove equally as successful, at least 1500 acres will be planted next year.

It is reported that last season Orange county produced 7,000 tons of chili peppers, but through various causes there is very little market for the product, and some growers are trying to get $125 to $160 a ton, the ordinary price received being $225 to $240 a ton.

The Louisiana State representatives of the Southern Rice Growers' Association was in Biggs recently looking over the field. From his observations he is confident that he can get enough rice there to warrant the chartering of a steamer and shipping same to New Orleans for milling.

Members of a bean firm in Ventura county are endeavoring to interest the farmers in Sonoma county in the proposition of bean growing. The seeds for planting will be delivered and no pay expected until after harvesting. It is planned to install at Petaluma the necessary machinery for preparing the beans for market.

MISCELLANEOUS.

The Lowden ranch, a historic farm of Trinity county, has been sold by J. C. Given to Thos. Wilson of Lewiston.

About 175 school children attended a farmers' meeting in Dinuba last week to hear Prof. C. W. Woodworth of Berkeley speak on "Insects and Insecticides."

The Butte County Bee Keepers' Association which started with fifteen members is constantly growing, the membership being about forty at the present time.

An extensive irrigation project is being planned for Surprise Valley, Modoc county, by a syndicate of San Francisco and Los Angeles capitalists, whereby 65,000 acres will be put under irrigation.

Alfalfa is $4 and $5 per ton now in the Newman country on the west side of the San Joaquin valley, largely on account of plentiful pasture, as well as the big crop of last year and the high price of stock.

Merchants and farmers of the Turlock district are endeavoring to perfect an organization on the lines of the Associated Raisin Co. for the purpose of marketing their crops. Committees have been appointed to prepare a constitution and by-laws.

The recently established Del Rey Chamber of Commerce closed its charter membership list last week with over 50 signed up. Most of these are vineyardists and fruit growers. At that meeting 80 or 90 men and women listened an hour to Frank Henry telling his methods of vine pruning, and invited him to return in a few days to discuss peach trees.

JOHNSON GRASS.

To the Editor: Am farming 40 acres of alfalfa. The ditches in some places are choked with Johnson Grass. Is there some spray that would kill it without washing out and harming the alfalfa?—Subscriber, Oakdale.

[On page 245 of the issue of Feb. 21, 1914, and on page 235 of the issue of Sept. 5, 1914, you will find methods of destroying Johnson Grass described.—Editors.]

Almond foilage was held later without irrigation than with it on a Sacramento county farm.

PROFESSIONAL DIRECTORY.

SYMMES, MEANS AND CHANDLER
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

KILMOL SQUIRLGOPHENE
Squirrels Gophers
KILMOL
SQUIRLGOPHENE
WILL KILL' EM ALL
Waste Ball Method
or with
United States Destructor
Your Money Back
If Not Satisfactory
New Information
Result of Experiments that cost Uncle Sam over $100,000.00
It costs you nothing to learn the facts
A postal card today may save you hundreds of dollars this year
WRITE NOW—RIGHT NOW
HERBERT F. DUGAN
Dept. C
1170 Sutter Street San Francisco, Cal.

Exterminate Morning Glory
NOXIOUS WEEDS and INJURIOUS INSECTS
with NONPAREIL
For sale by all dealers and manufacturers. Send for Booklet P, which gives full particulars and prices. Very low rates in tank cars and iron drums.
Waste no time. Tell us how many acres you want to treat and the crop you are planting.
The growing season and not the dormant period is the right time to do the work.
On small acreages cut away the top of the plant about four or more inches below the surface. Apply NONPAREIL with a squirt can on each root and cover with soil at once (3 teaspoonful for each root is sufficient). Keep cans well stoppered, as NONPAREIL evaporates very easily.
The largest berry-growers in the State use NONPAREIL, having experimented with it for years.
Exterminate Squirrels, Gophers, Prairie Dogs, Borers, Ants, Root Aphis, etc. Use CARBON BISULPHIDE. It is absolutely effective, and leaves no injurious effect if inhaled while handling.
Wheeler, Reynolds & Stauffer
624 CALIFORNIA STREET, SAN FRANCISCO, CAL.

ALFALFA SEED
Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.
We are actually offering California's best product.
Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.
Samples, prices, etc., on application.
V. A. PETERSON ALFALFA SEED CO.,
ARBUCKLE, COLUSA CO., CALIF.
The only exclusive Alfalfa Seed Dealers in the West.

Special $2.50 discount on the first 100.

Kirstin One-Man Stump Puller
Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.
W. E. MORRISON.
821 Riverside, Dept. I., Spokane, Wash.

Steers on Alfalfa Silage.

Cattle feeders in this State have been very much interested in the possibilities of the silo farm from a California standpoint, and for that reason the following data on experiments carried out at the University Farm at Davis, under the supervision of Gordon H. True, F. W. Woll and V. F. Dolcini, is of exceptional value at this time.

While many experiments have been conducted with regard to the use of Indian corn silage in feeding fattening steers, but little is known in regard to the value of other silage crops for cattle feeding. Since the first cutting of alfalfa often consists largely of foxtail and other weeds, and in that case makes a poor quality of hay, it seemed desirable to secure some definite information as to the use of this crop for silage purposes. One of the stave silos at the University Farm was accordingly filled with the first cutting of alfalfa from a weedy field, on April 27th to May 3rd, 1914. This field was so foul with weeds that it would have been practically valueless for hay, the foxtail being nearly ripe and the beards already hard.

A mixed lot of 107 native range steers, mostly three and four year olds, was purchased for the experiment last summer from a foothill ranch near Coyote, California. The better individuals among the steers showed some evidence of Shorthorn, Hereford or Devon blood, but on the whole the steers were rather below the average of California range cattle. They were bought at 6 cents a pound on foot with a 3 per cent shrink, and averaged 963 pounds when weighed at the ranch on the morning of July 6, 1914. After a ten-mile drive to Coyote and twenty-four hours on the cars they weighed, when unloaded at Davis, an average of 883 pounds.

For the first two days at the University Farm, the steers received nothing but long alfalfa hay. On the morning of July 10th, they were started on alfalfa silage with which was mixed rolley barley. No hay was fed for the two following days, in order to accustom the steers to the silage. On July 12th hay was again fed and the ration from this time on consisted of alfalfa hay, alfal silage and rolled barley. Throughout the experiment, the silage and grain were fed rather late in the morning and evening, and though not eaten immediately, practically all was consumed by the next feeding time. The hay was fed separately twice a day in hay racks.

The alfalfa hay fed during the greater part of the experiment was good second-cutting hay, clean and free from weeds. The silage, as stated, was made from the first cutting of alfalfa and contained a large proportion of weeds, principally foxtail. A botanical analysis of a sample of the silage, made by Professor P. B. Kennedy, showed that it was composed of over 55 per cent. foxtail. While this may not represent the true percentage of weeds in the entire lot of silage, it is believed we may safely assume that at least one-half of the bulk of the silage consisted of plants other than alfalfa. Many of the loads were quite dry as filled into the silo and considerable water was added after each load and also after the silo was filled, in order to improve the quality of the silage.

The silage as fed out was well made, of a dark brown color and of slightly acidulated, aromatic flavor. That in the lower part of the silo was more moist than that in the upper part and was apparently relished best by the steers. While most of the silage was not taken with particular relish, it was always eaten up clean, with the exception of a few days during the middle of July when a layer of partially spoiled silage was reached, at a point where the filling of the silo had been interrupted for a couple of days. The foxtail heads, which would have caused great trouble in feeding the alfalfa as hay, were eaten before having a chance to dry out.

The silage was sampled once every week for determinations of moisture and acidity and a complete chemical analysis of the mixed samples was made by Professor M. E. Jaffa, who also made analyses of the other feeds used in the experiment. The chemical composition of these feeds with digestible components calculated on the basis of average digestion coefficients is shown below:

Chemical Composition of Feeding Stuffs, in Per Cent.

	Alfalfa silage	Alfalfa hay	Barley
Moisture	76.00	15.87	12.36
Protein	3.40	11.32	10.37
Fat	.34	1.30	1.80
Fiber	5.56	28.63	6.26
Nitrogen-free extract	11.72	35.85	66.81
Ash	2.98	7.03	2.60
	100.00	100.00	100.00
Volatile acids	.40	...	..
Fixed acids	.91	....	....
Digestible protein	1.29	8.23	7.27
Digestible carbohydrates and fat	8.28	40.17	68.20
Nutritive ratio	1:6.4	1:4.9	1:9.4

The feeding test was started on July 20th, when the steers had recovered their normal fill. The experiment progressed without important incidents, except that one steer, which was found tubercular at slaughtering time, went off feed and failed to gain in weight. The steers on the whole showed a marked improvement in condition throughout the experiment, and with the exception noted all were in fair condition when sold, although but few could have been classed as finished for market. To one who watched the steers closely from day to day, it seemed that now and then a steer that had been doing especially well would stop gaining. The apparent explanation of this was revealed by an examination of the carcasses after slaughter, when it was found that there were accumulations of foxtail in the mouths of practically all the steers. This condition suggests that had the experiment continued much longer, trouble might have developed as in the case of foxtail hay, and emphasizes the necessity for cutting the alfalfa for silage before the foxtail beards become hard. From August 21st on, only one-half feed of silage was fed, the amount of barley being increased by two pounds. The trial brought to a close on September 3rd, when the silage was fed out.

The following statement shows the main results of the trial:

Weight of steers July 6 at shipping point	963 lbs.		
Weight of steers July 8 off cars at Davis	833 lbs.		
Weight of steers Sept. 3, selling weight	1041.08 lbs.		
Weight of steers July 20 at University Farm	971.2 lbs.		
Average daily gain per head	1.54 lbs.		
Average daily ration per head	Hay 10.6	Silage 20.2 lbs.	Barley 8.4 lbs.
Average daily ration per period of 46 days	6.9 lbs.	13.1 lbs.	5.4 lbs.
Feed per lb. gain for the period of 46 days	6.9 lbs.	13.1 lbs.	5.4 lbs.

The composition of this ration on the basis of the chemical analyses made as follows:

Dry matter	21.13 lbs.
Digestible protein	1.76 lbs
Digestible carbohydrates and fat	11.66 lbs.
Nutritive ratio	1:6.6 lbs.

Financial Statement.

The steers were sold on September 3rd, at 7 cents a pound, with a 3 per cent shrink. In the following financial statement of the feeding trial, the item of feed eaten includes all the feed which the steers received from the time they were brought until they were sold. The prices of feeds given were those prevailing in this locality during the past summer, except that of silage, which was assumed to cover the cost of production only since weedy alfalfa like that used in the making of this silage has practically no value for feeding as hay and the silage itself has no established market value.

Initial cost of steers, 103,099 lbs. at 6c		$6,185.94
Freight from Coyote to Davis (4 cars at $33.40 per car)		133.60
Sanding cars		2.00
Commission for buying 107 head at 50c per per head		53.50
Refund on account one tubercular steer		47.60
Feed eaten: 31.4 tons hay at $4.00	$125.00	
23.24 tons barley at $18.50	429.94	
58.32 tons silage at $1.25	72.90	
		628.44
Labor approximately one-half time of one man		50.00
Horse and wagon		50.00
Total cost		$7,199.62
Selling price, 108,126 lbs. at 7c		7,568.82
Net profit on steers lot		$369.20

Charging against the steers only the cost of feed and labor and interest on the money invested, as would be done by a man feeding his own cattle, the profit would come to $556.86. Charging alfalfa hay at its normal market value of $6 a ton in the stack and barley at $21 a ton, there would still be a profit of $436.06 from the feeding operation.

This trial shows that silage may be made from weedy alfalfa, which would make but inferior hay, that such silage will be eaten without waste, and that it can be used as a supplementary feed for fattening steers on alfalfa hay and barley.

An Educational Horse Sale.

[Written for PACIFIC RURAL PRESS.]

The first consignment sale of purebred draft horses held at Davis last week proved two things, one that the association and breeders consigning stock were sincere in their efforts to provide the buying public with good, sound breeding animals at the buyers' own prices, and the other being a noticeable lack of spirit on the part of buyers in need of such stock.

Perhaps the newness of such a sale was responsible for the cheap prices realized for the stock sold, although many present assured the writer that the general financial depression, together with the fact that the grain crop for the coming year is none too promising, were the factors which withheld higher and more spirited bidding.

Whatever may have been the cause, the fact remains that between 75 and 100 farmers made the trip to Davis in search of horses, and apparently did not realize till after the sale of the last horse, that they had passed up the best opportunity ever presented to them for buying sound breeding animals at almost slaughter prices. A statement made by one farmer while on the railroad train bound for home no doubt expresses the feeling of many who attended, when he said: "I'm sorry I didn't bid more for that Blank horse, as he was what I wanted. I went up to five and a quarter on him, and could probably have bought him for about $600, and now I will spend a good deal more than $75 looking for what I want, and then I doubt whether I can get one of equal quality at anything like $600."

Regardless of the fact that on the whole the sale was not the financial success it should have been from the sellers' standpoint, there is a brighter side to the story which should not be left untold, viz: The unanimous opinion of all present, whether farmer or breeder, that the California Draft Horse Breeders' Association is an oganization which stands for the better things in the horse game and is an outstanding example of what likestock associations are, or should be, formed for, namely, to improve the conditions of that branch of agriculture. The actual good from this sale will probably be underestimated by most at this time, but in the main it has impressed upon farmers and breeders the need of the association, and instead of being discouraged by their first attempt, the talk was current among members of the association that steps will be taken at an early date to inaugurate colt shows all over the State this year in the hope that the farmer of California will recognize the worth of the purebred sire as has been the case in other States where colt shows have been successfully held for a number of years. Details of the manner in which these shows are held in other places will appear in these columns in the near future.

The fact that the horses sold were pretty well scattered over the State is encouraging, as each horse will stand as a permanent advertisement in his section for the association and its work.

Following are the buyers and the prices paid: Belgian stallion Noirhat Docteur, purchased by Elmo Montgomery, Davis, price $300; Belgian stallion Hamilton C., purchased by M. and J. Williams, Concord, price $685; Belgian stallion California Chief, purchased by C. Harris, San Francisco, price $600; Belgian stallion Nebraska Chief, purchased by W. Fine, Shasta county, price $300; Belgian stallion West's California Chief, purchased by Del Greive, Davis, price $100; Belgian mare Christine, purchased by Del Greive, Davis, price $155; Belgian mare Chrystabel, purchased by J. S. Gibson, Williams, price $250; Shire stallion Salvador Forest King, purchased by E. W. Westgate, Rio Vista, price $1000; Shire mare Salvador Baroness, purchased by John McCormack, Rio Vista, price $475; Shire mare Salvador Rose, purchased by Dr. C. M. Faris, Sacramento, price $195; Percheron mare Adalaide, purchased by Wm. McLaughlin, Emeryville, price $290; Percheron mare Phoebe, purchased by Wm. McLaughlin, price $290; Percheron stallion Pago, purchased by C. Harris, San Francisco, price $700; Percheron

stallion Gallipali, purchased by Dr. Faris, Sacramento, price $550; Percheron stallion Chico, purchased by A. Owre, Sacramento, price $300.

A good many young mares were sold, which accounts in part for the low averages.

One thing agreed by those in charge of the sale was that future sales will be more of a financial success from a consignor's standpoint on account of the feeling which prevailed that everybody received a square deal and got value received.

Veterinary Queries.

[Answered by Dr. H. B. Wintringham, Graduate San Francisco Veterinary College.]

CATTLE HAVE HERPES.

To the Editor: I have a herd of young cattle in which I lately notice a scab or wart growth affecting them about the eyes, head, and throat. Those that are most affected scratch or rub the affected spots a great deal. This growth covers some spots almost as large as a man's hand and the surface is quite rough and hard. I have made inquiries relative to the disease but no one seems to know what it is.—J. L. B., Stonyford.

[Your cattle have herpes. Isolate all affected animals, as it is catching, and disinfect all rubbing posts and houses where they have been. Use a warm 1 per cent creolin solution to wash off and loosen scabs and crusts, and paint the affected areas of the skin with tincture of iodine once daily, being sure to thoroughly cover the outside edges of the affected areas. Try and prevent animals from scratching and rubbing as much as possible. In about one week after treatment is begun, discontinue the tincture of iodine and apply iodine salve as needed.]

COW WITH CONSTIPATION.

To the Editor: Am feeding alfalfa hay entirely. Had a young cow become bound up and there was no passage of the bowels for several days. Gave her two pounds Glauber's salts one day, one pound the next day, and one the third day. The cow died. What was wrong with the treatment?—F. A. P. Hughson.

[Your treatment for constipation in young cow did no harm, and will often do good. In future use Epsom salts instead of Glauber's. Your animal had an impacted rumen and surgical interference would have been the only means of saving her.]

HARD LUMP ON JAW.

To the Editor: Have a young cow with large, hard lump on lower jaw bone the size of a man's fist. Can this be cured, and will it pay to doctor it on just an average cow? Suppose the lump breaks, is there danger of other cows in the same corral acquiring the disease? Is there danger of making a running sore that can not be cured?—F. A. P., Hughson.

[Your cow has actinomycosis. It is advisable to open the swelling and pack the opening with cotton saturated with tincture of iodine. The packing should be repeated once daily for some time, or until wound shows healthy tissue. At the same time, it is imperative to administer potassium iodide in 2 drachm doses three times a day. The disease is due to wound infection, and will not endanger the animals except through a wound. The disease yields very favorably to the above treatment with patience. It would be advisable to call in a graduate veterinarian to give the surgical treatment at first.]

COW DOESN'T BREED.

To the Editor: I have a six-year-old cow, came fresh about three months ago. She has only been in heat once since coming fresh, and at that time I could not take her to the bull. Is there any way to bring her around?—W. S. M., Concord.

[The period of oestrum in the cow is every eighteen to twenty-one days. Ascertain whether or not a bull has visited your place unknown to you. If certain cow has not been with a bull, irrigate her vagina once daily for one week with a 1 per cent creolin solution and put her on a course of pulverized iron sulphate in two-drachm doses twice daily for two weeks.]

HOGS WITH LICE.

To the Editor: Will you please tell me through the columns of your valuable paper how to get rid of hog lice? I have some sows with young pigs that are covered with them. I have them in small individual pens, under cover. The pens have board floors, which are cleaned, and bedding changed three times per week.—A. B. I., Winton.

[Thoroughly spray your pens and houses with sheep dip. Get some crude oil and heavily paint the backs of mature animals, being sure to coat the region behind the ears. Do this once a week and your pigs will soon be free from lice. Another good method is to construct a wallow or bath, keeping the water covered to a depth of one-half an inch with crude oil, and allow your animals free access to this.]

UDDER TROUBLE.

To the Editor: My Jersey cow had what is commonly called milk fever. A veterinary surgeon inflated her udder and I find it has improved her milking, for now I get a full stream until finished. I would like to know if it would be a good idea to inflate any cow when or after she comes fresh, and if it would insure against milk fever.—W. W. M., Clovis.

[Do not give milk fever treatment to any animal except one affected with milk fever. There are too many dangers connected with the treatment to warrant its promiscuous use.]

COWS HAVE VAGINITIS.

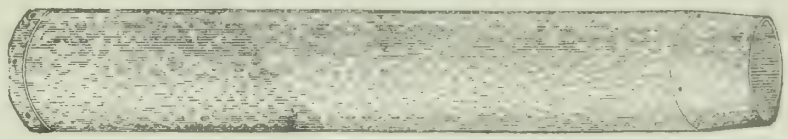
To the Editor: I would like to get information in regard to cows running with the bull all the time and being in heat all the time. They have calved from time to time, but it seems to me that something must be wrong, either with the bull, or the cows have some disease. I have examined two of them, and found the womb swollen to the size of a medium sized rose and very red as if irritated, and discharging a slimy stuff. Can you tell me what is the matter with them, and what to do for them?—Subscriber, Decoto.

[Your cows have vaginitis. Take them away from the bull and irrigate their vaginas once daily with 1 per cent creolin solution for two weeks. In the meanwhile, wash out the bull's sheath with this solution daily for the same period. Do not turn the animals back with the bull until the discharge has ceased.]

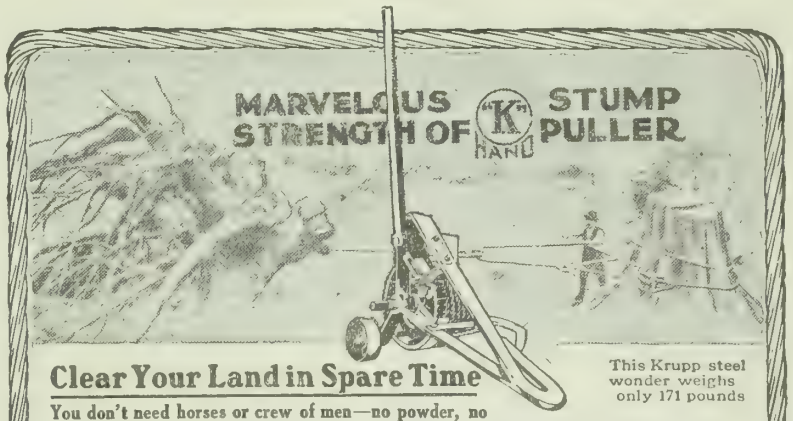
HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

TAMWORTHS
The Big Red Bacon and Block Hog. Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

BIGGER
THAN THE WORK IT WILL BE PUT TO
AMERICAN
SURFACE IRRIGATION PIPE



PROVES
its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.
American Steel Pipe & Tank Company
354-56 PACIFIC ELECTRIC BLDG., Los Angeles, Calif.
Branch 1223 "H" Street, Fresno.

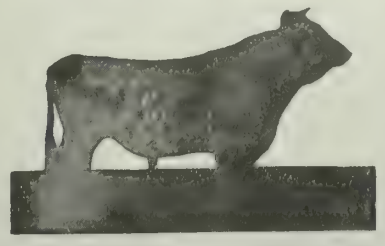


Clear Your Land in Spare Time
This Krupp steel wonder weighs only 171 pounds
You don't need horses or crew of men—no powder, no digging, if you have a "K" HAND-POWER STUMP PULLER
Will work on any kind of land, no matter how hilly or how wet. Has sufficient power to break any inch steel cable. You alone can do all the work and move the machine without help. Has two speeds—high speed for light work and power speed for heavy work. Has no chains on it to bind or break. One man developes 26,000 pounds on straight pull—96,000 pounds with two blocks. Complete outfit, including 200 feet of flexible English steel cable. No extras to buy. Used by U. S. Gov't in Alaska, and by many States and Counties. Write today for my Big New FREE Book on land clearing and get Special offer that saves you agents commission.
WALTER J. FITZPATRICK
BOX 32, 1926 SECOND AVENUE, SEATTLE, WASHINGTON

Grandsons of Tilly Alcartra
At Prices Within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to Improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Euch an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write
J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."



Don Adonis of Linda Vista.

BERKSHIRES — GUERNSEYS
Our BERKSHIRES are the finest in the State At the last State Fair we entered in fourteen classes and won ten firsts.
Stock of all ages for sale
GUERNSEYS We offer for sale bull calves of A. R. breeding on both sides. Some by Don Adonis of Linda Vista, whose dam, two grand dams, and two great grand dams have an average record of 714 pounds butter-fat in one year.
GRAPEWILD FARM,
A. B. Humphrey, Owner
Mayhews, Cal.

POLAND-CHINA HOGS
THE BROWNING STOCK FARM
LARGE TYPE
YOUNG STOCK FOR SALE. BOTH SEXES.
W. H. Browning, Prop. Woodland, Cal.

With the Live Stock Men.

DAIRYING.

M. N. Sheldon of Yuba City sold to R. M. Basham of Live Oak a herd of twelve Jersey cows.

A record of five gallons of milk per day has been made by eleven grade cows fed on straight alfalfa owned by Dudley Campbell of Dixon.

A creamery plant that will handle the output of 1500 cows will be installed in Modoc county by a syndicate of San Francisco capitalists.

Farmers and business men of Clovis are discussing the advisability of establishing a creamery plant. Committees have been appointed to visit the valley creameries and report on the success of them.

Dairymen of Chico are organizing for the improvement of their herds, and a cow-testing association for that place seems assured. Chas. Klint, tester for the Gridley Dairymen's Association, will also have charge of the Chico territory.

Newman is now shipping about 200 ten-gallon cans of cream daily, varying five or ten cans with changes of weather, but maintaining the 200 average all through green feed, according to R. A. Packard, Wells Fargo agent at that point. The amount drops to about 125 cans during dry feed. Most of it goes to San Francisco. A surprising amount of butter is made daily at Newman, too, and one ranch with three or four silos makes cheese and ships it by freight.

HORSES AND SWINE.

J. E. Buckholz of Chowchilla recently shipped a carload of hogs to buyers at Fresno.

Kings county hog-raisers are organizing to take all steps necessary to fight hog cholera.

M. N. Sheldon of Yuba City recently sold a number of registered Berkshire hogs to the Kentwood Farm at Kentwood, Sonoma county.

Wm. McLaughlin of Oakland went East February 26 and will return March 8 with a shipment of registered horses, and will exhibit at the World's Fair Grounds about the middle of this month.

In writing to this office recently, W. H. Burks & Son of Bolivar, Mo., state they shipped twelve head of hogs to California in October, and they have just received an order for nine more to be shipped here, and fitted and shown at the Exposition.

At a meeting of the committees of hog raisers of Merced county held on Feb. 6 at Merced, the Merced County Swine Breeders' Association was formed. The purpose of the Association is to promote the swine industry of that county, to suppress, control, and eventually eradicate hog cholera within the county, and to promote the raising of greater numbers of superior grades of hogs within Merced county.

CATTLE AND SHEEP.

John Lutz of Shasta county recently sold 323 head of cattle to Andrew Brothers of Tehama county.

Weanling grade Holstein calves sold at public auction near Newman, Stanislaus county, last week at $35 to $40 each.

John Stoddard of Shasta county recently purchased from a southern California breeder, nine Hereford heifers at $225 each.

M. M. Holdridge of Modesto reports among the sales for February, three two-year-old heifers to C. C. Slater of Martinez, Cal.

The Porterville Alfalfa Co. of Tulare county recently shipped to San Francisco four hundred head of fat cattle.

W. D. Duke, of Modoc county, bought 238 head of Shorthorn bulls to improve cattle breeding in that great livestock county. He purchased 98 from T. S. Glide of Davis, 84 from the Hammel Estate, Davis, and 56 from Lewis Pierce at Suisun.

MISCELLANEOUS.

Anaheim, Orange county, is to have a meat packing plant. Messrs. Reuther & Hosea of Los Angeles have purchased the necessary land, and will put up buildings and equipment costing in the neighborhood of $50,000, the construction of which will begin in less than a month. Cattle, hogs, and sheep will be slaughtered there and their carcasses turned into meats. The stock will be shipped in and fattened in the yards, and for this purpose the company has contracted for all the pulp turned out by the sugar factory at that place.

John Vaughan of Shasta county recently made the purchase of a 600-acre stock ranch in Scott Valley, Siskiyou county, where he will engage in stock raising on an extensive scale.

MAKING FARM BUTTER.

To the Editor: I am anxious to secure a good receipt for the making of butter in small quantities? Can you help me by advising where I may obtain the necessary information?—M. E. B., San Francisco.

[Answered by F. W. Andreason, Secretary State Dairy Bureau.]

[It is not an easy matter to write a receipt for butter making, but a few suggestions may be made. To make good butter the cream must be from milk that has not come in contact with any dirt, or been exposed to foul odors. If a separator is used the milk should be skimmed as quickly as possible after it is drawn from the cow and cooled to at least 60 degrees F. by running it in a thin sheet over a cooler. This will expel the animal heat. While ripening the cream it should be kept in a clean place where there is plenty of fresh air and where no flies or dust can get to it, and at a temperature of about 60 or 62 degrees F. It should be stirred well twice a day. Aim to churn at least twice a week. The kitchen is not a good room in which to ripen and churn the cream. If you have six or eight cows you should arrange it so that all water for the stock is passed through a cement tank and out through an overflow pipe into the watering trough. Cream in cans in this tank can be kept at an even temperature.

Do not add warm cream to cold cream. Strain all cream into the churn. The cream should churn in 25 to 45 minutes. Stop churning when the butterfat granules become the size of grains of wheat. Draw the buttermilk through a strainer. To color the butter, add a little coloring to the cream in the churn and stir the cream a little to keep the coloring from sticking to part of the churn. Wash the buttermilk out of the butter by putting clean water into the churn and turning it over two or three times. If the butterfat granules are the size of grains of wheat one washing is enough. Put a little less than one ounce of salt to each pound of butter, and put it in the butter before the water is worked out. Some of the salt will work out with the water but it must be wet to dissolve the salt. Too much working will spoil the butter and make it salvy; while leaving too much water in it will tend to spoil its keeping qualities. Pack the butter, or put it in print, as soon as it is worked, and put it in a cool place.

Send to the Editor and Chief of Division of Publications, U. S. Department of Agriculture, Washington, D. C., for Farmer's Bulletin 241, "Butter making on the Farm," and Circular 146, "Fishy Flavor in Butter."]

LAND

With Pay Day Every Day

That's the kind of land for the farmer of moderate means. In a few years you will be independently rich, then plant part of your land to olives, figs, peaches, etc. But to make money, QUICKLY AND SURELY, there's nothing better than cows, hogs and chickens, raised on alfalfa at

Fairmead

the worth-while fruit and alfalfa section of the San Joaquin Valley, where land prices are still low.

Where an acre of alfalfa will support a cow the year round;

Where good cows are bringing in around 30c each per day;

Where 20 cows mean $6.00 per day, CASH;

Where you can raise hogs at 4c per pound and sell them for 7c to 10c CASH.

Fill out and send today for free booklet.

Co-operative Land Company

595 Market St., San Francisco.

Please send me free booklet.

"How to secure a farm at Fairmead on easy terms."

Name.....

Address.....

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California

Durocs Cholera Immuned
and
GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

STAR BARN EQUIPMENT

Has behind it thirty years of experience on the part of the largest manufacturers of barn equipment in the world. It is being used in the barns of thousands of successful farmers and dairymen all over America. It is the only equipment that is shipped to you already assembled complete—ready to set up. Guarantee covers operation as well as construction.

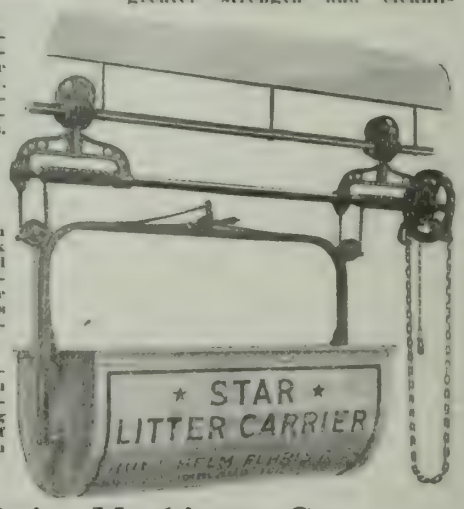
STAR STALLS AND STANCHIONS

arched construction insures greater strength and cleanliness. GIANT STAR STANCHIONS are instantly adjustable to neck of any size animal, lined with smooth, hard maple gripped in U-Bar steel. No Bruised, injured shoulders or briskets.

STAR LITTER AND FEED CARRIERS

feed your stock or clean your barn in double quick time. Patent Track and switches make outfits practical for any size or shape barns. Swinging Boom does away with posts or obstructions in the barn-yard.

If you will write us, giving number of cows you have, we will send you valuable catalogue containing about one hundred pages of information on dairy barn equipment.



Pacific Dairy Machinery Co.

56 CLAY ST. SAN FRANCISCO

SEED CORN!

Attention Dairymen and Stockmen!

Gold Standard Leaming Seed Corn for Ensilage.

Pure-bred acclimated Corn, producing heavy ears and foliage.

Seed bought from Illinois breeders and sown on my farm in Stanislaus County in 1914.

Price five (5c) cents per pound at Hickman, Stanislaus County.

Prepare ground in March—sow early in April.

Mail orders promptly attended to on receipt of check or money order.

Address

MONTGOMERY BAGGS, 311 California St., San Francisco, Cal.

Dairy Feeding Costs.

To the Editor: Was interested in reading your article in your issue of February 13, page 216-7. Will you be kind enough to tell us what your itemized cost of maintenance is which you claim 150 pounds of butterfat yearly will pay for? Would also like to know from your wide experience and long accumulated data what is a fair average yearly feeding cost? Please itemize by ration, giving quantity consumed and unit prices.—F. L. L., Bethany.

[The 150 pound production which you refer to is only an estimate which has generally been placed by authorities in this State as the average maintenance cost of dairy cows in our alfalfa sections and is based on the assumption that alfalfa hay is the only feed used in the ration. The method of computing this was figured, as we remember it, on the basis of a cow consuming about six tons of alfalfa hay yearly, whose average market value would be $8 a ton, thus making the yearly cost of feed $48. The 150 pounds of fat at an average price of 33 1-3 cents a pound brought the total revenue up to $50, which is but two dollars more than the feed cost. This two-dollar surplus would be more than overcome in the difference between the increased fertilizer, skim milk and calf and the cost of labor, depreciation and interest charges. As a matter of fact, however, it is quite likely that the average production of dairy cows in this State at this time is above the 150 pound mark, although any definite figure cannot be arrived at, neither, for that matter, can any one tell with any degree of certainty the average cost of maintenance, due to the various conditions arising in different instances and localities, and the fact that different cows vary in their feed requirements according to their capacity of producing.

For a cow producing 200 pounds of fat yearly, one that would return her owner some revenue above cost of maintenance, two or three pounds of either dried beet pulp or rolled barley, together with from 30 to 35 pounds of alfalfa hay, should make a good ration. If, on the other hand, you are able to feed corn silage, the hay ration could be cut down to 20 pounds and 25 pounds of silage used. If you care to elaborate on the ration, two or three pounds of barley at $24 a ton could be substituted for 5 pounds of the silage and two pounds of the alfalfa. The alfalfa and corn silage ration would cost with alfalfa hay at $8 a ton and silage at $4 a ton, about 13 cents a day, or approximately $48 a year. This latter ration should, however, be more efficient than the straight alfalfa one, as it makes a more evenly balanced ration and gives a greater variety. Naturally there are few localities where alfalfa hay has brought anywhere near $8 a ton this year, but in the past such hay has usually averaged about that price per ton. Feeding cows requires individual attention on the part of the feeder to such an extent that figures are oftentimes of little value. Although dairying allows of closer computing than most other branches of agriculture, it cannot be done in the same manner that one would buy or sell a sack of sugar and at best we can only go by averages at this distance from your herd and the conditions under which you operate.—Editors.]

NEVADANS PLOWING ALFALFA.

[Written for PACIFIC RURAL PRESS.]

E. M. Wilkinson, manager of the Reservation Ranch at Lovelock, Nevada, paid this office a visit last week. He states that a good deal of alfalfa in the Lovelock valley is being plowed up on account of the cheap hay prices which have prevailed there the past year and that he has 2,000 acres of the Reservation ranch ready for wheat. Horse buyers have been operating extensively in that section, according to Mr. Wilkinson, supposedly for the French government, who have shipped many carloads at prices varying from $100 to $125 a head. The best horses have not been sold however. Due to the extensive cattle feeding which has always been done at Lovelock, few farmers have entered the dairy business on a large scale. But the past season has seen many alfalfa growers taking up this line and a considerable amount of cream is being shipped to Reno daily. It is thought that the new electric power line which will run through the Lovelock valley will be a big asset, as it will furnish a new means of securing irrigation water from wells.

Nervous Lady Passenger (to deckhand): "Have you ever seen any worse weather than this, Mister Sailor?" Deckhand: "Take a word from an old salt, mum: the weather's never very bad while there's any females on deck a-makin' henquiries about it."—Pick-me-up.

Three Carloads

Hereford and Shorthorn

BULLS

All of serviceable age, registered and tuberculin tested.
Bred in Nebraska and Missouri.
All first-class bulls.

For prices write
W. M. CARRUTHERS,
218 Hearst Bldg., San Francisco.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE OR EXCHANGE—Percheron Stallion. Black. Nine years old. Weight 1800. Registered. C. H. Grupe, R. 3, Stockton, Cal.

FOR SALE—5-year-old Percheron Stallion. Black. Weight 2025 lbs. Guaranteed Breeder. We are selling out. Newark Farms, Newark, Cal.

FOR SALE—One mammoth Jack and fourteen mules. Jack Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Polled Durham Bulls. Dan Lieginger, R. 4, Stockton.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

SACRIFICE. REGISTERED JERSEYS—9 cows and heifers. One bull imported in Dam, Noble of Oakland breeding. Bull worth price of herd. This stoock all show stuff and prize winners. Price, $1,800, one-third cash. Box 31, Davis, Calif.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

BERKSHIRES One mature boar will care for your herd. Falstaff of Brookhaven 185324. Have a few weaned Longfellow boars and can accept orders for 100 Spring and Fall pigs of Longfellow Masterpiece or Premier breeding. Farmers Co-operative Nursery, Sebastopol, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif.

BERKSHIRES—Bred for size and bone and quality Herd boar won Gold Medal at Nevada State Fair, 1913 Write for pedigrees and and prices. J. L. Gish, Lawa Inyo county, Cal.

BERKSHIRES REGISTERED—Young stock for sale from the following strains: Kennett, Longfellow and Masterpiece. G. Casey, Box 7, King Road, San Jose.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED BERKSHIRE SWINE, all ages, for sale Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for servcice and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

Swineland

FAMWORTH'S DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock

POLAND-CHINAS Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

COL. JACK—Thoroughly trained in sales work on registered cattle and hogs. A fast worker in the ring; an able judge, and well fitted to be your auctioneer. Has an extensive acquaintanceship on the Pacific Coast; gets face value on your animal; works on the usual terms; cries any farm sale, and can be found at 513 Exchange Building, Los Angeles, Cal.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

Feeding for Maximum Capacity.

(Continued from page 289.)
storing up material, energy, and general well-being during the previous year and then drawing upon the stored material, energy, and well-being to somewhat increase the product of the second year, leaving the cow quite depleted at the end of the second year and unfitted for another year's work.

Begin Concentrates Early.—My 12 years' experience at dairying has fully convinced me that the proper time to start feeding concentrates to a cow is when she is a calf about 3 weeks old. At that age the calf should have concentrates besides hay and skim milk, and while the skim milk may be dropped at the age of six months to one year, the feeding of concentrates should be continued right up to the first freshing of the heifer.

The amount of concentrates fed to a growing heifer should be governed by the condition of the heifer. They may be increased, so long as the heifer uses her feed for growth; but as soon as she shows any signs of putting on fat her concentrates should be decreased and kept at the highest point that will keep the heifer from putting on fat. The ration of a growing heifer should contain a liberal amount of protein.

Regulate Concentrates According to Production.— When the heifer freshens she should be fed according to the same rules that govern the feeding of an older cow at freshening time as follows:

During the first few days after freshening she should be fed practically no concentrates at all. Then start with a small amount of concentrates, which should be increased very gradually from day to day as her milk flow and her appetite increase. The increase of concentrates should be continued very slowly as long as the cow's production keeps on increasing. When she has reached her capacity and does not further increase her production, slightly decrease the amount of concentrates and keep on feeding at that rate so long as the cow keeps up her rate of production and shows no tendency toward laying on fat. When the cow's yield decreases, decrease her concentrates somewhat; but not so rapidly as the yield decreases, for while she will be producing less milk or butterfat she will be growing a foetus; even the laying on of some flesh or fat is not objectionable during the latter part of the lactation period, in preparation for her next lactation.

In a general way it may be said that a heifer that shows a great tendency to put on fat when fed concentrates will never make a dairy cow of great dairy capacity, and a dairy cow that will not produce a profitable amount of milk at freshening time, and will not respond to the addition of concentrates, should not be fed with concentrates. She should be replaced by a better cow.

A cow that pays a profit when fed alfalfa alone will in almost every instance pay a much larger profit when fed concentrates with the alfalfa.

In an experiment which I carried on with ten cows, I fed alfalfa alone during 1911, and fed alfalfa with concentrates during 1912; the ten cows averaged 326 pounds, of butterfat during 1911 on alfalfa hay alone. During 1912, when concentrates were fed with alfalfa, the same ten cows averaged 438 pounds of butter-fat, being a gain of 112 pounds of butterfat per cow and also more skim milk. The extra cost for concentrates was only $12.50 per cow after allowing for less hay consumed during 1912.

Available Concentrates.—Quite a number of concentrates available in California are suitable for feeding with alfalfa to dairy cows.

Some of them are barley, cocoanut meal, mill feed, molasses feed mixtures, malt sprouts, dried brewer's grains, corn meal, crushed rye and oats. As auxiliary feeds with alfalfa we have silage, beets, turnips, potatoes, pumpkins, stock melons, carrots, sweet potatoes, and spineless cacti.

In selecting a feed to go with alfalfa for ordinary cows, we should consider that alfalfa is high in protein, has a high fiber content, requires much chewing, and is quite bulky. We should therefore select feeds that will offset these qualities in alfalfa to some extent.

Molasses-Alfalfa Basis.—Over three years ago I desired to try cane blackstrap molasses as a dairy stock feed with alfalfa. The reason that molasses interested me is that molasses is nearly all sugar, thus supplying the shortage of carbohydrates in alfalfa. Molasses contains no fiber and requires no chewing. It is very easily digested and assimilated, being ready for assimilation with but very little preparation by the digestive organs. This gives molasses a very much higher net energy value than its analysis would indicate. Also, since molasses has an extremely wide nutritive ratio, less of it is needed to balance the protein-rich alfalfa than of any other feed in the above list.

Balancing Alfalfa-Molasses.—Alfalfa and molasses alone do not make a perfect ration for dairy cows, being short in fat and variety; but using alfalfa and molasses as a basal ration, one can, by the addition of almost any of the remaining feeds in the list, build up a very excellent ration.

Barley.—Rolled barley is a very excellent dairy feed when fed with alfalfa. It is quite carbonaceous, very palatable, and the old idea that "barley dries up dairy cows" does not hold good when fed with alfalfa. When barley is low in price it may be profitably used in a number of combinations in dairy rations.

Cocoanut Meal.—Cocoanut meal is the residue in the manufacture of oil from the cocoanut. It is a very rich dairy feed, especially in fat. For that reason it fits very nicely with alfalfa and molasses, which two feeds are short in fat. When soaked with water, cocoanut meal swells very much, making a bulky feed very much relished by dairy cows, especially when mixed with other carbonaceous feeds.

Dried Beet Pulp.—Dried beet pulp is a very good dairy feed, especially where silage is absent. When soaked in water it becomes quite succulent; and in the absence of silage may be very profitably used in build-

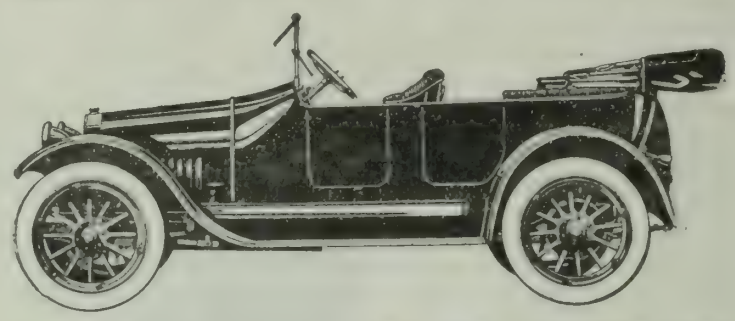
Oiliness

Without "oiliness" any lubricant would be worthless. You can *feel* the oiliness of Zerolene by pouring a little on a piece of glass and rubbing it around with your finger. Oiliness is in reality the molecules of the oil rolling over each other—miniature ball bearings as it were. Thus when you use a *good* oil like Zerolene the wearing surfaces of your engine roll over these "ball bearings" instead of rubbing together. Dealers everywhere.

ZEROLENE
the Standard Oil for Motor Cars
Standard Oil Company
CALIFORNIA

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco. 1st and St. James Sts., San Jose.

Little Stories of Success
No. 4

C. B. Driver of Dinuba, has 350 acres of valley land, 220 acres of which are in bearing vineyard He bought one of the first Baby Caterpillars made. "Yes," said Mr. Driver, "the engine sure does good work, especially in plowing. We use four plows and a harrow, plowing six to eight inches deep and sometimes ten. We take care of about 15 acres a day, working 9 hours." In the winter Mr. Driver uses the Baby to haul manure and does other odd jobs, like moving a house. He figures the Baby will do his work about 20% cheaper than horses or mules, even allowing for a sinking fund of 20% each year. As a matter of fact he has spent only $45.00 for repairs in the last two years.

Mr. Driver's success is being repeated by other owners who know how well the Baby is suited to work on small farms. We'll gladly give you the name of the one nearest you

THE HOLT MFG. CO.
(Incorporated)
Stockton San Francisco Los Angeles
Both Expositions San Francisco and San Diego

CATERPILLAR
Reg U.S. Pat Off
Don't say Caterpillar unless you mean Holt!

ing up a dairy ration. It belongs to the carbonaceous class of feeds.

Wheat Bran.—Wheat bran is often compared with alfalfa hay or alfalfa meal; the analysis shows much similarity. For that reason it is not often fed with alfalfa. It may sometimes be used with advantage in mixture with carbonaceous concentrates, but the price is usually quite high in California. It often carries a large amount of chaff, and what looks to me like ground screenings and weed-seeds.

Mill-Feed.—Mill-feed is supposed to be the unseparated bran, shorts, and middlings as it comes from the wheat. When it is that, it is a very good feed, somewhat more valuable than bran, but very often it is like the "X" in an algebra problem—an unknown quantity. Often each sack is a problem in itself, containing anything from mill sweepings to red-dog.

Molasses Feed Mixtures.—There are a number of good molasses feed mixtures on the market. These may be fed with profit to the dairyman who buys both his alfalfa and concentrates; but it is usually too high-priced to be fed by the dairyman who grows his own alfalfa, as he cannot afford the high cost of the alfalfa in the mixture via the mixing plant. Its field of usefulness lies mostly outside of the alfalfa-growing districts.

Malt Sprouts.—Malt sprouts are rather low in carbohydrates and fat, and when fed alone are usually not much relished by dairy cows; but they are sometimes so low in price that it pays to mix a small amount of them with other more palatable concentrates. When soaked with water they become quite succulent.

Dried Brewer's Grains. — Dried brewer's grains are rich in protein and fat, and poor in carbohydrates. They are much relished by dairy cows, and when the price is low they may be used in mixtures with other more carbonaceous feeds.

Corn Meal.—Corn meal is excellent to be used in mixtures with alfalfa. It has a slightly higher feeding value than barley, but the market price in California is usually prohibitive.

Rye.—Crushed rye approximates crushed barley in feeding value, but is not so much relished by cows and should always be mixed with other more palatable concentrates.

Oats.—Oats is much relished by cows and is a good dairy feed; but is rather high in protein to be fed very extensively with alfalfa. When the price is low it may be used to some extent in mixtures.

Succulence. — Pumpkins, stock melons, roots and tubers are not concentrates, but deserve mention here on account of their value for succulence and appetizers. Their nutritive value is not high; but roots especially are very beneficial in the absence of other succulent feeds.

Spineless cactus I consider hardly worth mentioning as a dairy feed, and I believe that ten years hence most of us will have forgotten them

Below are mentioned a few mixtures that I have tried and found successful with alfalfa.

Of alfalfa, I feed all that the cows will eat up clean, and then the concentrates besides. I feed alfalfa hay during the winter and freshly cut green alfalfa during the summer. I do not pasture.

Mixture 1.—120 lbs. molasses, 80 lbs cocoanut meal, 80 lbs. dried beet pulp.

Mixture 2.—120 lbs. molasses, 80 lbs. malt sprouts, 80 lbs. cocoanut meal.

Mixture 3.—120 lbs. molasses, 80 lbs. cocoanut meal, 80 lbs. crushed barley or crushed rye.

Mixture 4.—120 lbs. molasses, 40 lbs. coaconut meal, 100 lbs. of alfalfa meal or finely chopped hay. The alfalfa in this mixture is used mainly to act as a carrier of the molasses.

My method of feeding the above mixtures is to mix the dry feeds first in a mixing trough. Then, after stirring the molasses in a sufficient amount of water to wet the dry feed, I wet the dry feed with the molasses water, and after allowing it to soak for some hours I feed it in the form of a damp mash to each cow according to her capacity for production. The above mixtures are used when silage is fed, as well as when no silage is fed.

Mixture 5 (fed dry). When silage or roots are fed, the following dry mixture will be found to be a good ration: 150 lbs. barley, 50 lbs. wheat bran, 50 lbs. cocoanut meal.

While I have not fed any other mixtures to any great extent I am sure that quite a variety of other good mixtures could be made if the respective properties of the different feeds are kept in mind.

Every dairyman should study the feeding problem carefully. Many a man has earned one to one thousand dollars per hour, for a short time, by just figuring and thinking.

SHEEP BREEDS FOR RANGE.

To the Editor: What do you consider the best sheep for mountain range? Is there a breed that frequently drops twins? — A. U. M., Agua Caliente.

[Merino sheep are conceded to be the best range sheep, due to the fact that they are more easily herded and have the vigor and constitution to stand the hardships which are required of them at times. Outcrosses are made at times to some of the mutton breeds when mutton is to be a supreme factor, but in all of our larger flocks of range stock Merino blood predominates for the above reasons. All breeds of sheep drop twins, which accounts for the high percentage of lambs that are raised where good care is exercised.—Editors.]

UNIVERSITY EPITOMES.

Good Dairy Products.

[By Ass't. Prof. L. M. Davis, University Farm.]

The care given the raw materials in creamery production determines the quality of the finished product.

Cleanliness and low temperatures are controlling factors in producing good dairy products.

Poor dairy methods and poor dairy products are coincident.

Sterilization of the utensils used in handling milk or cream tends to reduce contamination.

Sanitary buildings and equipment tend to reduce contamination.

Factors which tend to check bacterial development in milk and cream favor their keeping quality.

Pasteurization reduces the bacterial content of milk and cream.

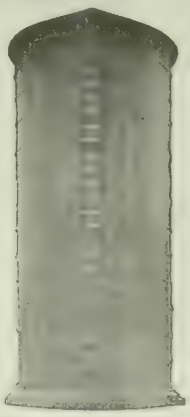
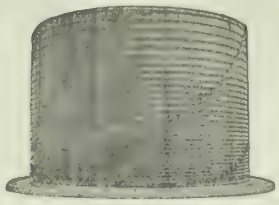
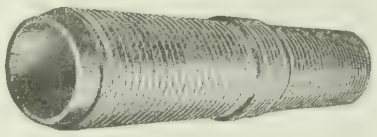
Immediate cooling of milk or cream removes the animal heat and checks fermentation.

Sacrifice of quality for yield tends to reduce the demand for manufactured dairy products.

FOR SALE
The Registered Holstein Bull
Lord Asa, No. 117335.
Because we have his heifers and require another sire.
He was sired by
SIR COLANTHA JULIANA.
Dam, QUEEN OF HOPLAND.
He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.
R. E. DRESSER, Mgr.
WOODLAND HACKNEY STUD, Yolo, California.
or EDGAR J. DE PUE, Owner.
818 Merchants' Exchange, San Francisco

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

SILOS
BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS
16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.
PIPE
MACHINE BANDED OR CONTINUOUS STAVE
For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.
ASK US FOR PRICES
REDWOOD MANUFACTURERS CO.
808 KOHL BUILDING SAN FRANCISCO

Salvador Stock Farm
Shire Stallions and Mares

I have a very good selection of SHIRE STALLIONS and MARES in my barns at present, and they are for sale at prices which you can afford to pay.
I buy for cash and sell for cash, and in this way I can give you better value than you can possibly get on time. Don't be misled by offers of two or three years' time, for you will certainly pay far more than the horse is worth on those terms.
To buy for cash is much the cheaper way, and if the horseman will give you time, your bank will advance what you need. For prices and particulars address.
HENRY WHEATLEY, Napa, Cal. Phone 665J.

BERKSHIRES
Oak Grove
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM.
H. G. ARMSTRONG, Prop.
Woodland, Cal.

The Registered Hackney Stallion
Lord Lovelace No. 1665
will make the season of 1915 at the Woodland Hackney Stud near Woodland.
Mares will be properly cared for at reasonable rates, but at risk of owner only.
The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.
A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.
Service with return privilege, $25.00.
For further particulars call or address
R. E. DRESSER,
Manager Woodland Hackney Stud,
Yolo, California,
or EDGAR J. DEPUE, Owner,
818 Merchants' Exchange, San Francisco.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by Geo. H. Croley, President Federated Poultry Ass'n of California.]

What excuse has the State for lending a hand in the present endeavor to save the poultry industry of California in which fully $90,000,000 is invested and which has yielded an annual income of $18,000,000?

If any reader who has followed these articles thinks our statements in former issues have been overdrawn as to the seriousness of the condition confronting California poultry raisers, or doubt our claim that aid is necessary, let him carefully digest the following:

China's Enormous Poultry Industries.—Chas. McAllister, in a letter recently published in the Fanciers' Monthly, states that the ten thousand ton refrigerator steamer, "Broadmont," recently arrived in Seattle, consigned to Ballard & Co., agents for the Blue Star Line, carried from China as a portion of her cargo, 5,574,075 dozen eggs and 5,882 dozen frozen fowls. To illustrate the magnitude of this single delivery, let us measure it thus: This shipment amounted to 3500 tons, which if loaded into freight cars, each containing twenty tons, would form a railway train over two miles long. He also says, "These figures I took directly from the ship's manifest and are absolutely correct. Also I met and interviewed the Captain of this cold storage steamship, and his account of the activity of the Chinese people in the production of poultry and eggs was to me a revelation and most astounding as to the great quantities produced and placed in storage for shipment.

Many poultrymen seem to consider the Chinese egg question a mere bug-a-boo, but in the light of what I have seen in the past few days leads me to believe that it is a more serious menace to the security of the industry in this country than our people can conceive. Do our poultry breeders appreciate and understand what it means to the poultry industry of this country, to have shipped into our market from China each month 3500 tons of eggs and poultry and often greater quantities, by only one of the several lines?"

Will Australia Invade California?—Realizing that the Orient can ship us poultry and eggs of only fair or medium quality, is the government of the Commonwealth of Australia by enabling its poultrymen, through direct government aid, to excel in the economical production of superior products, to which the government attaches its guarantee of quality, to monopolize California trade in the better grade of poultry produce when the industry in this State has been reduced to a minimum or completely destroyed?

The extracts below are from an extended review of the poultry industry of Australia which was published in the Country Gentleman of February 13, 1915: "The total value of the poultry and eggs of the Commonwealth at this time is approximately $20,000,000. One of the most favorable factors of the industry is the almost entire absence of diseases of an infectious nature. Each state government has in its employ highly qualified experts on the industry. These men give lectures, provide designs of yards and houses, and inspect the different farms at stated intervals. They keep in constant touch with the poultrymen by means of correspondence. Printed circulars are also sent out monthly, giving in detail the work that has been accomplished.

IN THE LAND OF TESTED HENS.

Five specimens from a pen of six White Leghorn hens, the property of Mr. S. Champion of New South Wales, Australia.

These six hens produced in two years, while under the control and supervision of the government, 2552 eggs, worth, when valued each day as laid at ordinary market price, $65.35.

"The State poultry departments also maintain demonstration poultry stations. The federal state governments lend assistance in providing cold storage for eggs and in packing eggs and table poultry for export. Money contributions in the way of prizes are given and in many other ways government aid and encouragement are extended to the poultry industry of the country.

"Most of the eggs in New South Wales are sold through co operative companies.

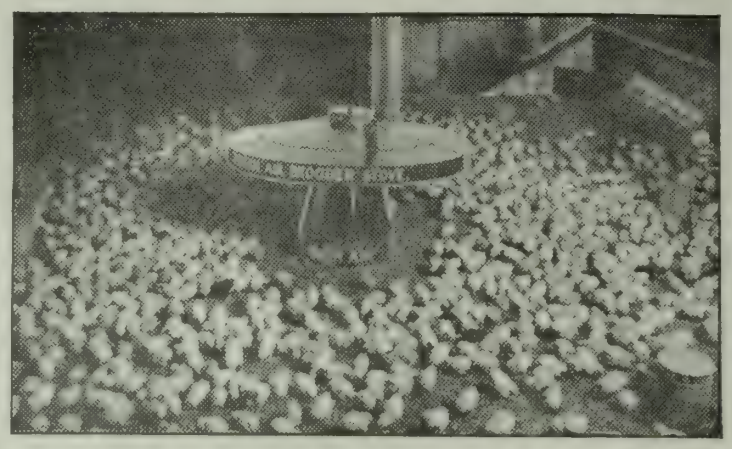
"The government of the State of Victoria gives special attention to the export trade of poultry and eggs. The products are handled from the farmers direct through the Government Cold Stores in Melbourne. Each dressed bird is carefully inspected by a government expert and any that are found diseased or below required standard are condemned on the spot.

"All eggs received at the State government cold stores are also inspected in the same rigid manner. The storage charge for cases of twenty-five dozen eggs each is three cents a dozen if held for a period of twenty-five weeks.

"In South Australia some wonderful results are said to have been had in the poultry industry. It leads all other states in the value of its poultry and eggs. The farmers handle their dressed fowls and eggs through the state government depot at Adelaide."

Iowa is Also Alarmed.—Only a few years ago Iowa was the greatest egg producing state in the Union, but through indifference and neglect of the state to supervise this industry, neighboring states that were awake to developed opportunities advanced while Iowa fell backward. That the legislature of that state has awakened to the necessity of doing something to revive this important branch of agricuulture is evidenced by the following press dispatch: "Des Moines, Ia., Feb. 15, —Iowa's legislature is considering a bill to create a State poultry department. Poultrymen assert Iowa's hens produced 106,000,000 eggs last year. Carl Barah told the house agricultural committee that 17 per cent of the egg yield is wasted in marketing through improper handling, most of which loss falls on the farmer. A campaign to "swat the rooster" and thus secure infertile

Delivered Freight Free to Any Pacific Coast Point



The Fresh Air Brooder Stoves

This is OUR NEW SELF VENTILATING BROODER STOVE that supplies the chicks with a MILD EQUALIZED HEAT IN THE FORM OF PURE FRESH AIR, which is diffused among the chicks from its base. It is radically different from any brooder stove you ever saw. It is the FINISHING TOUCH OF EXCELLENCE applied by a man that knows how. It supplies itself and the chicks with **pure, warm, fresh air from the base or ventilating drum on which the stove rests.** There is no **fierce drying heat** at the base of this stove. It is tempered and made mild by the circulation of **fresh air** through the base. The main heat from this **new stove** comes from the **radiator above** and passes out over the chicks' backs in such a manner that the chick nearest the stove is not **roasted and baked before the time comes,** and the chick on the outside of the flock is also comfortable. This **stops drying out next to the stove, crowding from behind, sweating and unrest.** It can be used **with or without a hover.** It is the **one brooding system that is sold with a BANK GUARANTEE,** and you can't beat it. Let us mail you our **new catalog free. Every poultryman should have it.**

Save this ad as it will appear in this paper only once during March.

J. E. KRESKY

PETALUMA. 308 Washington St., CALIFORNIA.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. **Also Petaluma's best utility stock.** Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

GET THE BEST

For Your Baby Chicks

Coulson's Poultry Foods

SPECIAL CHICK FOOD

Write for book "Chickens" to

COULSON CO., Petaluma, Cal.

FREE BOOK

Raising Calves without milk. Everytihng you need for stock and poultry raising. Write today.

F. F. SMITH & CO., 1006 J St., Sacramento.

Eggs Wanted

Egg Producers! Egg Shippers!

STOP! LOOK! LISTEN!

Highest prices paid for clean fresh eggs.

Address

E. F. ZUERN

Wholesale Produce

Butter-Cheese-Eggs-Poultry

354 Fourth St., Oakland, Cal.

Send for our booklet "White Leghorn BABY CHICKS"

FROM HEALTHY HAPPY HENS

and that helpful pamphlet, **"FEEDING CHICKS"** Free on request.

Must Hatch Incubator Co., (Inc.)

419 Seventh St., Petaluma, Cal.

eggs for cold storage in May and June for delivery to consumers in the winter months is proposed."

What Two Cents May Do.—I say, Mr. or Mrs. Reader, are you a "good fellow"? Are you inclined to help your neighbor who is in trouble when it costs only two cents? If so, do it now.

Write to your State Senator or Assemblyman requesting him to assist in obtaining an amendment to the Agricultural Bill to include a Department of Poultry, or a Poultry Commissioner. Or go at it in some other way, if you like, but write to someone in regard to this matter. With the fate of the poultrymen of the State in the balance, it may be your letter that saves the day for them.

The Legislature reconvenes at Sacramento on Monday, March 8, to vote on various measures including the new agricultural bill. Strange to say, when this bill intended to supervise and help important agricultural industries was formed and referred to the legislative agricultural committees, the poultry industry, now so sorely afflicted, was omitted. Remarkable as it may appear, these gentlemen, usually careful and attentive, forgot the chickens entirely.

If you think you must have an excuse for writing, you may tell 'em it was all my fault—I made you do it. And as you mail your letter, remember I have already said thank you.

Poultry for Profit

[Written for PACIFIC RURAL PRESS by Mrs. Susan Swaysgood, Pomona.]

Questions and Answers.

Turkeys Steal Nests.—Mrs. G. L. L. has been having experience with turkey hens stealing their nests and asks if this is customary in California as turkey hens do not lay in winter in the East.

Yes, it is quite a usual thing for a turkey hen to lay and hatch out a brood in December and January, if left undisturbed, in California. In Sonoma county, I have seen an old turk mother bring out nineteen fine strong poults in a big rainstorm that flooded the valley. The neighbors' boys saved them from drowning in a boat, but a few days later a dog got some of them, but the hatch was nearly all raised. You have to watch until the nest is located, then take the eggs away or they will set them out before you are ready for them.

Laying and Non-laying Ducks.—E. J. L., asks for information about ducks, how to tell the laying duck from the non-layers.

There is no sure way, except by catching each duck and making an examination every morning. By pressing a finger at the entrance to the egg passage the egg may be felt. If no hard substance is felt, there is no egg that day. But this only solves the question for that day. Can any reader give more information on this subject? If so send it in please to the office.

Chicken and Turkey Troubles.—A subscriber from San Jose, has 60 chickens, 40 of them being White Leghorns that are 11 months old and have not commenced to lay yet; also has a turkey hen with lump in her throat. Chickens have lots of green feed and mill feed.

I think your chickens need a little beef scrap or animal food of some kind and a little hard grain at night. Green feed makes healthy hens, but unless there is animal food and some dry grain fed, eggs will be shy. Leghorns, or in fact any kind of pullets 11 months old, should and would lay if the proper elements for egg making were furnished. When hens look healthy, but fail to lay the fault is nearly always traceable to the lack of some food that is absolutely necessary.

The turkey is rather a serious question. If you cannot move the lump, I would give her a dose or two of olive oil and keep feeding her soft nourishing food. If it is a gathering or an injury inside the throat time will remove it if you can keep her strength up.

Rabbits.—Have a number of grown does that have died the last few weeks. First they gnawed all the woodwork they could reach. I put in a load of peach brush and they ate that, then they sat around and ate little or nothing, their stomachs palpitating as if coughing some did make a little noise. In four or five days they die. I feed alfalfa hay, alfalfa meal, ground barley, Gyp corn, and plenty of water. They run in a two-acre lot, dig holes for the young, and have done well for a year. Is this a disease, or because they ate the wood? Have lost fifteen in two weeks.

The craving for the wood is a sign that there was something deficient in the food. Rabbits need salt and you should keep rock salt where they can get it and sprinkle a little table salt on the ground barley or hay. Cut out the alfalfa meal which is not a proper food for rabbits. Your feed otherwise is all right.

Rabbit Troubles.—Mrs. M. J. R. asks what ails her rabbit, it throws it's head back, gasps for breath, and is constipated. It is fed rolled barley, dry alfalfa, green grass, and milk weed.

I would cut out the dry alfalfa and feed a little more grass. Sometimes when both are fed it causes an inflammation. Give a little physic anyway.

Feeding Rolled Barley.—Will you kindly tell me about rolled barley? Is it a good substitute for wheat for chickens, and what proportion of it should be fed? What effect will it have on laying hens? —Mrs. B.

Rolled barley is being used by a great many as a substitute for wheat, and is a good strong food. It requires rather more in bulk, but not so much in weight as wheat. Sometimes it causes death when the beard on the end happens to be extra sharp and sticks in the craw. We prefer whole barley soaked about twelve hours in water, then drained

(Continued on page 319.)

VERMIN PROOF
POULTRY HOUSES
All Kinds and Sizes.
Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house.
Write for descriptive catalog.
ROGERS MFG. CO.
Williams, Calif.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faveroles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

LEAST SAID, SOONEST READ—Quality and price—good-will and satisfaction. Baby chicks. Hatching eggs from pure-bred, hardy, well-mated stock. Rhode Island Reds, Black Minorcas, White Leghorns. Circular with prices will interest you—Free. Roofden Poultry Ranch, Campbell, Cal.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

EGGS FOR HATCHING A SPECIALTY.—2-year-old S. C. White Leghorn Hoganized hens mated to Hoganized one-year-old cocks. Price for March and April, $5 per 100; $45 per 1000. Pine Tree Poultry Farm, Los Gatos.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First prize winners at leading California shows. Eggs for hatching. Year-old cockerels bred from my best layers at $3, $5, $7.50 each. Wm. Larm, 3854 39th Ave., Oakland, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred, Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

INCUBATORS—The Geo. H. Croley Co., Inc., largest Poultry Supply House of the Coast, 631-637 Brannan St., San Francisco, is making attractive prices this season. Write for book.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

STERLING FARM-INCUBATOR CHICKS and Hatching eggs from fully matured S. C. White Leghorns, Wychoff strain. Also S. C. Brown Leghorns, Route 2, Box 1416, Sacramento, Cal.

WHITE ORPINGTONS, ANCONAS.—Eggs from specially selected Hoganized breeders. Settings, $2 and $1.50. Quantities also. Cockerels for sale. H. Lechten, Newark, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for catalog. Whitten Ranch, R. 5, Box 646, Los Angeles.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

DIABLO WHITE ROCKS—EGGS FOR HATCHING. Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

BUFF LEGHORNS—Prize-winning, trap-nested, 250 egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second, Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland, Cameron Bros., 689 Vine St., Sacramento, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

FAWN RUNNER DUCK—U. R. Fishel Strain. $1.50 setting; $6 and $8 a hundred Baby Ducks. Ella Bieg, Los Altos, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS — Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BUFF ORPINGTON Eggs, $1.50. Runner Ducks, $1. Chix, 15c; dux, 20c. Glendale, Fleming Ave., San Jose, Cal.

THOROUGHBRED English White Leghorn Cockerels from $2 to $3. David Rueck, R. 4, Box 58F, San Jose, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

FOR SALE—S. C. Rhode Island Red Eggs for hatching. $5 per 100. L. F. Clayton, Hughson, Cal.

FOR SALE—White Leghorn Chicks and Eggs. Rouen Duck Eggs. Dan Liedinger, R. 4, Stockton.

BLACK MINORCAS—Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

FIR CRAGS RABBITRY—Fine breeding stock. Box 263, Sonoma, Cal.

The Home Circle

WHEN THE BIRDS GO NORTH.

Oh, every year hath its winter,
And every year hath its rain;
But a day is always coming
When the birds go North again.

When new leaves swell in the forest,
And grass springs green on the plain,
And the alder's veins turn crimson,—
And the birds go North again.

Oh, every heart hath its sorrow,
And every heart hath its pain;
But a day is always coming
When the birds go North again.

'Tis the sweetest thing to remember,
If courage be on the wane,
When the cold, dark days are over,—
Why, the birds go North again.

—Ella Higginson.

LITTLE TAG-END.

Ina stood at the window ready for her outing, in gray sweater, toboggan-cap, and leggings, her yellow hair curling, her cheeks already aglow. She was watching for Amy Bruce, and when Amy trudged into sight, presently, she turned with a little shriek of joy to make for the door.

In turning, though, she stumbled over something directly behind her and almost fell. It was small Charlotte, also decked in outdoor clothes, scarlet from the red tam-o'-shanter that crowned her dark, bobbed head to the red-stockinged stout legs, and beaming with expectation.

"Mother! cried Ina in dismay. "Charlotte's not going, too?"

"Yes, dearie," mother answered, hesitating a little. "I'll have to ask you to take her along this time. I am too busy to go out now, and she needs fresh air. You will not trouble sister, will you, Charlotte?"

The tam-o'-shanter shook violently. "I'll be so good!" its owner promised gaily.

But Ina's bright face looked stormy now. "It'll spoil all the fun," she grumbled, "every single speck. Come on, then, if you're bound to go, Tag-End."

Tag-End was a name Ina had given her little sister because, she said, whoever might be going anywhere, if they looked back they were sure to see Charlotte tagging busily on behind.

Quite far behind Charlotte had to tag on this occasion, for by the time she could get her little sled started the two larger girls were far on the way to the coasting hill. She hurried as fast as her fat legs would take her, half minded to cry, yet remembering that this would be a bad plan for many reasons.

When she reached the brow of the hill at last, the fun had already begun. Ina and Amy were two flying dots midway down the slope, lying flat on their sleds and screaming joyously. Charlotte halted, her heart in her mouth, trying to screw up the courage to follow. She had often coasted alone, but never down this steep hill which seemed to drop like the side of a gulf. She dared not try now, and stood watching them wistfully, hoping that one or the other would come back and take her on behind for a glorious plunge.

Ina steered her sled into safety below, and jumped up, laughing and tousled. "Look at Tag-End up yonder," she cried.

"Tell her to coast down," said kind-hearted Amy. "We can catch her by the elbows when she gets here, and it will be all right."

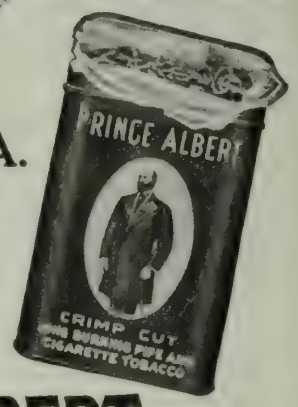
Ina lifted her voice loudly and clearly. "Come along," she called, knowing well enough that Charlotte would not come. "Jump on and scoot down, or I'll come up and send you down, Tag-End Taylor."

Charlotte saw the gray leggings start uphill, and was panic-stricken. It would be exactly like mischevious Ina, she was well aware, to dump her on the sled and send her "scooting" down alone, but she did not want to try it, and her only thought was to get away in time, for the coasters were getting nearer and nearer in their upward trip. She turned wildly, looking about her.

The hill, that dipped so sharply on its south side, stretched away to the north in only a gentle slant. It flashed into Charlotte's head that the quickest way out of her difficulty would be to coast out of it down this easy, convenient little hill, for the girls were too tired to come after her, and presently Ina would forget her foolish notion.

She flung herself, face down, upon her little scarlet sled, gave a push with one foot and was off. The sled moved slowly at first, for the ground was almost level here, but this shady side of the hill was covered with ice instead of snow, and it was not many seconds before the little coaster was going very swiftly indeed, gaining speed fast as she went, and holding on for dear life. Faster and faster she flew. Then, instead of stopping at the bottom, the sled shot across it, ran up a steep rise, and before Charlotte could catch her breath was off down another long slope.

Ina and Amy, reaching the top an instant after she disappeared from view, gasped and turned on each other with wide eyes. Where was Charlotte? A quarter of a minute ago she had been in plain sight; now she was gone. Ina, shading her eyes, peered in every direction. Amy began to search for tracks or footprints. But there was nothing to be seen in the distance or near at hand; and as to tracks, none showed on the clear, icy slope down which little Charlotte had slidden. The girls could not believe their senses. How could such a thing be? It seemed only queer at first, but after a while it became a very serious matter. Never did Ina forget the half-hour that followed. Anxious and breathless, they searched, through the little grove of cedars at the east of the hill and for a hundred yards on the path home,—anywhere, everywhere, that a child could be and in many places where one could not be. And all the while they knew it was almost foolish to think she could have gotten out of sight in a flash and without leaving any traces behind. Here and there



You'll Freeze Fast to P. A.

Load up that old jimmy pipe or roll a cigarette with P. A., strike a match and let 'er flicker. P. A. won't miss fire or flare back, men! One puff, you've got steam up and you've got the full fragrance and flavor of

PRINCE ALBERT

the national joy smoke

You'll vote it the one *real* tobacco. And when you find out you've smoked all day and all night and that your tongue and mouth and throat are just as unruffled and peaceful as a Sunday morning in the country, you'll freeze fast to P. A. for life.

It used to be that pipe and cigarette tobacco without a saw edge was harder to find than hitching posts in the subway. But now that P. A., made by a patented process which takes out the bite, has rung down the curtain on tongue terror, you hear a lot of noise about no-bite tobacco.

But there never was another tobacco just like P. A., and it only takes a ten-cent tidy red tin or a five-cent toppy red bag to sit in with a right to call.

Stake yourself to a try-out-size package of P. A. and it's the doughnut against the hole that it will be you for P. A. for pipe and cigarettes. Buy it in pound crystal-glass humidors for home and for office. It's the real joy jar. Also in pound and half-pound tin humidors at stores where they sell tobacco.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

they ran, calling, calling.

Ina burst into tears at last. "I called her Tag-End!" she sobbed. They were standing on the hilltop now, and the sun was setting. Presently Amy jumped. "Listen!" she said.

Faint, very faint, yet plain, a little cry floated to them across the still air,—it might have been a snowbird's call: "I-na! Oo-ooo, I-na!"

They did not tarry. Throwing themselves upon their sleds with a running start, they were off and away, after that cry. As Charlotte had plunged from ridge to ridge, so they plunged, only more swiftly.

The same thing that happened to Charlotte, happened to them. Both sleds, finally, with a leap went over the edge of the wide gully that opened up suddenly before them, big and ready.

It was a huge ditch, but shallow, and the sides were padded with vines above the snow.

Both girls turned a somersault and sat up, dazed. They had landed in a heap of soft cedar brush, and there between them, tangled tightly in the twigs and branches, like a plump robin-redbreast in a hedge, was Charlotte — unscratched, unscarred,—a bit frightened, but glad and forgiving.

Ina crawled over and grabbed her with a tight bear-hug, drying her tears in the bobbing tan-o'-shanter. "I'll never call you Tag-End again," she promised. "Never, never, never!"—Nancy Byrd Turner, in Sunday School Times.

California

AND PACIFIC COAST

Nature's Exposition

AND

ALL-THE-YEAR

VACATION GROUND

San Francisco, Oakland, Berkeley and Bay Region
Sacramento and San Joaquin Valleys
Santa Clara, Pajaro and Salinas Valleys
Santa Cruz, Mountains and Big Trees
Del Monte and Monterey Bay Points
Byron, Paraiso, El Pajaro and Gilroy Hot Springs
Yosemite National Park
Mariposa Big Tree Grove
Lake Tahoe and Sierra Region
Kings and Kern River Canyons
Lake County Resorts and Springs
Paso Robles Hot Springs, Santa Barbara and Coast Country
Los Angeles and Its Beaches
Pasadena, Riverside and Redlands
Imperial and Coachella Valleys
Shasta Springs and Resorts
Klamath and Crater Lakes
Willamette, Umpqua and Rogue River Valleys
Portland, Tacoma and Seattle

For Fares, Train Service and Descriptive Booklets

Inquire
Flood Building, Palace Hotel, Third and Townsend Sts., Ferry Station, San Francisco,

or ask any Agent of

Southern Pacific

THE EXPOSITION LINE 1915—FIRST IN SAFETY

TO KEEP JELLY FROM CRYSTALLIZING.

In reference to an inquiry of one of our subscribers from Sacramento as to why her jelly candies, we can best reply by quoting from Maria Parloa:

"To make jelly that will not crystallize (candy) the right proportion of sugar must be added to the fruit juice. If the fruit contains a high percentage of sugar, the quantity of added sugar should be a little less than the quantity of fruit juice. That is to say, in a season when there has been a great deal of heat and sunshine there will be more sugar in the fruit than in a cold, wet season; consequently, one pint of currant juice must be measured generously.

"Another cause of the jelly crystallizing is hard boiling. When the syrup boils so rapidly that particles of it are thrown on the upper part of the sides of the preserving kettle they often form crystals. If these crystals are stirred into the syrup they are apt to cause the mass to crystallize in time."

A RATTLING GOOD MAN.

The legislative session had just opened and the members were getting acquainted. Hawkins, who was "city broke," was meeting Anderson, who lived in the "North Woods." Anderson was a good man, postmaster, chairman of his county committee, a power in his congressional district, and known as far as the state capital—but he wore celluloid cuffs, being a "plain, common citizen," says Harper's Weekly.

They shook hands.

"Well, Dick, what did you think of Anderson?" asked the friend who had introduced them, later.

"Looks like a good man," said Hawkins. "But great Scott! When I shook hands it sounded like I was shaking dice."

HE CHANGED.

"Does your son take after you?"

"I used to think he was going to, but now that he's in college he shows every sign of taking after his mother."

"That so?"

"Yes; the only thing he's made since he's been there is the debating society."—Detroit Free Press.

Miss Blithely (interested in science): "Can one get a shock from a telephone?" Top Spiffkins (intent on ethics): "That depends, my dear young lady, on who is talking at the other end."—Harper's Bazar.

Mrs. Blunderby: "My sister Kate, who married the Englishman, writes me that her boy is going to fight." Mrs. Kawler: "Dear me! Isn't he rather young?" Mrs. Blunderby: "Well, yes, but you see, he's going to join the infantry." — Boston Transcript.

The late Prof. Cleveland, for so many years connected with Bowdoin College, was very witty upon occasion. A medical student in attendance upon the college once asked him if there were not some works on anatomy more recent than those in the college library. "Young man," said the professor, measuring the entire youthful scholar at a single glance, "there have been very few new bones added to the human body during the last ten years."

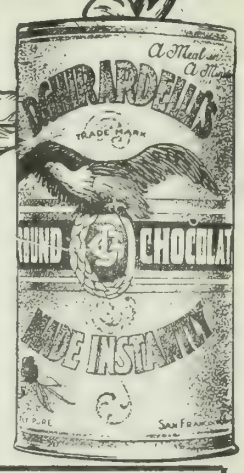
Ghirardelli's Brown Stone Front Cake

¾ cup Ghirardelli's Ground Chocolate; ½ cup sweet milk. ⅔ cup brown sugar; yolk of one egg. Beat all together; Soft boil until like a custard; set to cool. This is the cream. Take 1 cup brown sugar; ½ cup butter; ½ cup sweet milk. 2 eggs, 2 cups sifted flour. After the cake is mixed then stir in the above cream. Then add 1 teaspoon soda dissolved in a little warm water. Spread white boiled icing over and between the layers.

In the above recipe to get just the richness and flavor desired use

Ghirardelli's Ground Chocolate

A pure sugar and cocoa combination noted for its smoothness in the making of desserts



It also makes the most satisfying, most nourishing, most healthful, most economical beverage that you can serve your family.

Sold only in hermetically sealed tins

Order from your grocer to-day

D. GHIRARDELLI CO.

San Francisco Since 1852 California

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

California Poultry Practice

by Susan Swaysgood

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Mar. 3, 1915.

WHEAT.

The dubious outlook in the export situation is believed to have been pretty well discounted in the eastern and northern markets, where prices have dropped quite sharply, though values are still on a very high basis. Locally the decline has been less abrupt, as there is not much grain here.

Cal. Club, Ctl.	$2.40 @ 2.45
Forty-fold	2.50 @ 2.55
Northern Bluestem	2.50 @ 2.55
Northern Club	2.40 @ 2.45
Northern Red	2.50 @ 2.60

BARLEY.

The export demand is now falling off, and both spot and future prices show more weakness, spot feed being about $1 per ton lower. There is a fair jobbing movement of feed, but little buying of an important nature.

Brewing & Shipping	$1.52½ @ 1.55
Choice feed, per ctl	1.47½ @ 1.52½

OATS.

White oats are about cleaned up here, and the quotation is omitted. Reds are in fair supply, with a moderate demand, values standing as before.

Red Feed	$1.60 @ 1.65
Seed	1.80 @ 1.90

CORN.

Prices are hardly as firm as they have been, though there is no quotable decline. Business is mostly of a small jobbing nature, though the consuming demand continues fairly active.

California Yellow	$1.85 @ 1.90
Eastern Yellow	1.85 @ 1.90
Egyptian White	1.85 @ 1.90
Milo Maize	1.85 @ 1.90

RYE.

Considerable rye has arrived in this market lately, and is held at about $2.20 to $2.25 per ctl., with a moderate demand.

Rye, per ctl.	$2.20 @ 2.25

BEANS.

The bean situation presents little new feature this week. The demand, though still moderately active in all lines, is hardly as strong as it has been for the last month. In view of the movement that has already taken place, however, and the prospect of further requirements in the near future, the market continues quite steady at the last quotations.

(On Wharf.)

Bayos, Cal., per ctl.	$5.00 @ 5.10
Blackeyes	5.00 @ 5.50
Cranberry Beans	4.25 @ 4.50
Horse Beans	3.50 @ 4.00
Small Whites	5.00 @ 5.25
Large Whites	4.85 @ 5.00
Pink	4.00 @ 4.25
Limas	5.50 @ 5.65
Red Kidneys	5.50 @ 5.75
Mexican Reds	4.75 @ 5.00

SEEDS.

There has been a much better general demand in the seed trade for the last week, but prices for the lines quoted show no marked variation.

Alfalfa	16 @ 16½c
Brown Mustard, per lb.	Nominal
Canary	10 @ 12½c
Hemp	3 @ 3½c
Millet	2½ @ 3 c
Timothy	7½ @ 8 c

HAY.

Arrivals of hay in the local market fell off sharply during the last rain, but are again on the increase, and are expected to be all that the market can handle from now on. In fact, local offerings have been rather in excess of the demand right along, as the trade here is very dull, with only moderate requirements and no desire to buy except for immediate needs. Offerings in the country are very heavy, and reports indicate a buyer's market, with occasional sales at low prices. Conditions are favorable for a large crop, especially on account of the delay in planting occasioned by the wet weather, and the condition of the volunteer crops. Fancy red oat hay is scarce and in demand, but little interest is taken in anything else, alfalfa being plentiful and easy.

No. 1 Wheat	$9.00 @ 10.50
do No. 2	6.00 @ 8.50
Barley	5.00 @ 8.00
Tame Oats	6.00 @ 11.50
Wild Oats	6.00 @ 8.00
Alfalfa	6.00 @ 9.00
Stock Hay	4.50 @ 5.00
Straw, per bale	30 @ 45 c

FEEDSTUFFS.

The decline in grain has caused a little easier feeling, and declines are noted in bran, as well as rolled barley and oats. Green feed conditions are tending to limit the demand in some quarters.

Alfalfa meal, ton	$16.00 @ 17.00
Alfalfa-Molasses meal per ton	19.00 @ 20.00
Bran, per ton	32.00 @ 33.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00 @ 26.00
Cracked Corn	41.00 @ 42.00
Middlings	35.00 @ 36.00
Rolled Barley	32.00 @ 33.00
Rolled Oats	35.00 @ 36.00

VEGETABLES.

The local market in general is in good shape, most of the stock arriving finding a ready demand at satisfactory prices. String beans are again coming in, bringing 10c per lb. and over; while peas are becoming fairly plentiful, and have dropped sharply. There are rather large offerings of rhubarb from various districts, and prices show a very wide range, with Alameda county stock bringing the best figures. Offerings of asparagus are steadily increasing, though the decline is not very great so far. Bell peppers and southern tomatoes are a little lower. Arrivals of celery and lettuce have fallen off, causing a sharp advance in the former, while Delta lettuce sells up to $1.75 per crate.

String beans, lb.	10 @ 12½c
Artichokes, doz., No. 1	50 @ 60 c
No. 2	40 @ 45 c
Asparagus, lb	10 @ 17½c
Peas, lb	5 @ 12½c
Peppers, Bell, lb.	10 @ 15c
Tomatoes, crate	1.75 @ 2.00
Celery, crate	2.00 @ 3.00
Sprouts, lb.	2 @ 2½c
Rhubarb, crate	1.50 @ 2.50
Lettuce, crate	.75 @ 1.75
Cucumbers, doz	.90 @ 1.10

POTATOES AND ONIONS.

Oregon potatoes are easing off a little, with good sized offerings of ordinary stock; while Delta goods are more firmly held. Sweets are getting rather scarce, and show a further advance. Onions are easier, and garlic remains very high.

Potatoes, Oregon, ctl.	$1.40 @ 1.50
Salinas, ctl.	2.00 @ 2.10
River Burbanks, ctl.	1.10 @ 1.25
Sweet Potatoes, ctl.	1.90 @ 2.25
Onions, yellow, sack	80 @ 90 c
Garlic, per lb.	17 @ 20 c

POULTRY.

The demand has slowed up a little in the last few days, while arrivals, especially from the east, continue rather large, and more or less stock is carried over from day to day. The market is accordingly easier in most lines, though prices are not quotably lower. Fryers and broilers, however, are cleaning up well at full prices.

Live Turkeys, lb.	17 @ 19 c
do, dressed	18 @ 21 c
Broilers, small	25 @ 27 c
Fryers	19 @ 20 c
Hens, extra, per lb.	18 @ 19 c
Small Hens, per lb.	17 @ 18 c
Young Roosters, per lb	17 @ 18 c
Squabs, per doz.	2.00 @ 3.00
Geese, per pair	3.00 @ 3.50
Ducks, doz.	6.00 @ 9.00
Belgian Hares, live, lb.	8 @ 10 c

BUTTER.

Arrivals of all grades have been large all week. For a few days there was considerable shipping demand from the north, which, with other special orders, helped to steady the market. This support is now lacking, and prices have broken sharply.

	Thu	Fri.	Sat	Mon	Tu	Wed.
Extras	29½	28½	28	27	26	26
Prime	27	27	27	27	25½	25½
Firsts	26	26	26	25	24½	24

EGGS.

Eggs continue to come in quite freely from all nearby districts, causing a further slight decline. The market is occasionally stiffened up a little by an extra demand, but just at present requirements are not unusually large.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	21½	19½	21	21	20½	20½
Sel. Pul	19½	18	18½	18½	18	17

CHEESE.

Offerings of California flats have been rather excessive this week, causing a decline of ½c. Y. A.'s hold steady at the old level, Monterey cheese remaining weak and plentiful.

Fancy California Flats, per lb.	13½c
New Young America, fancy	15c
Monterey Cheese	12 @ 13c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	27	27	27	27	26	26
Eggs	22	21	19	20	18	18½
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

The deciduous fruit market shows very little feature, California apples being neglected, while pears are about cleaned up. It is reported that the California apples in storage, of which there is an unusually large quantity, are in bad shape.

Apples, Newtown Pippins	50 @ 1.00
Belleflowers	25 @ 60c
Baldwin	50 @ 75c

DRIED FRUITS.

Little new has developed in the dried fruit market of late. The situation in peaches remains unsatisfactory, with little promise of improvement, as supplies in the country are large, and consuming demand seems to be almost entirely lacking. Some sales are being closed, but usually at low prices. In all other lines, the eastern consuming demand shows a gradual improvement, and prices are firmly held. The trade is not yet buying much ahead of requirements, but a little more interest is shown, while the export trade is an important factor. Prunes find more inquiry, and with light supplies, better prices are expected. Apricots are very scarce, but the movement is limited; while apples are in very fair demand, and raisins are moving off steadily. The New York Journal of Commerce says: For future prunes there is more or less inquiry, but actual business is confined within narrow limits. Occasional car lots are sold, but almost invariably the buyer demands earliest delivery, which is September. Holders on the Coast decline to consider bids of anything less than a 4½c f. o. b. four-size bulk basis on 1915 crop 40s to 90s for September or first half October shipment. On the spot the movement in prunes at present is said to be slow. For spot apricots the demand is light, but, in sympathy with strong reports from the primary market, prices, which are still somewhat below present Coast parity, are steadily maintained. Peaches on the spot are dull, though not urged for sale, and the market is firm because of the moderate supplies and the advancing tendency of Coast prices as indicated by recent reports. In raisins there is but a slow movement at present. Seeded stock on the spot appears to be easing, though not quotably lower, but loose Muscatels and the several seedless varieties, being in comparatively small compass, are held steadily up to the quotations in spite of the absence of important demand.

Evap. Apples, 1914	5½ @ 6 c
Apricots, 1914	6 @ 9 c
Figs: White, 1914	3 @ 3½c
Black	2½ @ 2¾c
Calimyrna	5 @ 6 c
Prunes, 4-size basis, '14	5½ @ 6½c
Peaches, new	3 @ 4 c
Pears	6 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

Citrus fruit shipments from southern California are going out in large number. Now that the weather has cleared, fruit that is fully ripe is being picked and packed as rapidly as possible. Shipments this week will be near two thousand cars. Owing to the rains for the past month much of the fruit on eastern auctions has shown considerable decay, causing a lower price than would have been with good stuff. Prices on eastern auctions are averaging from $1.80 to $2.60 per box for oranges. Lemon picking has been very heavy, with little demand, causing heavy storage, which may and may not bring good prices later.

Arrivals of oranges in the San Francisco market have been excessive, and ordinary stock is offered at lower prices. The decline has brought out a much better consuming demand, but supplies are still burdensome. Other lines are quoted as before at a wide range.

Oranges, navel, box	$1.00 @ 2.00
Tangerines, small box	65c @ 1.50

Almond Growers

California's largest almond crop was 3500 tons. Recent planting will increase this to over 15,000 tons. Are you awake to the necessity of co-operation to insure satisfactory market for this surplus?

CALIFORNIA ALMONDS GROWERS' EXCHANGE,
SACRAMENTO, CALIFORNIA.

MOCOCO SUPERPHOSPHATE

Do You Raise Fruit?

If you do, remember that Nitrogen promotes wood growth, while PHOSPHORUS AND POTASH ARE ABSOLUTELY NECESSARY FOR FRUIT DEVELOPMENT. California soils are rich in Potash, but deficient in Phosphorus. Try Mococo Superphosphate on your fruit trees. It will do wonders. For sale by

The Mountain Copper Co., Ltd.
332 PINE STREET, SAN FRANCISCO.

Under the glass, that smooth looking spindle is as rough as sand-paper. But the ground mica in

MICA AXLE GREASE

fills up this microscopic roughness. It's a good lubricant itself and forms a smooth, slippery, heat-resisting, wear resisting coating. Thus a very little Mica Axle Grease applied occasionally preserves this lubricating film. Mica Axle Grease saves time, money and scored spindles. Dealers everywhere.

Standard Oil Company
(California)

Grapefruit, seedless, bx.	1.50@2.75
Lemons, box	1.50@2.50

NUTS.

California walnuts are now pretty well cleaned up, and desirable stock finds a good demand, though ordinary requirements are being filled with Manchurian nuts at low prices. Almonds also are scarce and firm.

Almonds, 1914 crop:	
IXL	16½c
Ne Plus Ultra	15½c
Drakes	14 c
Texas, Prolific	14 c
Walnuts, new crop:	
Jumbo, lb	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½@14 c
Manchurian	7 @9 c

HONEY.

Prices remain nominally as before, but any buyer offering to take a large lot could get liberal concessions, as there are heavy offerings everywhere, and little business is being done except in a small jobbing way.

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water white, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

LIVE STOCK.

Cattle are still coming in freely at the old prices. Sheep and lambs remain quite firm, though larger offerings are expected within a few weeks. Dressed lambs are quoted a little higher.

Steers, No. 1	7 @ 7¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½@ 5¾c
Bulls and stags	4 @ 6 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7 c
100 to 225	7½c
Prime Wethers	6½@ 6¾c
Ewes	5¼@ 5¾c
Yearling Lambs	7¾@ 8 c

HOPS

There has been quite a lively demand from England lately, cleaning up most of the remaining 1913 crop, as well as the 1914 offerings, at fair prices. A good many 1915 contracts are also being closed.

1914 crop, lb.	11@13c
1915 crop	12c

WOOL.

The spring shearing is beginning, and the new wool is held at high prices, which local dealers are as usual reluctant to pay. Values are accordingly more or less unsettled. Many reports have been received of sales at extreme prices in neighboring states, and dealers say that most of the spring clip in the mountain states has been contracted at more than it is worth under existing conditions, as a large amount of Australian wool is coming in.

Publisher's Department

WORK ON CALIFORNIA GARDEN FLOWERS.

The Pacific Rural Press, San Francisco, has just published a new work by Professor E. J. Wickson of the University of California. The work is entitled "California Garden Flowers, Shrubs and Vines," being mainly suggestions for working amateurs and is a valuable contribution and addition to the literature in California, of this class. Professor Wickson's ability and popularity as a writer increases the interest in the work.

This work, as the author in his preface says, avoids both the perilous heights of science and the lowlands of the commercial florists' work, covering the ground midway between these. The work is well illustrated and is altogether valuable, instructive and interesting to almost anyone.—California Fruit News.

New paid subscribers were added last week to the number of 222, which is doing fine during rainy weather. In reporting the number of new subscribers received during the previous week from Mr. Knox, we should have said that he secured 59 instead of 49. Last week Mr. Knox secured 49 for us, making two good reports in succession.

Our new book, "California Poultry Practice," is needed on every farm in the state where poultry is kept. The price of $1 per copy, postpaid, means that you will get your money back on this book with very little reading. Send for a copy today.

In this issue are quite a number of new advertisements of interest to our readers. Look over the advertising columns every week—it will pay you.

POULTRY FOR PROFIT.

(Continued from page 315.)

for the same length of time in a box. As this is softened, it can be fed in perfect safety and is far better for laying hens than rolled barley.

Turkeys.—My turkeys have diarrhoea. What is the very best remedy?—E. E. S.

If you can catch each one, give them a tablespoonful of castor oil to clear off all accumulations. Then pour boiling water over a small piece of lime, say two quarts of water to lime as big as a walnut, let the water settle, then pour off and give the turkeys that water to drink and no other.

RAISING FROGS MIGHT PAY.

To the Editor: Do you think it would be practicable to raise frogs for the market?—C. D. P., Oakdale.

[S. Beck & Company of San Francisco, who make a specialty of frogs and terrapins, advise us that they know of no one in California who has made a success of raising frogs for the market. There has been some interest lately and two or three parties have recently started, but it is not known what success they have had. There is always a market for frogs. Beck & Co. pay $1 to $3 per dozen alive, according to the size of them, and also pay the transportation charges. Their supply is now sent in by men who make it a business to catch wild frogs, but the supply is getting scarcer every year, and perhaps you could make money out of it if you have land that isn't good for cultivation and is good for frogs.—Editors.]

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

FOR SALE—One of the finest and best improved alfalfa and dairy farms in Stanislaus County. 60 acres—3 miles from Modesto under irrigation ditch—all under cultivation. Beautiful, strictly modern 7-room bungalow, hardwood floors; fine, roomy, 4-room milkers' cottage; good home orchard; modern barn, concrete floors, accommodation for 50 cows; steam separator house; electric pumping plant; silo, etc.; everything up to date. This place is fully equipped with farming tools and implements, including hay loader, all dairy utensils necessary for a 50-cow dairy; is electrically lighted throughout; five minutes from school. Just the place you have been looking for, a beautiful home and a practical dairy farm in one. A bona fide bargain which will pay to investigate. The price is right. Terms. G. O. Hillier, 2900 Harper St., Berkeley.

BARGAIN—110 acres Watsonville district. Suitable for orchard, corn, potatoes, beans, vegetables. Sandy loam soil. Springs on land. No irrigation required. Fine climate. Schools, churches, rural route. Three railroad towns convenient. Fenced. 40 acres cultivated; more can be. $35 per acre. $1500 cash, balance 5 years, 6 per cent. A. H. Knox, Palo Alto, Cal.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, bog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97 Salinas, Cal.

TULARE COUNTY LANDS for sale by owner; 160 mountain, $10 per acre; 160 alfalfa land, $80 per acre; terms. 148 orange and olive land, $150, terms. All well located. C. C. Clayton, Visalia, Cal.

WANTED TO LEASE—About 40 acres, 20 in alfalfa. Want house, barn, corral and some farm implements. Have stock. Give full particulars in reply. E. W. Seaman, 1538 Parker St., Berkeley, Cal.

FOR SALE—20 and 40 acre tracts heavy sandy loam, ready to check. Ditches built; water ready; fine fruit and alfalfa land; easy terms. Price, $140 acre. L. W. Kirkman, Winton, Cal.

WANTED to hear from owners of good fruit ranch, or irrigated land well adapted for fruit ranch. Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn.

C. M. WOOSTER CO., 25-year experts in land and mortgages; investors will save money and avoid errors by consulting them; land in all counties. 303 Phelan Bldg., San Francisco.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., Box 12, Nordhoff, Cal.

WANTED.

WANTED—Responsible representative in each county. New Combination. 12 tools in 1. Sells at sight to farmers, teamsters, contractors, etc. Weight 24 pounds. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. Easy work. Big profits. One agent's profit $45.50 in one day. Another, $1,000 in December, 1914. We start you. Write today for Big Color Plate. Quick action secures exclusive sale. Harrah Mfg. Co., Box M, Bloomfield, Ind.

FARMS WANTED—We have direct buyers. Don't pay commisisons. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

TREE GRAFTERS wanted immediately. Walnut nursery work. Apply or write to Tribble Nurseries, Elk Grove, Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

TEN THOUSAND Bartlett Pear Trees, 4 to 6 feet. Clean, vigorous stock. $16 per 100. Five thousand Mayflower, Southern Beauty and Red Bird Peaches. The earliest, best, most profitable peaches grown. Ripens sixty days before Elberta. No overstocked fruit market when they ripen. Sure croppers and commands big prices. Write for information. 10 trees, $2.50 $17.50 per 100. W. D. Rose, Fullerton, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka Wiltz, San Jose Mayette, Concord and other varieties Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GENUINE BURBANK Spineless Cactus. Large mature slabs, $15 per 100. On cash orders placed in March to be shipped in April or May 20 per cent discount. Address DARROW-WINCHESTER CO., 1605 Telegraph Ave. Oakland, Cal. Satisfaction guaranteed.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell Santa Rosa, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from 4 to 7 feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Calif.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Rivera, Cal.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal.

WE ARE SELLING Himalayas and Mammoth Blackberries—Vigorous plants—direct from grower. The best and the biggest blackberries there are and the most fruitful. Plant within 30 days. Order now. R. E. Hodges, 315 Underwood Bldg., San Francisco.

RHUBARB PLANTS Now ready. Burbank's Crimson Winter, 75c per dozen. Wagner's Improved Giant Crimson Winter, $1.50 per dozen. Quantity prices on application. "Do it now!" Reginald Bland, San Luis Rey, San Diego County, Cal.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

LEMON TREES Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

ALFALFA HAY FOR SALE—Several hundred tons of clean, leafy alfalfa must be sold at once. This hay was not wet by early or late rains, is properly cured and free from weeds. For particulars, write V. L. Wiser, Manager Sunset Ranch, Gridley, California.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color, 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

SPINELESS CACTUS—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. R. Marshall's Nurseries, Santa Ana, Cal.

RE-CLEANED ALFALFA SEED, free from Dodder and Johnson Grass, high germination. 16c per pound, delivered to your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

TEPARY BEANS—Hand packed, plump stock, up to 50 pounds, 10c per pound. Write for price on larger lots F. O. B. Immediate delivery. Carl Nelson, Route No. 2, Lindsay, Cal.

RHUBARB—Crimson Winter, $3.00 per hundred; Wagner's Giant, $5.00 per hundred. Good, strong one-year plants. Currier Bulb Co., Seabright, Cal.

FOR SALE—3,500 Eureka Lemons, one year buds raised in frostless belt. Trees first-class shape. T. W. Johnson, R. D. No. 2, Box 118, Orange, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

SUDAN GRASS—Government inspected, 50c per lb. If you pay more you are throwing away your money. Amarillo Seed Co., Amarillo, Texas.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

FOR SALE—200 fine 2-year-old Valencia Orange Trees. Fred E. Peterson, of Southern California Music Co., 332 So. Broadway, Los Angeles, Cal.

SOUDAN GRASS—Send for circular, free sample seed and lowest possible prices. Will take produce. Address C. Ullery, Lubbock, Texas.

KUDZU—Great forage plant. Fastest grower known. Lifelong, ever-increasing hay and pasture plant. Write J. L. Lawson, San Jose, Cal.

NURSERY STOCK—Navel Oranges, Valencia late trees. Seedless grapefruit. Reasonable prices. K. Matsuoka, Sanger, Cal.

FOR SALE Best variety Pomegranate trees known. As profitable as oranges or olives. J. W. Irwin, Lindsay, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

BURBANK'S PATAGONIA STRAWBERRIES. Prepaid at 5c per plant. Thos. C. Still, La Panza, Cal.

STRAWBERRY PLANTS, "Dollar" variety. Close-out price, $2.00 per 1000. F. B. Dyar, Loomis, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

BEARDLESS BARLEY for sale. Apply E. B. Harley, R. 2, Woodland, Cal.

INDIAN CORN SILAGE—200 tons for sale. Box 24, Butte City, California.

MISCELLANEOUS.

RANCHERS—Now is the time to act. Get ready for this season, canning up your entire crop of fruit and vegetables, getting from two or three times more cash for your entire crop, and save it all by using one of our machines. We have the experience and trade on the canned goods. Write or call and see us for full particulars. Demonstrating plant 223 E. 9th St., Los Angeles. CANNER'S SUPPLY & BROKERAGE CO.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

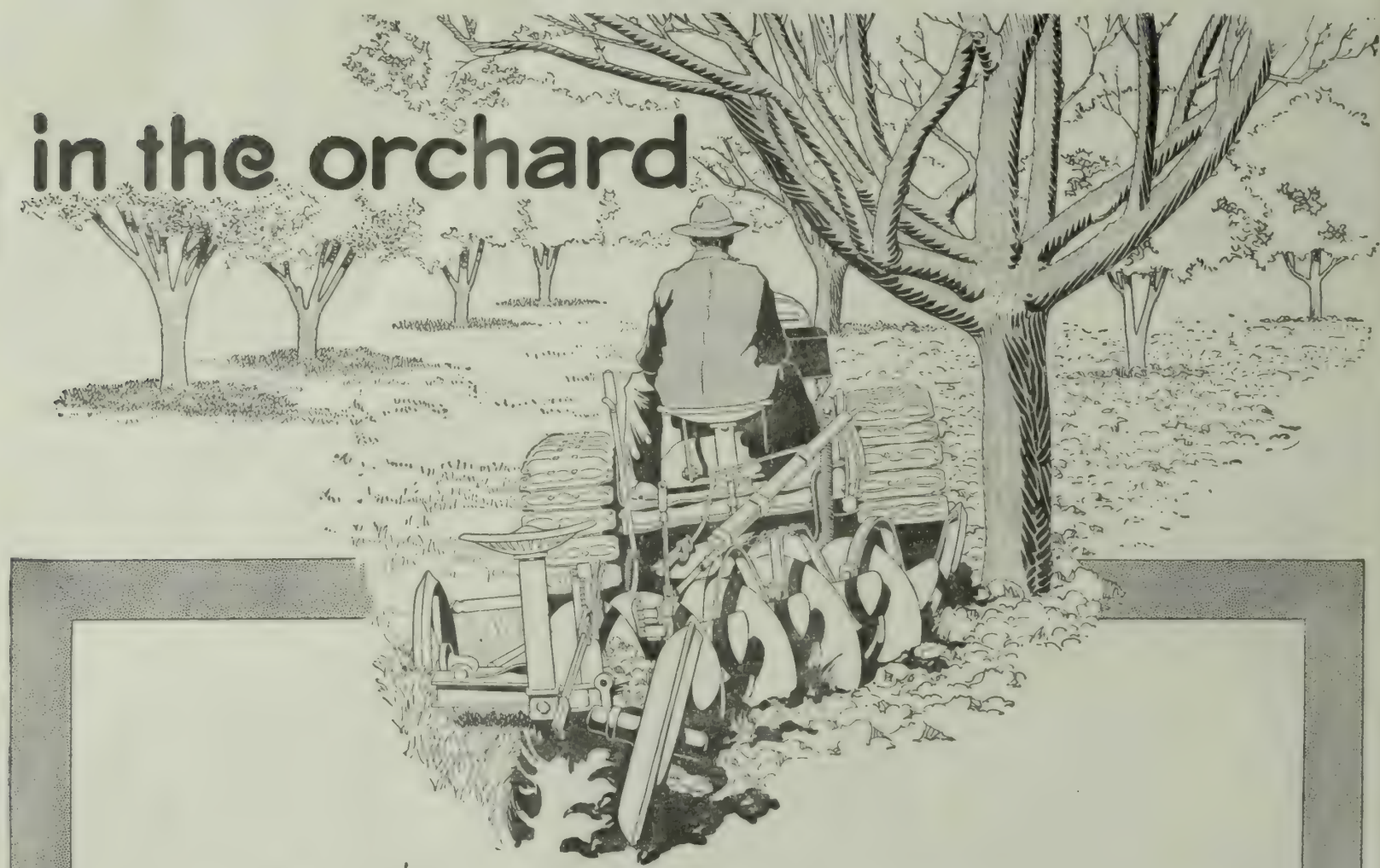
EXPERIENCED DAIRYMEN, with highest of local references wishes to take hold and run a dairy on shares. Can furnish any amount of bond. Box 43, Pacific Rural Press.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.



The Yuba Ball Tread Tractor is the ideal tractor for orchardists.

With it, a man can plow up one row and down the next, throwing the earth to or from the trees. It can be turned in a space but a few inches wider than its length.

The Yuba Ball Tread Tractor gives great power, yet is small enough to run close to the trunks and under heavily laden branches without injuring the trees.

It is heavy enough to get ample traction, yet its weight is so evenly distributed over a large area that it does not pack the soil.

THE YUBA BALL TREAD TRACTOR

When not plowing or cultivating, the tractor can be used to operate irrigating pumps or other stationary appliances. It is an investment on which the owner gets maximum returns.

And, above all, it is economical, and simple so simple that farmhands of average intelligence operate the machine and make repairs or adjustments.

There is a booklet describing its uses and construction fully.

THE YUBA CONSTRUCTION CO.

433 California Street, San Francisco

Dept. C. 7

Works, Marysville

Vol. LXXXIX—No. 10 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, March 13, 1915 LOS ANGELES

State Library 7-1-16

Oranges Need Light and Air.

[Written for PACIFIC RURAL PRESS, by J. E. Adamson, Pomona.]

As a general thing the pruning of the orange has resolved itself during the past into the removal of dead wood and suckers, practically no attention being paid to the removal of live wood, for the good of the remaining limbs, or the increase or betterment of the fruit.

The presence of the fruit during the spring months naturally calls for the pruning to take place in the early summer, as the thrifty owner does not care to sacrifice the fruit which has been matured, for the sake of spring pruning. The removal of dead wood might take place at any time, but once the pruner is at work it is best carried to completion. Most of us have let the work carry over two or three years as there did not seem to be much need of work, and there are instances where pruning has gone undone for so long a time that the inside of the tree had become a mass of dead wood and suckers.

There is now, however, a growing tendency to keep the trees in better condition and even to thin them out to some extent, also to see that the branches are kept off the ground, as the fruit on the lower branches is often injured by contact with the earth and is subject to damage in the spring months from the working of the grove.

Pruning for the shaping of the tree should have been done before there was any fruit to sacrifice, but as many of the older trees were neglected in this respect most of what we have to say will be with reference to the care of mature trees. One thing, however, which may be of value in the care of trees of any age is that a branch which runs out at right angles to the trunk of the tree will be of little use as a fruiter and will always be in the way. These should be cut out while the tree is small, but if that has been neglected, cut them out anyway. All cuts should be made close so that healing over may be quick and perfect, especially where the cut is made to remove a limb from the trunk.

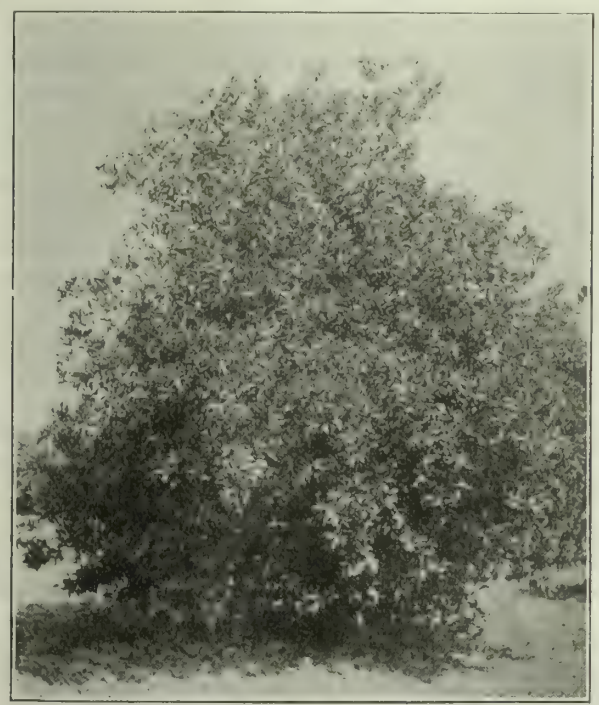
Suckers and Fruit Shoots.—Concerning the removal of suckers, there is room for considerable study, as not all branches which may grow from the inside of the orange tree are useless suckers. The owner who will take the trouble to investigate will find suckers forming long poles in a few weeks, which have no branches from top to bottom, until after the wood has ripened, when there will appear small branches near the tip, and if left there will be some fruit of inferior quality after the second year. These sucker branches should be taken out before they come to the stage mentioned above, and it is far better to get them out before they reach a size requiring the use of shears. If they are taken out once a year, however, there will not be much loss of vitality to the tree.

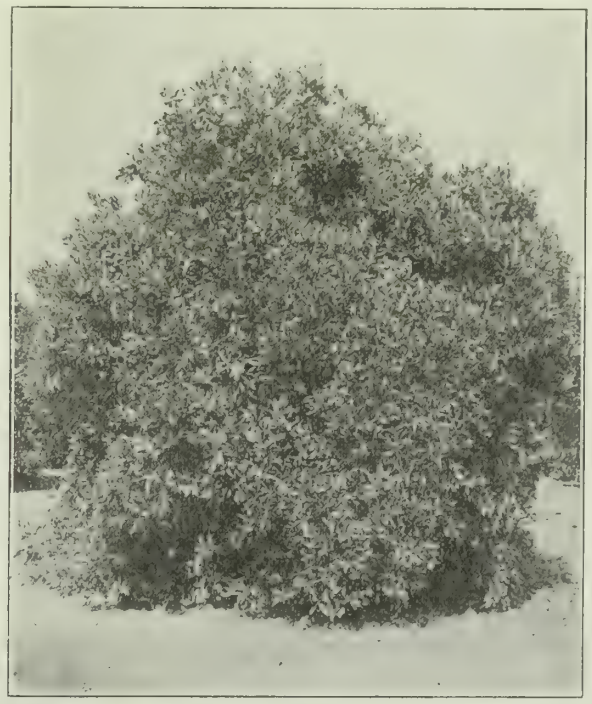
There is another form of growth usually classed as a sucker, which is an entirely different sort of branch. It grows inside the tree, starting vertically from one of the larger limbs, and soon after its start is found to assume the form of a tree, branching out in a uniform fashion. If the tree is clear of the useless fine brush and dead wood these branches will soon grow to a good height; and in the second year will put on a crop of good fruit, repeating the crop for two or three years, after which they may as well be taken out. A workman who does not know the difference between these two forms of sucker growth is not fit to be let loose in an orange grove to do pruning, and yet there are many of them at it. What not to do would seem to be quite as important knowledge as what to do, in the matter of pruning the orange.

Another form of growth requiring the attention of the pruner of the orange, is found in the dense bunches of foliage found in the older trees. These should be thinned out, by going back on the branch to a point of junction where a cut can be made which will remove a portion of the branch forming the bunch, thus leaving an opening for the air.

Stubbing off branches should be avoided by always going back to a crotch or junction of limbs, as the stubbed off branch will either die or send out a mass of small growth which will be worse than the one we are trying to remedy. The removal of

(Continued on page 331.)





ORANGE TREE WITH OUTBREAK OF SUCKER-GROWTH, CONTRASTED WITH A CROWN OF BEARING WOOD.
"Pruning the orange is largely a matter of individual opinion, but there is little doubt that it is good practice to let in plenty of light and air."—Adamson.

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., March 9, 1915.

Stations.	Rainfall Data			Temperature Data Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.11	35.69	33.77	56°	40°
Red Bluff...	0	27.65	18.77	68	42
Sacramento.	0	12.50	14.84	66	44
S. Francisco	0	20.60	17.53	66	48
San Jose...	0	17.35	12.75	68	38
Fresno.....	0	8.56	6.96	68	42
Indep'nd'nce	0	2.84	6.81	58	26
S. L. Obispo.	.10	21.84	15.20	72	40
Los Angeles.	0	13.65	11.95	68	48
San Diego..	0	12.57	7.71	64	46

The Week.

The whole Panama-Pacific Exposition belongs in the "joy zone." The grand world-show has shot away from the starting post at a gait distancing the greatest world fairs hitherto held in this country. If we remember correctly something like a million entered the gates during the first ten days, and what with the regular car lines, the sky-scraping auto-busses, the direct ferry from the East bay cities, not to speak of the herd of jitneys, everybody seems to be getting to the Fair cheaply and to bustle around without crushing in the immense grounds and buildings. The throng is coming from afar most freely. A single overland line will run in seventy-one extra trains in March, and no telling what will be done later. Every day at the fair has several great dedicatory events and the calendar seems running into a "school" of "designation" days. Governor Johnson has designated March 20 as "State Orange Day," saying: "No place on earth has developed in a higher degree the citrus industry than California. It is appropriate that in a festival spirit we pay tribute to such an important source of our happiness and wealth and material welfare." Those having notes falling due on March 20th will notice that this does not constitute that day a public holiday: pay the note the day before and get full of oranges on March 20th: juice-proof vest-covers may be had in the California Building—furnished with extra belts for those who desire to hold down the two thousand gallons of milk which will be poured into them at the Marin county exhibit. Loyal Californians are all expected to have "growing pains" on that day.

Fine Things for Depleted Europe.

We have thought so much about bread, beans and prunes for the Belgians and about the chances of getting wheat and cotton through the zone of dreadnaughts, zeppelins and submarines, that we are apt to lose sight of the fact that the obligation may lie upon the United States to do something more than cheer up distraught Europe with such common staples. It will not appear immediately, of course, for the first thing to do is to keep Europe alive and warm until her spell of delirium is over. When she resumes her stroll along the delightful paths of civilization, with the trenches filled and smoothed over and the clouds of militarism and despotism dispelled, then may come our opportunity to contribute, from our abundance, the materials for the higher culture which Europe has largely lost through worshipping inhuman ambition. And, in making this suggestion, our thought does not run to the philosophies, the esthetics and the arts. That line of preaching belongs to others. We are thinking of the higher lines of agriculture, for which we have for generations drawn impulse and embodiments from European countries. We have done well with them; we have placed many of them in the foundations of the higher American agriculture; we have improved, in some respects, much of the thought and material which are received from abroad; we have achieved with them and have prospered with them—as did the best of the actors in the parable of the talents. Therefore, we stand now able and ready to return to Europe many things which they have lost, in as good form, and in some cases better, than they ever possessed them. This claim may apply to many things in agriculture, but to none more broadly and significantly than to the domestic animals. Much has been fitly said about the woes of the peaceful people of Belgium and Northern France, but who has properly mourned and sympathized with the noble horses of Belgium and Perche, so proudly upholding equine greatness until the war forced them to die in ignoble service? And who can tell what may befall the fine horses of Oldenburg and the grand dairy cattle of Holland and North Germany before this wretched conflict is over? And what guarantee have we that other European breed-centers will not also be overrun and despoiled of their fine stock, either for war or famine?

It is a grand thing for the world that the United States, through the insight and enterprise of our pure-stock importers and breeders, has been securing, for decades, the best blood which Europe has developed and is now the safe refuge for the maintenance of the breeds which have required centuries of effort and devotion for their upbuilding. In many lines these American pure-breds have surpassed their ancestral records and will send their improved offspring to repopulate the pastures of their remote ancestors. The destruction of Europe's finest breeding animals is not to be mentioned in the same breath with the waste of manhood, of course, but it is fair to think of the relation of fine stock to the reconstruction-efforts of those who survive. It will be a beneficent contribution which America will be called upon to make to the speed and quality of this agricultural restoration in the devastated countries.

Our Resources in Live Stock.

In view of the great coming demand for food from the United States it is comforting to know that this country is again on the up-grade in its general supply of domestic animals. For the first time in many years, information collected by the U. S. department of agriculture shows that all classes of live stock in the United States are increasing in numbers. On January 1, for example, the number of beef cattle showed an increase of 3.4 per cent over the number a year ago, and an actual increase of 1,212,000 head. Hitherto the number of beef cattle in the United States has declined steadily since 1910. There are also more milch cows in the country than last year, the increase being 2.5 per cent, or in numbers 525,000. Swine, however, showed the greatest increase of all classes—9.6 per cent. On January 1, 1914, there were 58,933,000 swine in the country, on January 1, 1915, 64,618,000. More horses were on the farms than there were a year before, the increase being 233,000 head or 1.1 per cent.

These figures simply show that the American farmer is awake to the opportunity in live stock, and is seizing it. It is, of course, no sign of an oversupply, for the population increase in the United States is 2 per cent—nearly twice the increase in live stock, but it does show that affairs are moving in the right direction for the upbuilding of the country and for individual prosperity of the stock grower.

The Chance in Pure Blood.

The two things conveyed in the two preceding paragraphs are related to each other and converge in this very sharp suggestion, viz.: that as the reservoir of the world's pure blood and the possessor also of a great industry, which is now again on the up-grade, the farmers of the United States should pay even greater attention to securing and multiplying pure-blood stock, than it has hitherto. All our farm animals are advancing toward higher types, and bad-type and unprofitable stock was never so conspicuously worthless to own and to feed. Practically all the chances for improving common stock lie with the individuals which have pure blood—whether the "individual" in this case be the owner or the bull, it matters not, it is equally true both ways. Of course, progress can be made by selection from what you have—but it is about as hard and slow as prying your auto-wheel out of a rut with a fence rail. You need to jack-up the blood you have with a pure-blood; then go at the selection and you will get somewhere. But, of course, the use of good blood to improve poor blood is only one of the opportunities, great as it is, and universally applicable as it is. Even this, however, cannot be done unless proper enterprise is undertaken to breed the blood always pure and always better, for whatever particular purpose is in view. And there is the chance for selection again, and it is because American breeders have seen this so clearly and followed it so persistently that we can really claim to have individuals and strains which are better than ever attained in the countries whence the ancestry was derived. And all this work constitutes one of the most striking and significant instances of the newer way, the scientific way in farming. Common experience and observation are full of demonstrations of the practical advantage of using what we have come to call modern farm science, and though it relates to all the materials and agencies used in agriculture, it nowhere shines more brightly than in the handling of pure-bred live stock.

Therefore, we say to all readers, young and old, to whom the awakening to this new science has come, study the pure-bred as the embodiment and procreator of progress, become wise about it, put your time and money into it, wisely, discriminatingly, and with a definite purpose in view always. There is nothing which looks better at this point in the development of American agriculture than an effort for the possession of pure blood for its own sake or for its potency in improvement. It is now the time to get in, for presently everybody will be doing it.

What We Are Doing About It.

In the affairs of our publication we are working out our own faith in this matter. Probably all subscribers who have read this journal for a decade would agree that the most conspicuous feature of its newer growth consists in the increased and improved attention given to the animal industries of California. We have done this because we felt it met a crying need and a well-defined opportunity. Our specialties, based upon direct products of plants, have attained country-beating and nation-beating dimensions; they are still going and they will still go. No one can stop them and everybody can help them, in their farther development and in the solution of the new problems which arise in their courses. And one of the fundamental problems, varied, wide-reaching and elusive, must be solved for them by the building up of great live stock interests alongside, using lands not prime for fruits, increasing local markets, creating new labor and power supplies and yielding in increasing quantities a by-product for the refreshment of fruit lands. Animal manures, as compared with mineral, or as associated with them, are coming to a demonstration of value and indispensability, which was not appreciated a decade ago. It now looks as though animal fertilizers hold the key to success with the mineral. It is therefore essential to all plant industries that animal industries should be developed. Besides this, there is the value of the animal industries for their own sakes in their use of land, their demand for labor, their employment of capital, their importance in constituting a self-supporting and independent commonwealth. It seemed to us some years ago that strong effort toward the attainment of these resources should be put forth. The popular approval of the effort is shown upon the face of this journal. Although this writer has no personal knowledge of nor interest in the income of the Rural Press, except to blow in what he can get of it for picture shows and other light recreations, he is none the less sure that the popularity and business of the journal have increased 500 per cent during the last five years, or thereabouts, and it has therefore been able to do more for the upbuilding of the California animal industries than was formerly possible. And we say this because we are just at the beginning in this line of work, and this journal proposes to stay with it until the live stock industries are relatively as large, as compared with similar industries in other states, as our fruit industries are at this moment. California has the land for it. Soils and climates that make for great plants make great also the animals which feed upon them, and make prosperous the men who finance and direct the enterprises. Therefore, we say: get in the live stock line; get in the pure-bred line, because it is the basis of greater per capita production of all live stock products; get in right, because that is the way to stay in—for the enlargement of your waistcoat and the upbuilding of the State!.

Ways to Get Wise.

Of course, we do not believe that anyone can read himself practically wise, and yet we are quite sure that a man who pays a dollar a year for a journal because it has the real stuff in it, is nearer to the path of wisdom than a man who pays his money for a paper to get a combined toothpick and tack-hammer, or to get a chance to count the holes in a board for a prize. Both men get what they pay for, but which is of value in the upbuilding of an industry? Which is a support and patron of those who offer better trees, better machinery, better live stock, with which the advancement of farming is achieved? But, though a man buys and reads carefully the best there is, he still needs to see and touch things to be wise, to have his imagination kindled and his judgment sharpened. Therefore, one important function of a journal is to tell him who has the right things to see and to handle; to tell him where and how to look and to feel. Then let him go to it with his mind awakened and his senses alert. Whenever he reads that a man has or is doing an improved thing, let him go to the place, if it is within the limits of his pocket-book or his gasoline tank; see what the hullabaloo is about, see the thing, see the man—get the whole affair "oriented," as the scientists say, and which means, as nearly as we can make it out, get it all right side up and in proper relations to yourself. It is really the doing of that which constitutes the difference between the old style of farm preaching and teaching and the new. To put it more concretely, the proper way to orient yourself in this stock business is to go to the farm of the man you read about as having or doing something which you think might be profitable to you. Listen, look and handle—but don't get hold of the wrong end of a mule. By seeing, you will perceive that what you have read has new meanings and new bearings on your own case; you will be hungry to read a lot more; and a hazy impression, upon which you might have unintelligently acted, will change into conviction and a way of living and acting, or be displaced by such a thing of another kind. Such a sun may dawn for you at the farm of a breeder whom you may read about, or you may catch the light at the University Farm, where there is now the best collection of different breeds of animals in the State, or at the Panama-Pacific live stock shows, which will be seasonably held during the progress of the exposition. We count it our function, as an agency for the advancement of California agriculture, to keep you always in touch with such things, to enable you to discriminate between the breeds and to consider their several excellences in relation to your land and other conditions; to keep all good breeds before those who can best use their particular adaptations, to reduce the disposition to follow fashion too far and too closely; in short, to help our readers to get wisdom concerning all things which are worth considering in connection with the various conditions with which Californians may grow stock, use land to advantage, and make money. And you, kindly soul, who may honestly doubt whether the Pacific Rural Press can do this better in the future than it has in the past, we say: just you watch!

"I AM sure I appreciate your new flower book. I am pleased with it because it cuts loose from the unfounded traditions and superstitions of another climate and generation and adapts itself to a region where the maxim that 'April showers bring May flowers' is a misfit and a foreigner."—W. M. Bristol, Highlands.

Queries and Replies

Querists must give name and address.

TRANSPLANTING EUCALYPTUS.

To the Editor: Last year we panted some eucalyptus trees in nursery rows which are now some 4 to 6 feet in height. We are ready to transplant them, but were told that the trees will not live after transplanting. Please give your views on this subject.—W. E., Cochise, Arizona.

Dig a trench a foot deep along the row about six inches away from the stems of the trees, removing the surface earth around the stems which is not occupied by roots. Then cut down with a sharp spade, all around the tree and about six inches from it, to the depth of the spade-blade. Then cut under from the trench so that the sharp spade shall sever the roots which run downward. This will give you each tree with a ball of earth enclosing the roots which are nearest to the stem. Handle carefully and plant the ball a very little deeper than it stood in the nursery row and run or pour in water to settle the earth around the ball and cover with loose earth. You ought not to lose a tree.

RE-PLANTS IN OLD ORCHARD.

To the Editor: I wish to fill gaps in an old mixed orchard with Bartlett pears. Knowing it to be a hard proposition to grow young trees among old ones, I intend using some fertilizer in the soil. I have some nitrate of soda on hand. Would you advise using it in planting the trees? And what quantity to a tree hole? I will also use some stable manure. The soil is a heavy red clay. The old trees that are left look very well.—H. M. H., Smartsville.

The discussion already given of the use of nitrate in the tree hole is applicable to your case and you have a greater chance of needing it and being benefitted by it. But we should use plenty of stable manure over the whole ground—theoretically, to make the old trees better content with their own ground and keep them from robbing your babies. Then dig wide holes, clearing out all roots you may encounter and filling with fresh soil from away from the orchard if possible. Give the young trees plenty of water this summer, but be careful not to water-log them in the heavy soil.

REPAIRS FOR SUNBURN.

To the Editor: Can there be anything done for badly sunburned cherry trees? They are about eight years old. The bark on the south side of the trunk is peeling off in good-sized patches, but the wood is not decaying yet. I put some grafting wax on to keep the water out.—J. B., Hayward.

Take off all the dead bark, cutting around close to the edge of the injury. Paint the exposed wood carefully, with lead and oil paint, but do not cover the live bark nor put on enough to have it run down. When the paint is dry, whitewash thoroughly over the wound and all bark, likely to be reached by the sun, both on the trunk and the lower limbs.

The Causes and Prevention of "Mottled Leaf."

[Written for PACIFIC RURAL PRESS by Gordon Surr of San Bernardino.]

In the investigation of an unsatisfactory condition with a view to prevention or removal, three steps are usually necessary. These are:

(1) Making and collecting all the observations possible as to nature and occurrence;

(2) Endeavoring to learn what these observations teach regarding causes; and,

(3) Considering preventives and remedies when something is known of the causes.

Effects, in many cases, are like faith, "the evidence of things not seen." Obviously, unless the cause of trouble is known, experiments for its prevention or removal may be worse than useless, being merely a blind groping and working in darkness rather than light!

What is Mottled Leaf? The midrib and veins of a leaf are green and the rest of the leaf more or less yellow, in typical mottled leaf on citrus trees, this condition being evidently due to a lack of the green coloring matter known as "Chlorophyll." Leaves, once green, are apparently not likely to become mottled later, hence the mottling seems to result from a poor development of chlorophyll rather than from its disappearance. When chlorophyll is deficient, leaves do not produce the normal amounts of starch and sugar, and trees and fruit suffer accordingly. Chlorophyll is therefore of the utmost importance from the financial and every other standpoint. In cases of chlorosis the whole leaf is pale or yellow, including the veins and mid rib.

Occurrence of the Trouble. Mottled leaf affects citrus trees of all ages, and is generally worse on the south than on the north side of the same tree; in fact, whole orchards may look yellowish from the south and green from the north. Nowadays, many groves are not fit to be seen from the south, particularly by possible purchasers. Sheltered leaves in the middles of trees are usually less affected than are the outer leaves. In California, mottled leaf is seemingly more prevalent in the interior than near the coast, and typical mottled leaf is said to be unknown in Florida. My observations indicate that the trouble is less general with citrus trees growing where the ground is always more or less moist, such as those on lawns and near residences, which get a little water fairly regularly, but rarely much at once. On the other hand, a water-logged condition of the soil is bad for almost any tree and may bring on mottled leaf chlorosis and a host of other undesirable conditions. Mottled leaf and plow-sole may also be associated, and in some cases, the worse the plow-sole the more the trees are affected. Certain trees are much more affected than others of the same age and kind in the same grove, and orange trees are far more subject to typical mottled leaf than are lemon trees. Heavily fertilized orchards suffer from the trouble as much, or even more, than those receiving less fertilizer, and this seems to be especially true of groves in which commercial fertilizers are mainly used. Trees on various soils are affected, although the physical characters of soils and sub-soils have an important influence. Mottled leaf may be bad in one grove and practically absent in an adjoining orchard, with no apparent difference in the soils. Chlorosis and mottled leaf usually affect the leaves on the young shoots appearing soon after the tops of trees in a grove have been cut off, whether re-budded or not, and, in many cases, trees show mottled or yellow leaves after irrigating, especially in cold weather, or following cold rains. The condition also seems to vary to some extent with climatic variations, being worse some years than others; in fact, all these observations clearly point to climate as the chief indirect, but primary cause of mottled leaf. Mottled leaf seems to have become much more prevalent since the freeze in January, 1913.

Climatic Contrasts.—Naturally, we cannot change the climate, but we can modify the treatment of citrus trees to better suit the climate. If the mountain will not come to Mahomed, then Mahomed must go to the mountain, providing they meet. The orange tree is a native of warm, humid regions, probably Cochin China or the Malay Archipelago, where the soil is nearly always moist and the temperature fairly uniform. The roots, therefore, can absorb moisture and nourishment regularly, and variations of temperature do not materially affect the flow of sap. The importance of water cannot be overestimated, both in itself and as a carrier of plant food to the roots, for a tree can only take substances from the soil when they are dissolved in water, and the solutions must be weak at that. In California we have a long, dry season and the soils and sub-soils of many groves dry out rapidly, both by evaporation above and leaching below, consequently trees may only be able to get water and food from the soil for a few days at a time, during and following an irrigation. Trees, particularly in the interior of California, also experience considerable seasonal and daily variations of temperature, the maximum temperature in the shade being sometimes as much as sixty degrees Fahrenheit above the minimum in twenty-four hours, and these fluctuations doubtless interfere, to some extent, with regular nutrition by influencing the rate of sap flow. In Florida the climate is humid and the temperature generally more uniform than in arid or semi-arid regions. The supply of nourishment to trees is consequently fairly regular, and typical mottled leaf is said to be unknown. Similarly, in California, the humidity is greater near the coast than in the interior, and the temperature more even, mottled leaf being also apparently less prevalent near the coast. Soil and foliage dry out quicker on the south than on the north side of the same tree, and the south side experiences a far greater range of temperature in twenty-four hours than the north side, while mottled leaf is usually likewise worse on the south side. As already stated, mottled leaf seems to be less in evidence in the case of citrus growing on lawns, and in other places where the ground is usually moist, but rarely flooded, and here again such trees can obtain regular moisture and food from the soil. California lawns are frequently sprinkled in summer, sprinkling being a pretty fair imitation of rain. Furthermore, the roots of trees on lawns are undisturbed and many roots are doubtless close to the surface where nitrification is most active, soluble nitrogen being consequently practically always within reach. Many orange trees on lawns are, however, seedlings, and hence not so apt to show mottled leaf.

Plant Food and Water. Trees can only obtain nourishment from soils and fertilizers when sufficient water is present and, if the ground is alternately wet and dry, the plant food, actually absorbed, will be correspondingly irregular. This is particularly true of trees treated with heavy doses of commercial fertilizer, for, under such conditions, an abundance of available plant food at hand means feasts alternating with fasts. A man on a regular diet usually has much better health than one who periodically overeats and then goes without food. After rebudding and removing the tops from citrus trees in a grove, or cutting off the tops without re-budding, the young leaves first appearing usually are yellow or mottled. This is apparently due to an excess of nourishment, which is not assimilated by the leaves, and possibly also to the sap being unfavorably affected by the loss of the tree tops with the functions of the leaves formerly present. If the trees are given a chance, this trouble tends to improve with the growth of more leaves. Young leaves, in many cases, are mottled or have chlorosis following irrigations, particularly in cold weather, or after heavy winter rains, owing probably to disturbances in nutrition. A comparatively small but regular supply of water would, in all probability, keep citrus trees in good health, but naturally every effort is usually made to force them to produce large crops, thereby rendering the trees correspondingly sensitive to irregularities of moisture, nourishment and temperature, and probably shortening their lives. Artificial conditions are doubtless mainly responsible for various obscure disorders affecting many trees and plants cultivated in California. In general, plants do not grow much when the ground is cold and wet. Nitrification is then at a low ebb and deciduous trees normally rest all winter, and if their rest is disturbed by warm winter days, such troubles as sour sap may develop. Citrus trees, are, however, practically always ready to grow, and are therefore especially apt to suffer from an irregular supply of nourishment.

The Factor Nitrogen.—After an irrigation, as usually practiced, some soluble compounds tend to accumulate at or near the surface in arid or semi-arid regions, as the water is drawn to the surface and evaporated, leaving behind the substances which were in solution. Crusts of so-called "alkali" are not found in wet countries, "Alkali Ike" being a product of the arid West and not of the humid East. Nitrification is essentially an oxidizing process, whereby nitrogen is converted into a form available to plants, and this also is therefore far more active near the surface. Owing to these two factors, the water-soluble, available nitrogen, in nitrate form is apt to be near the surface for the most part, save when carried down by rain or irrigation water. The upper roots of the trees are destroyed by the constant cultivation, and the nitrate nitrogen, when near the surface, is largely above the roots of the trees. The trees, however, do all they can to take up this soluble nitrogen by continually trying to send out small surface roots, only to have them put out of commission by the next cultivation. The result is that many trees may get the greater part of their nitrate nitrogen only in the wet season, or for a few days at a time during and following each irrigation, and, owing to the colder weather in our wet season, nitrification is then less active and nitrate nitrogen less abundant. Soils fix or hold soluble compounds of phosphorus and potassium much more firmly than nitrogen in the nitrate form, consequently, phosphoric acid and potash do not tend to accumulate near the surface to anything like the degree nitrates do, nitrification being also much more active near the surface than lower down. Hence it would appear that the supply of nitrate nitrogen, actually within reach of the trees, is apt to be more irregular than is the case with phosphoric acid and potash. Nitrogen is, furthermore, commonly supposed to be one of the chief agents in promoting the formation of chlorophyll, and yellow leaves often indicate a lack of nitrogen. Most plants, for example, respond to applications of nitrogen by throwing out an abundance of green foliage, providing that other elements of plant food are not notably deficient, in fact the amounts of phosphoric acid and potash taken up by plants largely depend upon the quantity of nitrogen at hand. Mottled leaf is apparently mainly due to an irregular supply of nourishment in general, and possibly, therefore, of nitrogen in particular. The application of even large amounts of nitrogen in commercial fertilizers will not, however, prevent mottled leaf, but instead, may make matters worse by causing the roots to absorb more nourishment than the leaves can assimilate. Either slowly acting fertilizers should be used or small amounts of commercial frequently applied. I have seen bad cases of mottled leaf where nitrate of soda was alone used, and good results from blood, while neither potash nor phosphoric acid made any apparent

"I AM amazed at the multitude of things given in California Garden Flowers that I don't know. If I could get the book away from Mrs. Adams I would write a review now."—Edwin F. Adams, S. F. Chronicle.

difference one way or the other. It is, however, decidedly unsafe to generalize from a few instances.

Uneven Moisture Supply.—Plow-sole may cause great irregularity of nourishment, for, in bad cases, when irrigation is not thorough, the trees can get little from the soil until the ground is soaked by the winter rains, when they may take up more plant food than they can properly assimilate or digest in their weakened condition. Irrigation, in California, seems largely to be conducted on the popular hit-and-miss, rule-of-thumb plan, the water being often shut off when the surface is well wetted, regardless of conditions below. Yet in many cases, the ground about the roots remains comparatively dry, in which event the unfortunate trees may almost starve all summer, in spite of fertilizing. It is a simple matter, when irrigating, to drive a soil-tube into the ground and see how the water is going down. Plow-sole also prevents the air from properly getting to the soil and hinders desirable bacterial activity, the same being true of a water-logged condition due to poor drainage. A tree can hardly be expected to thrive when the soluble nitrogen is nearly all close to the surface, separated from the roots by a more or less impervious layer of plow-sole, which also sadly interferes with the supply of air, water and fertilizer.

Susceptibility of Plants.—Certain trees seem far more susceptible to mottled leaf than others of the same age and kind in the same grove. This may be owing to injury to roots, differences in soil or treatment, or to inherent constitutional peculiarities in the trees themselves, just as some human beings are more affected than others by many things. "One man's meat is another man's poison." In some recent experiments, plants were shown to respond to drugs and electricity in a remarkable manner, acting much like animals, being another proof of the close relationship between man and what we call the lower orders of life. It would do no harm, in selecting buds, to consider not only crop records but also the absence of mottled leaf, although in bad cases, the crop of fruit would be light and the quality poor. Possibly, in time to come, trees resistant to mottled leaf may be developed, but in general, the finer the organism the greater is the care necessary. A mustang, for example, will stand far more neglect than a thorough-bred, and many cultivated trees are much more sensitive than wild varieties. There would be a good demand now for "fool-proof" trees, guaranteed to thrive, and produce heavy crops of the best quality with any kind of treatment.

Differences in soils and sub-soils also naturally influence the tendency toward mottled leaf as, in this climate, the regularity with which plant food can be furnished largely depends upon the capacity of the soil for holding moisture. A coarse, porous sub-soil does not retain water long and hardpan prevents deep soaking, hence soils dry out rapidly, if underlain by either, with a corresponding irregularity of nourishment to trees. In citrus trees, water very readily passes from the roots to the tops and there is a quick response to water and to the lack of it, these trees being particularly sensitive to variations of soil moisture. They are almost continually at work and are usually artificially stimulated to do their utmost, hence require a regular supply of water and food more than most trees grown in California. Some of the older citrus trees seem to be suffering from the cumulative effects of unsuitable treatment. A man may be able to put up with unhealthy surroundings for years, his constitution, however, being slowly but surely undermined until he finally breaks down prematurely, and the same appears to apply to trees. Mr. R. S. Thompson, of Highland, California, suggests that our Citrus Experiment Station should take charge of an old, unthrifty orchard and endeavor to put it on a paying basis. This is an excellent suggestion, as much eminently practical knowledge would be gained by so doing, seeing that thousands of acres of citrus trees are now in a truly deplorable condition. In this case we are concerned with "the God of Things as they Are," having to deal with things as they are and not as they might have been. In any event, the primary aim of an agricultural experiment station should be the acquisition and diffusion of knowledge whereby growers may reap larger profits, and much good has already been accomplished. Few, unfamiliar with the work, realize the patience, care and time, required for reliable results, and we cannot expect even our new citrus station to solve difficult problems overnight, so to speak.

[It should be noted that the method of station work commended by Mr. Surr was taken up at the Riverside Citrus Station about 1907 and continued for two years. The owners of the orchard then decided to use the land for planting of another sort and the trees were cleared off before significant indications could be demonstrated. The Citrus Station is now arranging for a resumption of such orchard-reclamation work on property of which they shall have certain tenure until results are reached.

In his second article on this subject, which will immediately appear, Mr. Surr will give his conclusions concerning rational treatments for mottle leaf.—Editors.]

Grapes Instead of Useless Canes.

[Written for PACIFIC RURAL PRESS.]

"It takes less plant food for a vine to make fruit than wood." "There are thousands of non-bearing ten-year-old Thompson vines." "Most folks leave so much wood on a Thompson vine that a large part of it doesn't make a bunch of grapes, and it is the rule for the vine to die back at all the tips, and the same is true of Muscats and other varieties." "Forming a trunk on a vine makes that much more wood for the vine to support without any chance to bear fruit, and usually the trunk doesn't grow big enough so that enough sap could pass through it to support the canes that are left on it." "Each vine of five canes, coming from the crown at the surface of the ground, ought to bear ten or eleven bunches weighing thirty or forty pounds." "At 500 vines per acre, that would be five tons, and it would be a little crop." "I have a single cane four and a half feet long which produced eleven bunches that weighed over forty pounds."

Pinched to Divert Sap.—"Every bud was forced out, and as soon as they showed the 'form of a bunch' on the shoot about eight inches long (five inches for Muscats), the two which did not show the "form of a bunch" were broken off close. This put the force of the sap flow into the other shoots and forced out the branches and berries. Those that, did show a bunch of embryo buds breaking away from the shoot were at once pinched back long before blossoming time, just enough to remove the growing tip. The effect of this on each bunch was to swell its stem and the wood leading to it until there was ample channel for sap to flow into the bunch. The shoot beyond the bunch atrophied more or less instead of drawing the sap past the bunch and using it in wood growth that would have to be cut off at the next pruning. Removal of the tip was a benefit, because all new leaves must draw their plant food from the vine and from older dark-green leaves. The force of sap from the roots had to go somewhere, and the result was an enlarged sap channel into the bunch. This pinching had to be done within a period of ten or eleven days. If delayed longer than that from the first appearance of the embryo buds, the cells leading to the stem of the bunch would become hardened before the pinching, and then they could not swell to make the increased sap channel into the bunch."

"Thus that bunch and its berries cannot get as much sap as otherwise, for the same reason that less water can flow through a one-inch pipe than a two-inch one. The early individual pinching not only diverts sap into the bunch already started, but also forces out other fruit buds that would have remained dormant. It does this so early that the second crop may be picked right after the first crop. It gives the second crop time to ripen before frost."

Crown Heading Economical.—"But forming the head at the ground, especially with Muscats, would allow the grapes to rest in the dirt even more than they do now. To avoid this, a basin is kept open around each vine. This permits the vineyardist to keep off the objectionable surface roots, as pointed out in the article on making cuttings. Grapes hanging in the basin are much more protected from the winds and heat which cause the so-called sunburn.

"Absence of a trunk has several other advantages. It provides no loose bark to protect insects and fungus diseases. It makes all of the wood fruit-bearing, and as close to the source of supply as possible. It removes the need of nourishing the trunk with elaborated sap that ought to go into fruit. With a trunk the tendency is always for the top buds to grow at the expense of lower ones. If lower ones start, they are smothered by the shade of the others."

Thus spoke Frank Henry, who has been called to the limelight in Fresno county largely on account of his success in semi-rejuvenating in one year the vineyard of G. Albert Smith, near Sanger. He has been called time and again to give demonstrations and lectures to vineyardists in all parts of the county. Hundreds of his hearers will try out his ideas on portions of their vineyards this year. Among these is Wylie Giffen, who wishes to be understood as not endorsing the system, yet after having spent a day with Mr. Henry in Mr. Giffen's own vineyard, has pruned random rows by the new system, and will follow Mr. Henry's instructions to give it a fair test in a big way.

How to train newly planted vines so as to get the most out of this system, both for crops, freedom from disease, ease of training and length of life, will be told in a later issue.

UNIVERSITY EPITOMES.

Citrus Fundamentals.

[By Prof. J. Eliot Coit, University of Cal.]

The most important factors in successful citriculture are: The soil, favorable climatic conditions, irrigation, fertilization, cultivation, healthy, vigorous trees, careful pruning, membership in a strong selling association.

Sour orange is the best root stock, broadly speaking.

High-budded trees are most resistant to disease.

The control of scale insects costs six per cent. on two hundred and fifty dollars for each acre annually. Scale-free districts need not pay this tax.

Plow-sole and hardpan decrease yields.

Maintenance of the humus content of arid soils increases yields.

Allowing the roots to dry during transplanting kills trees.

Allowing the soil to become too dry once makes trouble for a year.

Suckers cannot be depended upon to grow into profitable branches.

Frequent pruning of lemons increases yields.

Top-working old orchards is usually unprofitable.

Orchard temperatures may be economically raised ten degrees with oil heaters.

Radiated heat is more effective than heat of convection.

Fruit decays are caused by fungus parasites.

Tent-cured lemons ship better than tree-ripe fruit.

Toadstool fungus is fatal to citrus trees.

Lemon gum disease may be cured with Bordeaux paste.

Scale insects are most economically controlled by fumigation.

Walnuts should never be set less than sixty feet apart. This looks like wasted land, but intercrops or shorter lived trees may be set between, if the fertility is not exhausted and other crops are not raised within a few feet of the trees.

"CALIFORNIA Garden Flowers is intensely interesting."—Leonard Coates, Morganhill.

Manure is Best for Raspberries.

[By J. H. Stahl, Horticulturalist, Wash. Col. of Agr.]

During the past three seasons this Station has been testing the value of fertilizers on two or three red raspberry fields in the Puyallup Valley. For the most part this work was done in the fields of Robt. Alexander of Puyallup and H. Shepherd of Alderton.

In the spring of 1912 an old field was selected on the Alexander place half of which had received a good dressing of barnyard manure at the rate of twelve tons per acre. The other half had received the same amount of manure the previous fall. Commercial fertilizer plats were laid out on the fall-manured portion of the field and these were duplicated in the spring-manured portion. Check plats were also selected on which no fertilizer was applied. The fertilizers used were lime, potash, blood, bone, nitrate of soda and superphosphate. Some were applied singly and some in various combinations. Although the tests were made only during one season there was a marked difference between the fall and spring manured portions of the field. That part which received manure the previous fall showed a better cane growth and produced a 20 per cent. higher yield of fruit. Of the commercial fertilizer plats, those on which a complete fertilizer containing a combination of potash, phosphorus, and nitrogen, gave best results. There was no appreciable difference between the plats treated with 50, 100, and 200 pounds of sulphate of potash, per acre, and very little difference between them and the checks, or untreated plats.

During the same season commercial fertilizers were applied to a young field of Cuthbert red raspberries which had never received fertilizer of any kind. About the same commercial fertilizers were applied on this field as on the older fields, but the plants bore fruit for the first time and very little difference was noticed between the treated and untreated plats. During the season of 1913 the test was continued in the young field as before, but greater differences were noticed. Six plats were used in the test and fertilizers were applied as follows:

Plat 1 received an application of 1 ton of air-slaked lime per acre.

Plat 2 received 100 pounds of sulphate of potash and 1,000 pounds of lime per acre.

Plat 3 received no fertilizer but was used as a check.

Plat 4 received 200 pounds of sulphate of potash per acre.

Plat 5 received a complete fertilizer. This was a combination of 100 pounds of potash, 100 pounds of blood, 50 pounds of ground bone, and 50 pounds of superphosphate per acre.

Plat 6 received 100 pounds of potash per acre.

Plat 5 gave the highest yield of fruit and plat 6 the next highest. Plat 4 and plat 1 gave somewhat higher yields than the check plat 3, but plat 2 gave a lower yield. These records show that complete or combination fertilizer gave the best results, which would naturally be expected on a new field. A careful examination of the soil at different depths, however, showed that the field was very "spotted" or variable in soil type and consequently in physical condition. This fact alone might cause the difference in crop yields on the different plats.

During the past year no fertilizer was applied, but records of crop yields were again made to follow the effect of the previous fertilization. In general the plats which yielded the largest crops of berries last season again produced the best yields, but there were some exceptions. Results of these two years' tests show that the complete fertilizer produced the heaviest yield of fruit. While there was little difference in 1913 in the yields of the plats receiving 100 and 200 pounds of sulphate of potash respectively, in 1914 the plat that had received an application of 200 pounds of potash produced 20 per cent more fruit than the other. The plats that received an application of lime yielded no more fruit than the check or untreated plats.

During 1913 six fertilizer plats and three check plats were laid out in the field of Mr. Shepherd. Records were not as carefully kept of these plats as of those in the Alexander field but on the plats where manure was applied, the effect was very noticeable. The cane growth and crop yields were considerably greater than on the untreated check plats.

We have yet to learn considerable regarding commercial fertilizers. In all of our tests the soil was plowed and worked down fine before the fertilizer was applied. After distributing the material evenly over the surface of the field it was lightly worked in with a harrow.

From these tests we have learned that farm manures are the best general fertilizers that the berry growers of western Washington can apply to their fields. Manure applied in the fall gives quicker results than when it is applied during the spring.

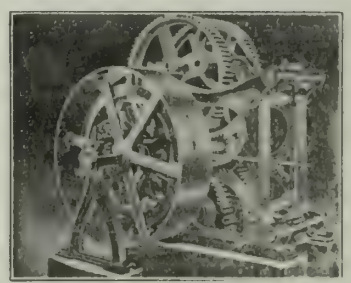
WHAT SIZE FARM?

To the Editor: In your article of "Diversified Interest and Hogs" in the issue dated February 27th, you speak of Mr. Lamb's farm being small, but you do not give the size of it. What size is his farm? What size do you think a small farm should be to do intensified farming?—E. C. T., Arlington.

[The size farm needed to do diversified farming and make a good living depends entirely upon the man, land, and nearness to markets. Mr. Lamb has 20 acres. That much land in some localities would be considered too much for one man to handle, but in most parts of the large interior valleys 20 acres can be cared for by one man and will afford a family a comfortable living if properly managed. As we have repeatedly said in the past, we cannot set down sure rules for success for any of our readers. If you have 20 acres of good alfalfa land, water and ability to manage it, you should be able to make a comfortable living.—Editors.]

Begin the cultivation of transplanted plants immediately after they are set.

Pruning is profitable when properly done.



Pomona
DEEP WELL
Pumps

For deep lifts, as well as shallow lifts combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalogue 104,
with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.

SURPLUS TREES

AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS.

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of **Grape Vines.**
Fine supply of **Olive** and **Citrus** trees; also Grape **Vines** in **Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha,** etc., etc.

Mission Olive Trees in our Nursery at Fresno propagated from selected large Mission Trees.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast. this spring, wire us (our expense) for quotations on If you will need some stock your orders.

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

ORANGES NEED LIGHT AND AIR.

(Continued from page 321.)

dead wood can be done at any time and without fear of harm to the tree, as nothing can be gained by the presence of dead and rotting wood in the tree top. The great problem to be solved in the matter of dead wood is the cause of the dead wood.

Much of it is probably caused by the lack of light and free fresh air in the tree. This can be remedied by a more or less generous thinning out of the sides and top of the tree. The careful observer will often find, however, two trees side by side and, from without, presenting the same appearance of dense growth; one tree will be found full of dead wood and the other full of green and healthy fruit wood. That there is some other factor than density of foliage would seem to be evident, and many are coming to the conclusion that some form of fungus is responsible for the dead wood in many if not all cases. If such is the case it would seem that some fungicide spray for the inside of the tree top, reaching from the ground to the point where the smaller branches join the main limbs, would be advisable.

Topping Restores Fruiting.—There have been cases where a severe top pruning of orange trees has restored the health and fruiting ability of the trees when it seemed that all other means had failed to make the tree respond. A tree on our own place seemed to be a very persistent drone, and the decision was made to bud it over to better fruiting stock. One limb was left on for shade and the support of the sap flow, and that limb has more fruit on than the entire tree had been in the habit of bearing.

Severe pruning will be followed by an excessive sucker growth, and good care will be required to give the tree a top that will be a good fruiter, and not a mass of slim long branches of little value for the support of a crop.

Pruning the orange is largely a matter of individual opinion, but there is little doubt that it is good practice to let in plenty of light and air. This can be done by giving the tree a somewhat corrugated shape by pruning out largely in certain spots, and thus offering a large surface to the light. The Navel tree naturally tends to this form and will not require much shaping; the Valencia takes more uniform shape but is not so dense, and either of them will naturally take pretty good care of themselves if they are kept free of dead wood and suckers. If the pruner does not feel sure how to make the best cut, it is better not to make it until he does know. If a branch is left in, it can be cut out later, but once out it cannot be replaced.

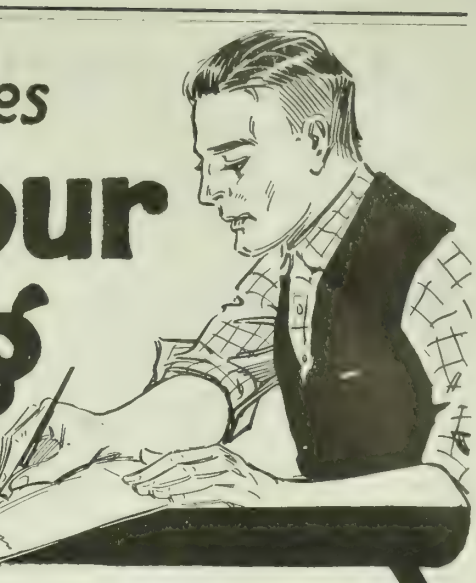
The recent receivership appointed for the Rumely Co., La Porte, Ind., need not give intending buyers of their machines any worry, according to J. B. Benson of that company, who says that machine parts or repairs will be furnished, as usual, for all users of their machines and that their business is going on just as actively as usual.

No other citizen realizes the value of good roads as does the farmer.

"Whiting Mead, Los Angeles

Send me your New Catalog

-I wouldn't be without it!"



"I have had your last catalog for eighteen months and know I have been saving money, for I always compare your prices. I am more than pleased, as I am getting the best when I buy building material from you, and if I am not satisfied, I always take advantage of your liberal money-back guarantee."

This is what one of our customers writes. Are you convinced? Send coupon below for our 1915 Catalog and save money.

WE LEAD THE WORLD ON PAINTS

Standard House Paints, High grade, 24 colors—per gal..... $1.50
Black Graphite Roof Paint—per gal..... 50c
Standard Roof Paints—red, green, gray per gal..... 85c
Shingle Stain, made from pure ground colors—per gal..... 50c
Everything in Paints, Wall Brushes, etc., at big savings to you. We ship direct. Tints.

SASH AND DOORS AT UNHEARD-OF PRICES

Two light double-hung windows, 1¾ inches thick, best American window glass. All sizes. Prices up from..... 60c
No. 1 Colonial door, selected kiln-dried Oregon pine. All stock sizes. Prices up from..... $1.50

"STANDARD" ROOFING PAPER

1-ply, double-sanded, per roll of 108 square feet..... $1.15
2-ply, double-sanded, per roll of 108 square feet.... $1.40
3-ply, double-sanded, per roll of 108 square feet.... $1.65
1-ply, "King" smooth, per roll of 108 square feet.... $1.25
2-ply, "King" smooth, per roll of 108 square feet.... $1.50
3-ply, "King" smooth, per roll of 108 square feet.... $1.75
Above prices include cement and nails ready to lay. Send for samples.

HEAVY 2-POINT GLIDDEN GALVANIZED BARB WIRE

Per hundred lbs. (catch weight reels)..... $2.75
Same as above—80 rod reels—per reel.. $2.25

THIS SPECIAL STEEL ENAMEL BATHTUB

A wonderful bargain! Made of finest galvanized 24-gauge steel. Outside finished with a rich Sky-blue enamel, bronze trimmed. Price only $8.00

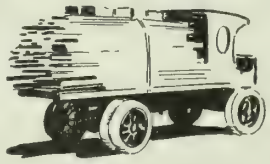
Others larger in size at $8.50, $9, $10. Just the thing for your house.

TOILET COMBINATION GUARANTEED—LOWEST PRICES

Low Down Enamel Steel Toilet Combination..... $11.50
Complete to floor—wonderful value. Low Down Vitreous China Closet Combination..... $15.50
Special value—worth $22.50. Big values in High Tank Toilet Combinations $10.00
Complete to floor — a bargain.

COMPLETE LINE OF LAVATORIES AT LOWEST PRICES

Best Quality Porcelain Lavatories; every one guaranteed—$10 down to..... $3.75
Steel Enameled Kitchen Sinks—worth $3.50..... $1.50



Light special galvanized barb wire in 80 rod reels—per reel. $1.75

GALVANIZED POULTRY NETTING

2-inch mesh all heights—150 lineal feet in a roll—per hundred sq. feet—full rolls..... 45c
1½-inch mesh, in full rolls—per hundred sq. ft..... 55c
1-inch mesh, in full rolls—per hundred sq. ft..... $1.00

GALVANIZED CORRUGATED IRON

Look at this! Corrugated gavanized iron, 2-inch corrugations, from 6 ft. to 10 ft. long. This is in perfect condition and won't last long at this special price. Per 100 square feet..... $3.75

WALLBOARD

The highest grade wallboard on the market; made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.
Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet..... $19.00
This is a $30.00 Value.

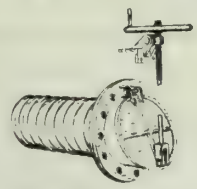
Don't fail to send this coupon and receive our new 1915 catalog. You'll be surprised at our wondrous prices on high-grade building material.

LUMBER

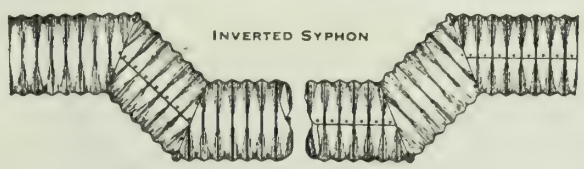
Send us your list for our estimate. All lumber delivered to your nearest railroad station. Don't fail to get our prices. I will mean a big saving to you.

WHITING MEAD COMPANY
9th and Maple Avenue, Los Angeles, California

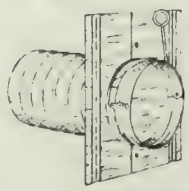
Whiting-Mead Company, 9th & Maple, Los Angeles, Calif.
Please send me your 1915 Catalog.
Name.....
City.....
State.....
P.R.P.



HINGE GATE



INVERTED SYPHON



4-C GATE

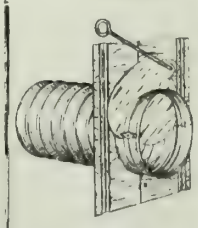
SLIDE GATE

Irrigation Gates

For use in connection with RUST RESISTING AMERICAN INGOT IRON CORRUGATED PIPE. All stamped with the approval of experienced irrigators. The cuts show only part of our line. Write us your requirements. Consult our Engineers.

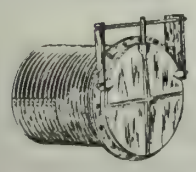
California Corrugated Culvert Co.

417 LEROY ST., LOS ANGELES.
406 PARKER ST., BERKELEY.

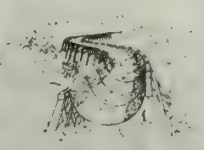


4-C GATE

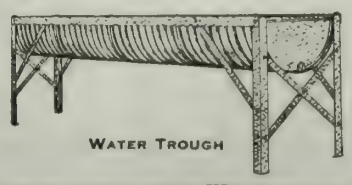
SIMPLEX STOCK TROUGH



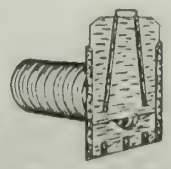
AUTOMATIC TIDE GATE



LENNON FLUME



WATER TROUGH



BERKELEY GATE

WITH SCREW LIFT

Grape Cuttings Upside Down.

[Written for PACIFIC RURAL PRESS.]

"We do not pay attention to heredity in horticulture, but we do with everything else in agricultural lines," says Frank Henry of Fresno county, "but it is as necessary to know the desirable and undesirable qualities of the ancestors of a tree or vine as it is to know the production of a good dairy cow's ancestors."

Grape cuttings should be selected soon and may be selected from any good producing vineyard. In choosing the vines from which to take cuttings, notice the stems on the canes, which will reveal the size and number of the bunches grown on those canes; also notice the amount of wood growth and its vigor. Most people in selecting cuttings will take as many as they can get from any vigorous cane they come to. Mr. Henry says there is only one good cutting on a cane, even if it is 20 feet long; and there are no good cuttings at all on any cane which has not shown vigor, fruitfulness, and freedom from disease.

This cutting consists of about 16 inches of the base of a cane and is well taken off with a small piece of the old wood attached. Both ends should be cut square across the bud in order to leave no open pith exposed to the weather. Cuttings taken from farther out on the vines make a weak growth, slower to profitable bearing, and less fruitful. It won't hurt if the buds are even swelled some, provided good care is taken of them.

Bury Cuttings Upside Down.—It is well to tie them in bunches of 200 after first setting each bunch on end on a flat surface to get all ends even. A pit is dug in the moist ground, not too wet, deep enough to set the cuttings in with the butt ends up, and cover them with four or five inches of loose dirt. The sun shining on this dirt covering will warm up the butts first, starting the callus and the roots which come from it. It is best not to allow the roots to grow more than an inch or so long before planting in the vineyard or nursery. They are so brittle that any rough treatment at all breaks them off; and cuttings usually suffer less in transplanting if the roots are only just started.

The upside down position of the cuttings keeps the buds dormant while the warmth of the surface soil draws the plant food toward the butts and starts the roots growing. Then when the cuttings are set out in the vineyard, the buds of the top will be warmed up, and the plant food will ascend to them within a week. During that week the roots have established themselves and begun to draw food from the soil to supply the buds, so that after all, not a great deal of the reserved plant food in the canes is used for the production of buds. Thus, the new vine is started in a more vigorous condition with more reserve material on hand.

Only one bud should be left above the ground, and the cuttings set vertical so that they may be cultivated close, and all roots kept off except those from the callus. One bud is enough to start the plant, and when set at that depth, the callus roots are far enough down to be below danger from drying out of surface soil. If roots are allowed to grow from the other buds under ground, they will dry up at the first drying of the surface soil, but they are not likely to die. The trouble is that they draw on the plant food in the vine, and on the supply produced by the deeper roots, thus robbing the above-ground growth of the vine and crop. They seldom make enough vigorous growth to supply a great deal of food to the plant except in thoroughly irrigated vineyards, and this robber tendency makes it advisable always to keep them off.

A cutting set slanting in the ground is more or less likely to be taken out by the cultivator in trying to get as close as possible; for the underground part will extend sideways to quite a distance from the point where the cutting projects from the surface.

After being planted, the cuttings should be sulphured every ten or twelve days, according to Mr. Henry, because sulphur is a "pest-destroying substance, germs won't live in it, and it doesn't hurt the vines at all." There is little use in starting vines carefully and allowing disease to get them for lack of the comparatively little work and expense required in keeping them sulphured.

In connection with this means of planting cuttings, Mr. Henry emphasizes the great need of more cultivation to take the place of much of the irrigation now practiced.

FRUITS DEMANDED AT FRESNO.

[Written for PACIFIC RURAL PRESS.]

Geo. C. Roeding of Fancher Creek Nurseries:

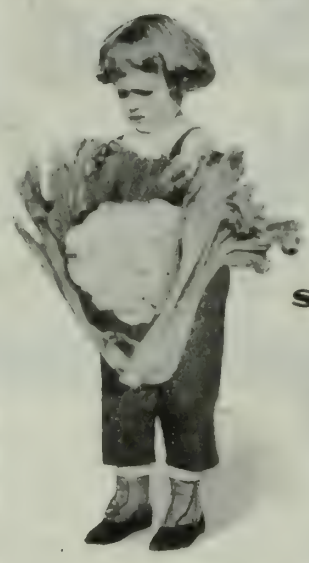
Prunes and pears have led in the sales for distant parts. There has been a heavy demand for cling peaches, also olives; and for apricots on myrobalan for the coast counties. No sale for wine grapes; Muscats only 1-10 the number of Thompsons for local planting.

W. T. Kirkman of Kirkman Nurseries:

Demand has been heaviest for apricots, prunes, and pears in the order named. Sold a quarter million apricot trees to Pajaro and Santa Clara valleys. Expect heavy planting of apricots for a year or two because stocks of this dried fruit have been cleaned up at good prices, heavy shipments having been made to Europe. These three kinds of fruits may be planted until Apr. 1, but peaches and plums will be too far along at that time to plant safely. It is a little late now for almonds, but the planters have been supplied and the nursery stock is all sold. There has been a fine demand for them. Nobody is planting freestone peaches and many are digging them up. It's almost a safe bet that freestones will pay better than clings in three of four years. There has been a heavy planting of Adriatic figs and quite a few Smyrnas. A few lemons, avocados, and pomelos have been sold for planting in the eastern foothills, but few oranges.

Wherever deciduous orchards are planted in suitable locations for olives, olives ought to be planted about 40 feet apart, so ¾ of the orchard would be deciduous until that fails and may be taken out,

GARDEN COLLECTIONS MADE TO ORDER



Economize. Produce is high and every vegetable you buy is money lost. You can grow clean, fresh, crisp vegetables, flowers and fruits in your back yard or on that little ranch, with profitable pleasure. School children make it a success. So can you. To help you we offer our latest and best innovation, "Made to Order Garden Collections" of insecticides, trees, plants, flower and vegetable seeds; all

SEASONABLE IN MARCH

Our offer allows you to make your own selection from a large variety of seasonable vegetable and flower seeds, trees, plants, insecticides, etc., at one-third less than regular price. Every Collection includes our new and beautifully illustrated catalogue which is so complete in descriptive matter and cultural directions as to earn the title of

GARDEN ENCYCLOPEDIA—FREE

We issue a special pamphlet explaining our "Made to order collection" offer. Write NOW for PAMPHLET P

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

We Raise 60 and 70 Bushels of Corn Per Acre

and GUARANTEE you the same. HOW? Get acclimated, pedigreed seed. Note results. 1904 bought 80 bushels per acre Nebraska pedigreed seed. See our yield same year 25 bushels. 1905 selected and planted. YIELD 35 bushels, etc., until now we have the above results.

Price F. O. B. our station:

Select on ear $4 per 100 lbs.
Select shelled $4 per 100 lbs.

ROUGH'S GREENFIELDS, Arlington, Riverside Co., Cal.

FINEST NURSERY STOCK IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

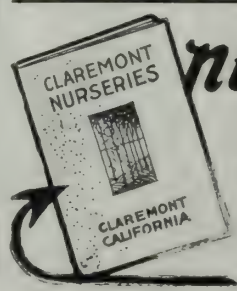
TUSTIN, CALIFORNIA.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

Write for this Nursery Catalog



Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

leaving the olives just about the right distance apart. The taste for ripe olives, and thus the market for them, is expanding faster than the planting.

No wine grapes are being planted, very few Sultanas, few table varieties in Fresno district, but heavy Thompson Seedless, which compose about 70 per cent of the sales, Muscats being between 25 and 30 per cent.

James Madison of Associated Raisin Co.:

Would urge that no more raisin varieties be planted. Thompson Seedless are being overdone, for two reasons: We are already producing as many raisins as can possibly be marketed; and when the State goes dry a large percentage of raisin grapes will have to be pulled up. No tangible results can be claimed yet from the advertising or from the small packages—it is too early to judge that.

[We have more faith in the Associated Raisin Co. than Mr. Madison expresses, for we believe that standardized packs of clean fresh raisins, in household sized packages and thoroughly advertised, will increase raisin consumption to keep pace with production. The Associated has already signed up half of the northern raisin growers, according to Mr. Madison. A remarkable loyalty of all members to the organization is commended by him. Out of over 6,000 growers under contract to deliver their raisins to the Associated, Mr. Madison reports that only 20 tried to kick out and only two had to be sued. Moreover, raisins can be landed in New York ½ cent a pound cheaper via Panama than by rail, which ought to increase consumption by lowering the price, or else revert to the growers' pockets.—Ed.]

C. A. Chambers, Sec'y. Fresno Nursery Co.:

Orders are good and business up to the average, in spite of the tight money of the past winter. There has been a heavy demand for all varieties of cling peaches and Royal, Blenheim, and Tilton apricots. Good demand for figs, principally Adriatics. With olives, Manzanillo and Mission predominate because they are regular bearers and dual purpose olives. The large varieties as Sevillano and Ascolano, mostly for green pickles, are not much in favor as compared with those for ripe pickles which are a food rather than a simple relish, and are consumed in corresponding quantities. There is a big demand for Thompson Seedless, fair for Sultanas, and good for Muscats, none for wine grapes. A big demand for assorted home orchards, and for ornamentals to be used by improvement organizations has been felt.

BERMUDA IN VINEYARD

To the Editor: Would you kindly advise me through the columns of your paper the most effective way to rid a vineyard of Bermuda grass. It is only a small plot of about ¼ acre where the grass is, but it is very rank. I do not irrigate in it.—Reader, Hanford.

[We haven't much confidence in getting out Bermuda without taking out the vines so the whole land can be treated. The grass can be killed out by running a weed cutter under the surface once a week for a season or two—never allowing the grass to show a bit of green on the surface.—Editors.]

Plant "ARMSTRONG" Olive Trees

If You Want High Grade

Olive Trees

at

Lowest Prices Obtainable

—write or wire me, stating number, size and variety of Trees wanted and I will quote you attractive prices.

If you have not placed your order for Olive trees you cannot afford to do so until you get my present prices.

I can supply you with the best Olive trees to be had in the State,—trees that will start right off and grow—trees that are scientifically propagated—trees that will bear an abundance of fruit—trees that will be highly profitable—no disappointments. I can ship promptly, and guarantee safe deliveries to all points in California and Arizona.

Write or wire for prices today.

Ask for a Free Copy of My 64-page Illustrated Catalog of General Nursery Stock.

Armstrong Nurseries

ESTABLISHED 1889

Ask for a Free Copy of My "Booklet" on Olive Culture

JOHN S. ARMSTRONG, Proprietor

406 Euclid Ave.

Ontario California

Bordeaux Mixing and Testing.

[By W. J. Allen, Farmers' Bulletin, New South Wales.]

Formula.—Copper Sulphate (bluestone) 6 lbs, lime 4 lbs.; made up with twenty-two gallons water for winter use, and fifty gallons water for summer use.

Bluestone Solution.—For the copper colution, wooden vessels are preferable, though copper vessels may be used. Iron vessels should be avoided. For the lime, use wooden tubs or barrels. Do not leave the mixture in the spray-pump, as it will slowly attack the copper; but when the spray is finished, pour it away and wash the pump and hose well with water.

Samples of "bluestone" are often received which contain a quantity of sulphate of iron. The following hints will enable anyone to detect such a compound. Bluestone should be in the form of dark blue crystals (the adulterated mixture referred to is light blue, like sulphate of iron). They dissolve completely in water—readily and completely in hot water or water to which any acid is added.

In order to test its purity still further, add ammonia. A pale-blue precipitate is formed, which dissolves to an intense blue color. This solution should be perfectly clear, and leave no sediment on standing. If a reddish sediment settles, it is due to the presence of iron.

It is immaterial whether hot or cold water be used to dissolve the bluestone. If the mixture is to be made in a hurry, it is best to boil the copper sulphate in water. If there is plenty of time, use cold water, but in this case the bluestone must be suspended in a porous bag (bit of muslin or sacking) as near the surface of the water as possible. If the bluestone is thrown into the vessel, and water poured on the top of it, it will not dissolve in a week. When suspended as described, it should dissolve in about twenty-four hours.

The bluestone solution when made must be diluted largely, before the lime solution is added to it. This is a very important point. If the copper solution is too strong, the precipitate formed is thick and heavy, and liable to clog the nozzle of the spray-pump. If the copper solution is made by dissolving the bluestone in a small quantity of hot water, this point is of special importance, and the solution must be largely diluted before adding the milk of lime.

Lime Should be Fresh.—The lime, which should be freshly burnt, is slacked with a small quantity of hot water. If the lime is good it should become hot, crack asunder, and give off a quantity of steam, finally crumbling into a white powder. The success of the mixture depends to a great extent on the manner in which the lime is slacked. The common fault observed in practice is the addition of too little water, which results in the development of too much heat and the burning of the lime. In this case there are many small lumps that do not completely slake, and will be thrown out when the lime is strained into the spraying vat. Lime should have constant attention during the process of slacking; water should be added in small amounts as needed to keep action even and to insure perfect slacking.

The best freshly-burnt stone lime only should be used. To test, place a few lumps in a small heap and sprinkle with water. The water should be absorbed by the lime, when the latter gradually falls to pieces, becoming very hot in the process, and giving off a quantity of steam. It gradually crumbles to a fine, white powder. If it does not get hot enough to give off steam, it has not been freshly burnt.

If, in addition to this, the lime is not pure, and has been burnt some time before being used, it may quite easily happen that, instead of the above quantities of lime being in excess of what is required, they may be altogether insufficient for the purpose, and that the solution may contain free copper sulphate. Assuming that free copper sulphate, even in small quantities, does "burn" the foliage, and that it is undesirable to have any in the mixture on this account, it appears preferable to have no fixed quantity of lime, but simply to have a definite quantity of copper, and to add the lime until the copper is neutralized.

In order to know when the copper sulphate is neutralized, the readiest test is ferrocyanide of potassium; but it is important to remember that at a certain point ferrocyanide ceases to give the characteristic coloration (in such a solution as we are dealing with), although there is still unaltered copper sulphate in solution. In other words, the solution may contain sulphate of copper in such a condition as to burn the foliage, although the ferrocyanide test, applied as directed, does not show it. Therefore it is important to remember that the mixture is not ready for use when ferrocyanide no longer gives a red color,

---delighted!

You will be delighted with

The Commercial Engine

Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.
2416 PORTER ST., Los Angeles

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

TREE PLANTING
20 years' experience in Northwest and California. Average price 10c per tree. Go anywhere. Work guaranteed, or no pay.
F. C. Caswell, Orland, Glenn Co., Cal.

"Behind each tree is our guarantee"

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL.

NOW
IS THE TIME TO PLANT YOUR FRUIT TREES
IT IS A MATTER OF DAYS NOW AND THEN YOU LOSE A WHOLE YEAR

Send Today for Our Revised February Stock List

If you know just what trees you want and which root stock, etc., you wish, do not wait for the revised stock list. Send your order, and if trees are still in stock we shall immediately fill your order.

Time is Valuable—
ACT NOW

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

THE OAKLAND REVOLVING BOWL SCRAPER.
A Fresno Scraper that loads and dumps almost automatically. It is also a first-class leveler; is made in four sizes—five, six, seven and eight feet. When used tandem they will level from 10 to 16 feet wide at one operation. Write us and we will tell you all about it.
GRAVES SPEARS ROAD MACHINERY CO., Oakland, Cal.
Sales Agents for all kinds of land levelers, scrapers, plows, farm tools, concrete mixers, etc.
ASK FOR CATALOGS.

A 40-ACRE EQUIPPED FARM
in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.

SPECIAL: Land absolutely above all flood from rivers; titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms. I want to show you this specially selected piece of land.

OUR CO-OPERATIVE BUYING-SERVICE will enable you to get any acreage, in certain selected tracts, at strictly wholesale values. You should know about this. Write today.

DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

GIANT WINTER **RHUBARB**
NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

but that a quantity more lime (even half as much again) must be added.

Instead of ferrocyanide, a rough test to show when sufficient lime has been added consists in placing a clean knife-blade in the mixture for a few minutes. If there is no red stain on the knife-blade, the copper solution is neutralized. When this point is reached, add more lime.

Mixing the Prepared Lime and Copper.—The mixture must be made by pouring evenly into a third vessel the milk of lime and copper sulphate solutions. It is best to strain the materials when pouring them together. It is important that practically equal amounts of the two solutions are poured together at the same time. Do not pour the copper sulphate into the milk of lime or vice versa, but both together into the third vessel. If this is not done the proper chemical combinations will not take place, sediment will form which will produce clogging at the nozzle, and proper results will not be obtained by the spraying.

Capri Fig Varieties.

[By G. L. Rixford, U. S. Dept. Agr.]

One of the important requirements in successful Smyrna fig growing is an assortment of good capris. Since the industry is absolutely dependent on the Blastophaga, varieties should never be grown which fail to carry through a good winter (mamme) crop, which insures an abundant June (profichi) crop. A good profichi caprifig contains a good staminate cluster with an abundance of pollen, and should be followed by a good late summer (mommoni) crop. The last mentioned is of more importance than generally supposed. Some otherwise good capri varieties almost fail to produce the mammoni crop, or fail to yield these figs at the proper time to make the succession of generations of Blastophaga complete. A gap in the late fall crop is fatal to the winter crop upon which the main or profichi crop depends. It is recommended that at least two good capri trees be planted for each acre of Smyrnas and that these trees be planted in a clump by themselves, and, if possible, in the spot on the ranch most free from frost. It is well known that some of the capri varieties in cultivation fail to produce some of the three crops; it is therefore advisable to plant several varieties of capri trees, because they will assist each other in keeping up the succession of insects.

It is perhaps unnecessary to mention a list of desirable capri varieties, as this has been done repeatedly. A few words should, however, be given to the Abyssinian species, Ficus pseudocarica, still new and little known in California, because in some features it is unique among caprifigs. First in importance is the fact that the over winter crop is provided with stamens, which the Smyrna fig is not. These were first noticed by Walter T. Swingle of the U. S. Dept. Agr. They are important as a source of pollen available sufficiently early to pollenate the first crop Smyrna and other early figs. Another feature of importance is that during the past winter of 1913-14, which was disastrous to the mamme and consequently to the succeeding profichi crop of Smyrna capri, almost throughout the state this variety in Imperial valley and at Santa Barbara, where the oldest trees of the species are established, produced unusually heavy mamme and profichi crops. It is possible that climatic differences may account for the large crops in the localities mentioned, but its performance in other localities will soon be determined because the species has now been widely disseminated.

Preserving Mamme Caprifigs.—For the third time the writer has made successful experiments in preserving mamme caprifigs through the winter, first attempted by Henry Markarian of Fresno. On Dec. 19, 1913, very soon after oviposition had taken place, a quantity of mamme figs were taken from the trees at Loomis. These figs were packed in damp sand and damp sphagnum in ordinary fruit jars and other receptacles and were kept in an outbuilding near an open window in San Francisco. With few exceptions, the figs kept in good condition and on April 13 the Blastophaga commenced to issue when removed from the packing and placed in a sunny window. I sent a portion of them to Kingsville, Texas, and the party reported that the figs arrived in good condition with the Blastophaga issuing, and when placed in his trees began to enter the profichi crop. It seems that there is sufficient latex in the fig and protoplasmic matter in the ovaries to feed and develop the insects and all that is needed is moisture enough in the packing material to prevent drying out. In gathering figs for preservation, it is well to take the best developed specimens.

When moisture is scarce, don't leave your soil with even little ridges on its surface. A flat smooth dust mulch exposes much less surface to evaporation than a corrugated finish.

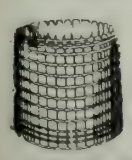
Mission and Manzanillo olives grown without irrigation by J. F. Ricketts of Sacramento county on heavy land are larger and firmer than others of the same section irrigated.

San Jose Berry Nursery

SEEDLESS, EVERBEARING BLACKBERRY

St. Regis Everbearing Raspberry. Specialties.

Room 7, 193 S. 1ST ST., SAN JOSE



Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

OLIVE TREES

Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.

THEODORE PAYNE,
345 S. MAIN ST., LOS ANGELES, CAL.

MANURE

Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or Write
PACIFIC MANURE & FERTILIZING CO.
420 Davis St., San Francisco.

TREES

THIS IS THE BEST TIME FOR PLANTING, and every planter should place his order as soon as possible. In buying from our immense stock you are certain that your order will be satisfactorily filled with perfectly grown, strong, and thrifty stock. Every tree is labeled true to name.

Fruit Trees of Every Kind

We have the largest and best-grown stock, which comprises all the leading varieties of Apples, Apricots, Almonds, Peaches, Plums, Prunes, Oranges, Lemons, Pears, Cherries, Olives, Nectarines, etc. The most complete stock in California today.

Ornamental Trees and Shrubs

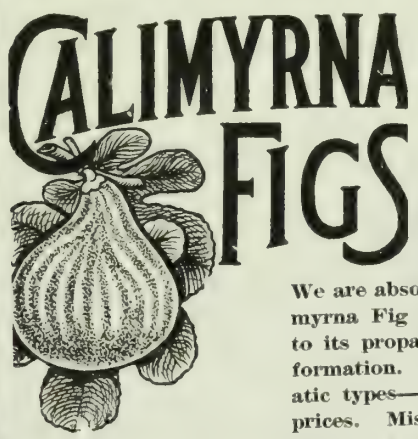
We have almost an endless variety of all the leading Ornamental, Deciduous and Evergreen trees and shrubs grown on the Pacific Coast, which comprise the varieties best suited for lawn or street planting; and to ornament the grounds of large private or public parks.

Climbing and Trailing Plants

We have a splendid assortment to select from, embracing the leading varieties of Ampelopsis, Clematis, Ivy, Jasmines, Wistaria, etc. Our line is also complete in bedding and border plants. Our large green and lath houses are filled with the very best assortment of house Palms, Ferns, and other decorative plants.

Field Grown Roses

This stock includes varieties best adapted for hedges, grouping, and for climbers. All the leading late varieties still in surplus.



This is the genuine Smyrna Fig of Commerce — introduced and successfully grown by us.

Undoubtedly it is the only fig to plant if you are looking for profit.

We are absolute headquarters for the Calimyrna Fig and recognized authorities as to its propagation. Write us for full information. We can also supply the Adriatic types—if you want them at right prices. Mission, White Adriatic.

OLIVES

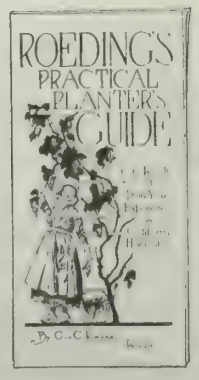
There is an enormous demand for olives. Our stock includes all the best varieties—Mission, Manzanillo, etc.—grown under ideal soil and climatic conditions with strong sturdy root systems. ASK FOR A COPY OF OUR SPECIAL BULLETIN ON THE OLIVE—FREE.

WRITE FOR A COPY OF OUR **Illustrated Price Catalog**

containing prices and brief descriptions of over 2000 varieties of trees, plants and vines—the most complete stock on the Pacific Coast. A copy of our 1915 catalog will be sent free on request to any address,

PAID UP CAPITAL $200,000
FANCHER CREEK NURSERIES
GEO. C. ROEDING: PRES. AND MGR.
Box 18 Fresno, California

OR BETTER YET, Send for a copy of this forceful and valuable planter's guide.



THIS BOOK should be in the hands of every planter and grower. It tells how and when and where—to plant, prune and care for stock—and is fully illustrated, showing "before" and "after." The price is 25c—but to those who write now for prices and suggestions we'll send a copy free. WRITE YOUR NAME AND ADDRESS ON THE MARGIN BELOW, tear off and mail today, attaching a list of what you intend to plant.

San Joaquin West Side Growing.

[Written for PACIFIC RURAL PRESS.]

Green level grain fields six to fifteen inches deep cover practically the whole of the unirrigated part of the west side of the San Joaquin from the hills to the river. There is a fine uniformity of a stand, and it has a healthy color, with every prospect of another great crop. Very few fields are newly plowed or in stubble, though some are covered with volunteer, and these will be fallowed next summer.

Several irrigation projects are in various stages of development from actual delivery of the water to an atmospheric talk of ditch locations.

In the vicinity of Tracy and also Patterson are several projects irrigated with water pumped over the leeves. Advantages of this system, as pointed out by H. F. Budde of Tracy, are that there is less than a 20-foot lift, so that plenty of water is supplied to the 4,000 acre Burke project by one electric pump, though two were originally planned. There is a never failing supply for even in dryest parts of dry seasons, the salt water tide dams back the fresh water sufficiently for irrigation here. This water, too, has more or less sediment which is a valuable addition to the soil it is used on. Then, too, the river water does not need to be carried far, for the hills are seldom over four or five miles away. So there is not much outlay for ditch construction or much waste by seepage.

Three and a half years ago there was scarcely a home or a road on this entire tract. Now it is half planted to alfalfa, and twenty-five families have come from Santa Clara valley and southern San Joaquin with about 300 cows. They expect to increase to 1,000 cows on the one project, shipping cream, and even whole milk, both to San Francisco and the smaller cities nearby.

Shipment of whole milk at a net of 15 cents per gallon is figured to be more profitable, by John Martin, one of the settlers, than shipping the cream to Benicia at the present prices of butter fat, even considering the extra transportation. He probably does not figure on the value of skim milk for calves and hogs.

The Whitehall estate has about 4000 acres under irrigation by pumping from the river. This land was subdivided but later withdrawn from the market. The Byron-Bethany project in the same vicinity reaching nearly to Tracy, covers 14,000 acres with possibility of 20,000 more. They will install their pumps this spring and will have four lifts to raise it to an 80-foot level for part of it. These are all irrigated primarily for alfalfa and dairying.

Further down the valley at Patterson is another irrigated settlement, this one including a great deal of fruit as well as alfalfa, and being watered from the river by its own pumping outfit.

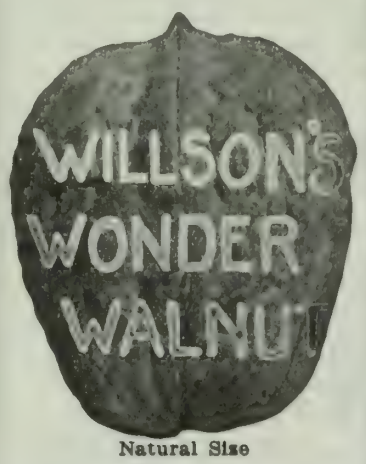
The Newman district is irrigated both by the Miller & Lux gravity ditches from the San Joaquin river perhaps 50 miles above, and by many private pumps. The ditch ends about ten miles below Newman. Everything east of it is easily irrigated. Ranches west of the ditch either pump from the ground or from the ditch, if they irrigate at all.

The irrigated parts grow alfalfa and dairy cows, so that Newman is claimed to be the greatest cream shipping point on the West Side.

About 30 cows per settler and 60 to 80 acres to keep them on, is the average estimated by Supervisor A. E. Clary. Most of the cows are Holsteins, but there is no local breeder's association or cow testing. But Mr. Clary does not see how a net price of 15 cents a gallon for whole milk can pay, considering the price of cream and the value of skim milk for calves and hogs.

Grain is grown on the wide stretches of unirrigated ranches, the aim being to summer fallow half and grain half each year. Wheat used to be the principal crop. But it always had to be treated for smut; and the rust in warm wet springs became so bad that wheat growing was discouraged. The past six or seven years has seen a change to barley mostly, which does not either rust or smut to any extent here. A larger proportion of wheat is in this year on account of the war.

Some folks are doubling upon the crop production by omitting the summer fallow and winter sowing.



Natural Size

Greatest Walnut in Existence

Earliest Heavy Bearer

Customer on investigating trip says:

"You certainly can show more crop on trees than any of them. Your nursery trees are the best I've seen anywhere."

All trees grafted on Cal. Black Stock limited

Write for circular with prices.

Encinal Nurseries

Sunnyvale, Santa Clara Co., Cal.

CITRUS TREES OLIVE

Orange, Lemon, Grapefruit Olives.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.

Orders Now Being Booked.

Write for prices and particulars.

THE RICE CITRUS NURSERIES.

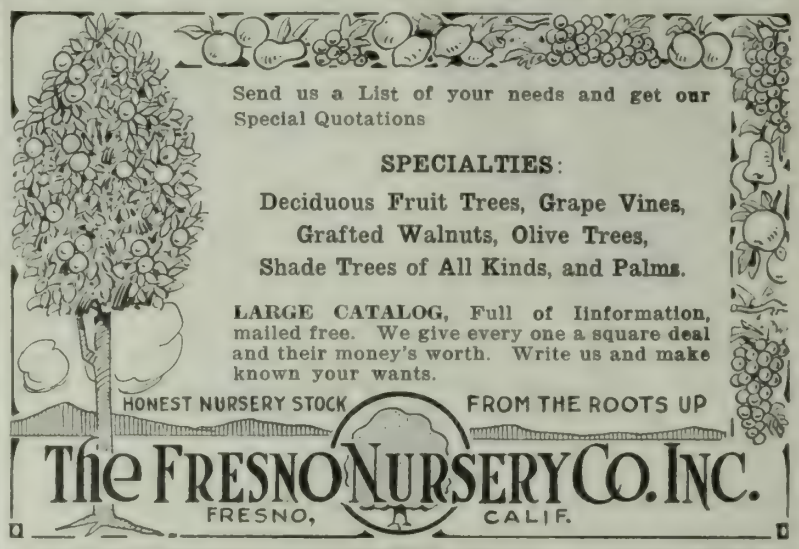
Main Office:

608 Haas Bldg., Los Angeles, Cal.

Phones A 3029; Main 3252.

Nurseries: Lindsay, Cal.

Phone: Farmers 1235.


Send us a List of your needs and get our Special Quotations

SPECIALTIES:

Deciduous Fruit Trees, Grape Vines, Grafted Walnuts, Olive Trees, Shade Trees of All Kinds, and Palms.

LARGE CATALOG, Full of Iinformation, mailed free. We give every one a square deal and their money's worth. Write us and make known your wants.

HONEST NURSERY STOCK FROM THE ROOTS UP

The FRESNO NURSERY Co. INC.

FRESNO, CALIF.

SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.

DON'T BUY CHEAP FAKE STOCK.

We are selling,

GUARANTEED CITRUS TREES

at reasonable prices.

Substantiated by 20 Years in Business.

Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

PERFORATED TREE PROTECTORS

The only Perforated Protector made, practically a small lath house about each tree.

Prevents sunburn, rabbits, squirrels, barking by sand storms and cultivation.

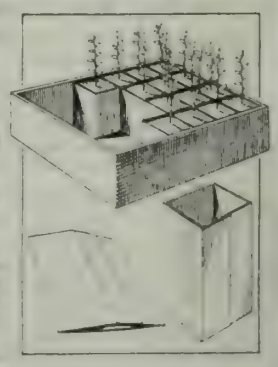
Easy to put on and cheaper than gunny sacks.

COLLAPSIBLE PLANTING POTS

Why not raise your early TOMATO, CABBAGE, CHILI and EGG PLANTS For home use or for market. Do you know that you can start CUCUMBER, CANTALOUPES, MELONS of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Write for samples and prices of both Pots and Protectors. State which you are interested in

THE EXPAN PROTECTOR CO.,

935 E. Central Ave., Redlands, Cal.



PIPE

NEW Threads and For Every Purpose Couplings Hot Asphaltum Dipped

2nd Hand and New

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

But Mr. Clary points out two objections—the yield is less and the crop not as sure on account of less moisture per crop, and a shorter growing season. With the fallowing system there have been only two or three years in 30 that were too dry for a crop. The fields to be fallowed are now under a rank but uneven volunteer grain growth which will soon be plowed. Tractors are becoming more popular each season; mule power used to picturesque the hundreds of thousands of acres in this West side district, and they are not all gone yet, even for use on the combined harvesters and threshers and multi-gang plows.

Farther south is the six-year-old Kerman settlement, irrigated too much, and cultivated too little, according to E. O. Amundsen, farm adviser for the settlers. Near town there is much alkali, and there is a shale of hardpan most everywhere. If one has capital to dynamite the hardpan properly, a layer not far below the surface is a boon in the way of preventing evaporation and the consequent depositing of alkali salts in the surface soil. Much gypsum is being used at 50 to 200 pounds per acre according to severity of alkali, and Mr. Amundsen is vigorously advocating use of more of it.

Peaches, grapes, and alfalfa seem the predominant crops, but the prices have been low. On this account, the farm adviser is advocating membership in the state-wide co-operative associations for the fruit growers, and the increase of cows for alfalfa growers.

Cows were furnished free to the settlers some years ago, to be paid for with half of their cream checks. Along came $11.50 per ton for alfalfa, and a lot of cows were sold. Some few wise ones hung onto their cows and calves too, so that now when, according to Jerd Heckman, alfalfa has been hauled 5 to 8 miles to sell in town at $3.25 to $4 per ton, those who struggled to keep their cows are on easy street and the others wish they had cows, but haven't money to buy them. There is a good reliable market for all the cream produced.

The Lincoln Coreless Pear.

[Written for PACIFIC RURAL PRESS
By Albert F. Etter, Briceland, Cal.]

This magnificent pear which has unfortunately been treated as a joke by many a wise horticulturist is, I am pleased to say, growing in my estimation every year. To begin with, it is an enormous big fruit, often growing to a weight of 30 to 40 ounces, and it is as coarse and granular as it is big, and as austere as it is coarse. Instead of being coreless it is seedless, but like most other seedless fruits, it occasionally does have seeds. The average person quickly sizes it up as practically worthless for food, and about as useful as a wooden ham.

A celebrated French chef once said, "If the dish isn't good, blame the cook." That might at first seem a hard one on the cook, but still the cook is supposed to stand for a whole lot in this world. But in connection with this, the originator or introducer should also be spurred up as well as the cook.

If I am any judge of fruits, it now transpires that this much abused pear, as rough in outward appearance as its namesake, the Lincoln in American history, is good, when once we know how to prepare it. I find that by leaving it on the tree until fully matured, about December 1st, and then picking carefully and laying out in the open, exposed to hard frost and rain for six to eight weeks, the coarse "sand" is softened and the acid reduced so that when cooked the pear is very palatable indeed. The fruit should be pared and, like the quince, cooked before sugar is added, and until it gets quite red. This pear is particularly fine for preserves, as the fruit is always long on acid. I have blended it with mild strawberry juice and it greatly improves it. Thus prepared they are fit for a king. They belong in the class with quinces and cranberries, and for my part there are dozens of fine fruits I would dispense with sooner than the Lincoln coreless pear. The tree is prolific and free of scab fungus, and small boys have no particular use for it as it hangs on the tree. There will be an exhibit of these big pears at the Humboldt county display in the California Building at the Panama-Pacific International Exposition.

Briceland.

UNIVERSITY EPITOMES.

Disease Principles.

[Prof. Ralph E. Smith, University of California.]

All plants are subject, in a varying degree, to what is called disease.

Disease is brought about by unfavorable soil or climatic conditions, by gross injuries, by parasites, and by some unknown influences.

The effects of such influences may be obscured, increased, or complicated by responses on the part of the plant itself of the nature of abnormalities in structure.

The species and variety of the plant affect its susceptibility to various diseases.

The condition of the plant has a similar, though less pronounced, effect.

Climatic, seasonal or local conditions have a decided influence upon the prevalence of many plant diseases.

Disease may be prevented by destroying or avoiding its specific cause.

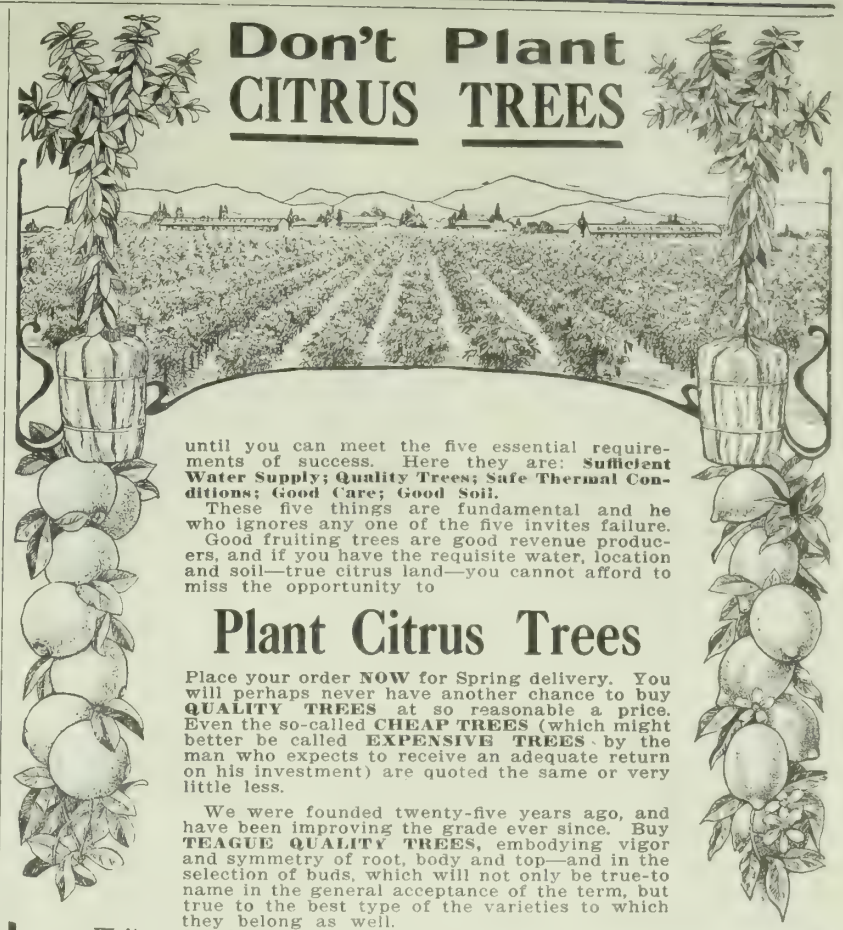
Also, in a measure, by increasing the resistance of the plant by cultural means.

Also, by choosing or creating varieties of plants which possess resistance to specific diseases.

VALENCIAS AND POMELOS.

[Written for PACIFIC RURAL PRESS.]

"If I were putting out a citrus orchard it would be composed partly of pomelos, which bring two or three times the price of oranges f. o. b., and partly of Valencias. The Valencias have no citrus competition and always bring better prices than the navels in spite of competition with deciduous fruits," says Chas. Owen, an expert orange packer who has been in the business twelve years, largely in Sacramento and Tulare counties.



until you can meet the five essential requirements of success. Here they are: **Sufficient Water Supply; Quality Trees; Safe Thermal Conditions; Good Care; Good Soil.**

These five things are fundamental and he who ignores any one of the five invites failure.

Good fruiting trees are good revenue producers, and if you have the requisite water, location and soil—true citrus land—you cannot afford to miss the opportunity to

Plant Citrus Trees

Place your order **NOW** for Spring delivery. You will perhaps never have another chance to buy **QUALITY TREES** at so reasonable a price. Even the so-called **CHEAP TREES** (which might better be called **EXPENSIVE TREES** by the man who expects to receive an adequate return on his investment) are quoted the same or very little less.

We were founded twenty-five years ago, and have been improving the grade ever since. Buy **TEAGUE QUALITY TREES,** embodying vigor and symmetry of root, body and top—and in the selection of buds, which will not only be true-to name in the general acceptance of the term, but true to the best type of the varieties to which they belong as well.

Write today for prices and particulars. No orders too large or too small to fill. All correspondence promptly answered.

Our booklet "CITRUS CULTURE" sent to any address on receipt of 25c.

THE OLD RELIABLE
San Dimas Citrus Nurseries, Inc.
Citrus Trees Exclusively **San Dimas, Cal.**

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS
525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Fruit Trees ! Fruit Trees!

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.
Phone 170. **Cor. First and Cedar Sts., Chico, Cal.**

MAXWELL'S NURSERIES, Napa, Cal.
Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.
FIRST CLASS STOCK TRUE TO NAME.

ROCHE HARBOR LIME FOR SPRAYING
Standard for 20 years.
Because—It slakes quickly and freely. Is free from grit and will not clog pumps. It will not precipitate when in solution. It sticks like paint when applied. Covers more surface, pound for pound, than any other lime on the market. **If not for sale by your dealer, write us.**
TACOMA AND ROCHE HARBOR LIME CO.,
115 Berry Street, **San Francisco, Cal.**

Ocean Fertilizer; Can You Get It?

We have for the last two years or more tried to keep readers informed about what is being said and done about getting richness for the land by robbing the ocean. The trouble with Germany about potash prices started the inquiry and now the war has shut off supplies from that source. Much has been printed about the chance of getting potash from Pacific coast seaweeds because the plant growth is greater on this coast than elsewhere. Apparently a plant which lives like McGinty enjoys the California climate as well as the sky-piercing sequoias do. Apparently the gigantic seaweeds, rich in potash, iodine and nitrogen, would provide an almost ideal fertilizer, if the cost of harvesting the weed, drying it by natural methods and grinding it into pulp or powder is not too large.

Professor John S. Burd is head of the division of agricultural chemistry of the college of agriculture and director of the bureau of fertilizer control, conducting the experiments, still in process, of which the kelp discovery is the first achievement. He speaks in high terms of dried kelp as a means of increasing soil fertility, for he says:

"The agricultural value per unit of the potash contained in dried and ground kelp must be considered to be superior to that of most of the commercial potash salts and but little inferior to those of the highest potash content.

"About one-half million tons of kainit are used in this country annually for fertilizing, to say nothing of other grades of potassium salts containing sodium and chlorine. In so far as its sodium and chlorine content is concerned, dried and ground kelp is superior in agricultural value to the potassium salt which is most largely used in this country."

Abundant Supply.—Kelp or giant seaweed which is so abundant off the California shores has been in fact under investigation for a few years as a potential source of potash. But no practicable method of extracting the potash and salts was known. The first announcement of this theory was made by the United States department of agriculture at Washington, D. C., two or three years ago. The investigations, however, were conducted by the faculty of the University of California for the government. W. A. Setchell, professor of botany, made the first inquiries, and he has worked with Professor Burd in the present studies.

Others who have helped Burd with the problem have been Professor Frank M. McFarland of Stanford University; Dr. W. W. McKay of the United States marine hospital service at San Diego, and G. R. Stewart, D. R. Hoagland, P. L. Hibbard and W. H. Dore of the State University.

Their investigations have proved conclusively the usefulness of kelp as fertilizer, a discovery the economic value of which to the nation is estimated at several million dollars annually. This value gains in permanency, it is noted by the investigators in the fact that the kelp fields are virtually inexhaustible.

The kelp plant is perhaps the most hardy and extensive of any that grows in the sea. It resembles in size a tree, the root attaching to the bed of the ocean and the tendrils and branches reaching the surface, in some cases at long distances. Bulbous proturberances on each plant are filled with air and float the fibers and leaves as on buoys.

Harvesting Seaweed. — To obtain kelp for manufacture into fertilizer, it is not necessary, not even desirable, to uproot the plant. The top may be taken, to a depth of perhaps 12 feet, leaving the stock intact. This will spring again, and year after year the kelp fields may be actually harvested.

"The giant kelps," Professor Burd explains, "contain potassium, iodine and nitrogen in amounts which will in all possibility justify commercial recovery.

"The procedure which would seem to offer commercial opportunity is the drying and grinding of the kelp and selling it as such. In view of all existing information, it seems fair to assign a commercial value to the constituents of kelp of about $3 per unit for nitrogen and 75 cents per unit for potash. The commercial value of air-dried kelp, then, should approximate $12 per ton and justify additional charges for freight at least equal to transportation charges on kainit. This requires that approximately 6.2 tons of fresh

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Cement Concrete

The first cost is the last cost.

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK COMPANY, Dept. B.
731 Market St., San Francisco, Cal.

Fertilizer

You must use the right kind—to get the best results.

Animal fertilizer, which originated in the soil, by returning to it produces results in increased crops.

GOLD BEAR brand is animal fertilizer made at our government inspected meat-packing plant.

There is a thoughtfully prepared booklet full of scientific information in plain understandable language, dealing with soils, crops and fertilizers.

A copy will be cheerfully sent on request.

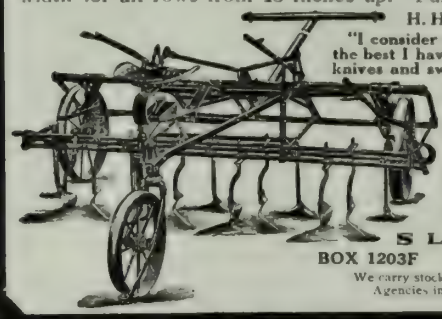
PURE ANIMAL MATTER AMMONIATES
GOLD BEAR
FERTILIZERS
FOR CALIFORNIA SOILS

Western Meat Company

704 Townsend Street
San Francisco

Planet Jr. Beet Cultivator

The greatest time- and labor-saver ever invented for beet and bean cultivation is this **No. 3 Planet Jr 4-row Sugar Beet and Bean Horse Hoe.** Especially adapted to western requirements by a practical farmer and manufacturer who studied the vital needs among largest beet-growers. Cultivates four rows of beets at a time, 18 to 22 inches apart. Works equally well for beans. Equipped with patent hoes that hoe close at surface and curve away from roots. Front of hoe acts as leaf-guard. Two-wheel seat rig for 3-row cultivation. Wheels are changeable in width for all rows from 18 inches up. Fully guaranteed.



H. H. Castwood, Oxnard, Cal., writes: "I consider your No. 3 Beet Cultivator by far the best I have ever seen or used. I think the knives and sweeps as near perfection as they could be made."

New 72-page Catalog (168 illustrations) free

Describes over 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it today.

S L ALLEN & CO
BOX 1203F PHILADELPHIA PA

We carry stock in San Francisco and Los Angeles. Agencies in all principal Pacific Coast cities.

SOUDAN GRASS SEED

The wonderful new forage crop. Lately introduced and now highly recommended by the U. S. Dept. of Agriculture. One of the surest and most productive crops that you can grow. This seed was grown in Southern California, and is warranted to be pure and absolutely free from Johnson Grass contamination. **45c a pound, or $40 a hundred, F. O. B. Santa Ana, Cal.**

C. E. Lewis, R. R. 5, Box 52A, Santa Ana, Cal.

Write for a copy of Morse's 1915 Garden Guide
Just off the press
Mailed Free

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Every packer of Morse's Seeds
Vegetable or Flower, are dependable seeds. Fully tested before packed.
For Sale Everywhere.

kelp be harvested to furnish one ton of kelp worth approximately $12. Where this can be done at a profit the utilization of kelp will be a commercial success."

The kelp plants, Professor Burd has ascertained definitely, are of value for nitrogen. This element is one of the most essential to agriculture. Likewise, the singular plant is rich in materials which provide humus—that substance in soil found in rich loam, and produced usually only after years by decayed leaves.

"EFFICIENCY" IN AGRICULTURE.

To the Editor: As a reader of your valuable paper and by way of explanation, "a common laborer in the field," I am impressed with the utter hopeless and helpless position of the man so employed, because "efficiency" counts for nothing in our agricultural operations in this section of the country today.

Actual experience in the packing house and orchard emphasizes the general "leveling process" employed by the ranchers and packing house managers in handling the labor problem. One either encounters the flat day work rate of the orchard hand, regardless of the skill or efficiency of the worker, of the flat day work and piece work rate of the packing house employe. Both methods are unfair, unjust and equally vicious in practice.

For two years the writer has looked earnestly but in vain to find some organization with which he might become identified where skill, efficiency, knowledge and diligence received just consideration and equitable reward. Can it be, agriculturally speaking, that just reward for the efficient worker is an idle dream? Why cannot the principles of efficiency be developed on the ranch or in the packing house quite as readily and effectively as they are now being demonstrated in the factories, machine shops and on the railroads of the country?

To eliminate waste, to reduce production costs, to reward the efficient worker who contributes to such ideals; ought it not to be a subject of more than passing interest to the agriculturist of this great commonwealth? That their consideration and adoption must inevitably come, all thinking men will agree.

We hear much of the "shifting and shiftless laborer." I shall have to plead guilty to being in the "shifting class," at least, however much against my desires and natural inclination. Unless I am to lose heart, hope, courage and faith in the principle of a just reward for efficient labor honestly performed (a principle recognized and granted to the "laborer in the vineyard" some nineteen hundred years ago, but a principle unknown and unpracticed in agricultural pursuits today) I shall continue to be classed with the shifting and shiftless laborer. No other alternative is offered except it be to fall in line with these laborers content to abide by the level wage, and that means lost courage, faith, hope for the future, and even manhood—with no joy in living or doing. Is it not one of the tragedies of our age, yes, the greatest tragedy?

Some one has said, "Blessed is the man who has found his work." Efficiency finds the work for the man and the man for the work: round pegs in round holes, square pegs in square holes. Years ago (and in more prosperous days) the writer held strongly to the belief, come what may, given health, strength, skill, courage, diligence, any man in the face of adversity, could provide the necessities of life (food, clothing and shelter) for those dependent upon him. I am forced to admit, after two years' experience, the fallacy of that belief. We witness the workers employed, half-heartedly performing their tasks; the workers unemployed, tramping up and down the highways, moving from town to country or country to town, hunting vainly for the place that they will fit into the "scheme of things." Not a pleasant picture, some may say, very much overdrawn. No, not at all overdrawn. It depends on the point of view. The critic should put himself in the place of those whom he would criticise. Go get a job (if you can) in the packing house or on the ranch, at two dollars per day or its equivalent, provide the necessities of life out of that sum for your family, feel, actually feel, the leveling of the customary flat day rate schedule. Then smile, while some of your co-laborers are sneering at you, deriding you for any effort to lift yourself out of the mire of level day rate work.

All thinking men agree that wanton has been our waste in the nation, whether of mine, forest, factory or field. But, above all and beyond all, is the waste of human energy. We need most of all to develop efficiency, high ideals. It's a weary journey, but for my part I mean to tramp, tramp, tramp till the goal is reached. Talk about a "Long way to Tipperary"! That's a mere summer afternoon stroll, compared with the long tramp to "efficiency reward."—Harry H. Cockley, Whittier.

In the Caterpillar tractor if the oil in the crank case gets too deep no not bend the drain pipe, for that would spoil the threads and cause leakage. Unscrew the drain pipe and cut it off with a hack-saw to the right height. If the oil is too shallow, get a new drain pipe of the right length. Drain pipes are not adjustable because they would be likely to work loose and cause loss of oil when the cranks might get hot and damaged before the leak is discovered.

"The Farmer's Friend"

In Handy Buckets

Also Small Cans

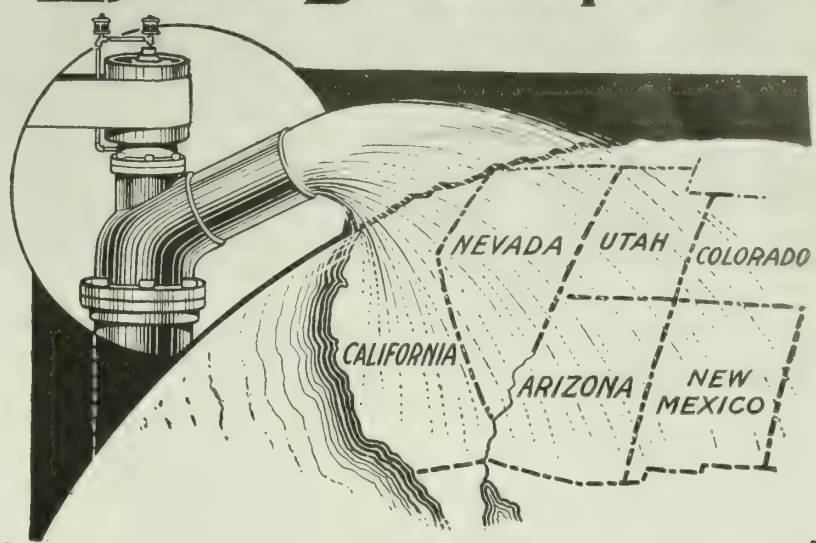
Ask your Dealer

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY
911 Crocker Bldg.

Circular containing 100 mechanical movements mailed free.

MILTRY
a WAR game entirely new, played with twenty Flags of Warring Nations. All ages take interest in it. Postpaid, $1.00.
SNAER'S,
770 19th Street, Oakland, Cal.

LAYNE & BOWLER PUMP



The
Leading Irrigation Pump

Its past record is the best evidence of a pump's efficiency and economy. The Layne & Bowler has long had the reputation of being the leading irrigation pump, not only here in the great Southwest, where all manner of rigid conditions must be met, but all over the world. Positively the cheapest water produced. No pit. Constructed to go inside of well casing 9⅝ to 30 inches in diameter. Write today for valuable irrigation booklet No. 25.

The Layne & Bowler Pump, is the Only One Pumping from Wells on the San Francisco Exposition Grounds.

Layne & Bowler Corporation
900-910 Santa Fe Ave., Los Angeles, Cal.

ESTABLISHED REX 1896

Arsenate of Lead

UNEXCELLED IN ITS
FINENESS OF PRECIPITATION
SPREADING QUALITY
MISCIBILITY ADHESION
QUICK KILLING

Rex Arsenate of Lead

is made from the very best quality of Raw Materials, is processed in our own factory by our own Chemists, who have had the experience of years.

REX has demonstrated 100 per cent efficiency in numerous orchards. Why not use it in yours?

Write for
Rex Arsenate of Lead Booklet
To

CALIFORNIA REX SPRAY CO.
BENICIA, CALIFORNIA
Manufacturers of

Rex Lime and Sulphur Solution
Rex Iron Sulphide
Rex Miscible Oils and Distillates

ETC. ETC. ETC.

Mechanical Power on the Farm.

AUTO MAKES LIFE GOOD.

[Written for PACIFIC RURAL PRESS.]

"Last fall four of us rolled up our bedding, put it into our little car, left our home here near Pomona about 5 p. m., drove through Redlands and a couple of miles into Santa Ana canyon, 40 miles from home, where we made camp for the night," said C. W. Rutty, orange grower and enthusiast on the outdoor recreation made possible with an automobile. "Big Bear Lake, in the San Bernardino mountains, was our objective. On top of one of those mountains is a 30 mile drive of grand scenery such as you could not enjoy without a machine. We came down by way of Arrowhead Hot Springs. An automobile makes all of this hard work on the oranges worth while, and we enjoy living.

"Another time five of us drove to Venice, 125 miles of boulevard road there and back—it was a sort of picnic party—and we averaged 25 1-5 miles per gallon of gasoline.

"We have had the car a year and a half. We have driven it over 8,000 miles—the first year 5100 miles. We couldn't have traveled nearly so much without the machine. Only those who travel realize what a narrow rut they would have been in if they had stayed at home.

"Our total expenses for license, repairs, gasoline (at about 20-21 cents) and other expenses the first year were $105.00

"I hate to drive a horse on the road any more—I lead them behind the car to the blacksmith shop for shoeing and clipping—have taken three to town that way just lately.

"Of course the machine is used entirely to get our supplies—traveling that way costs more per mile, but the time saved is worth any amount more than the extra cost if a man counts his time valuable when he is in a hurry."

TRACTOR TO KEEP WORK UP.

[Written for PACIFIC RURAL PRESS.]

"We plow, disk, cultivate, and do everything in the 160-acre orchard here, most of which is in oranges," says Mr. Beattie of Porterville, who manages the ranch owned by his brother, Dr. D. A. Beattie. "Our power is an eight-horse-pull Samson sieve grip tractor that pulls when you can't see the wheels for mud. I plowed over 100 acres for grain too.

"Of course we aim to work our dobe here when it isn't so wet, but sometimes there are spots that we have to get through. We use a team of horses for the odds and ends—might use one of the new four-horse-pull tractors and get closer, but since we've been tractor farming we don't like to waste a man just to handle the power of four horses.

"Last year I plowed 10 inches deep right along in hard adobe with a three gang 28-inch disk plow. We plowed the whole place and cultivated so much that now in March the soil is all loose and light—no baking and cracking on this place.

"But without the tractor, I'd have to hire extra men and I couldn't always get them in time. Then the ground would dry out and the young trees would stunt, or the fruit would drop from the old trees, or they would gum. Anyhow I'd lose a lot of the irrigation water that is pumped and piped miles, just because we couldn't get the ground cultivated in time to save the moisture.

"If we couldn't get it cultivated before it cracks, the roots of the trees would be pulled to pieces in all directions. That's the reason for small fruits, and perhaps for mottle leaf, and certainly one cause of general debility.

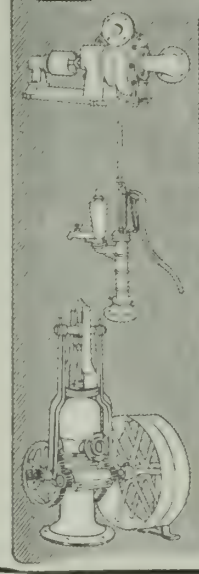
"We use a 36-tooth spring harrow which cultivates 6 inches deep, after every irrigation. There is a rise of 80 feet from one side of 20 acres on the hill, to the other side, but that doesn't feaze the engine. We just throw her into low speed at 2 miles an hour going up hill and into the four-mile speed going back, and we don't have to stop for rest on the up climb nor on hot days.

"Pretty soon now we will be using an eight-foot double disk on that hill orchard in the same way; for we do not plow every year. It was disked just before the recent wet spell so it is clean and loose.

"In 14 acres, where we have a barley cover crop because we were late getting it in and barley comes quicker, we will use the tractor and cutaway disk when the barley is 14 to 15 inches tall. The tractor will lay a great deal of the stuff nearly flat, and the double disk with 300 pounds of rock, if necessary, will grind the greens into the soil. We need that on this dobe, to make it work up better."

In shipping parts of machinery to the manufacturer for repairs, always write the manufacturing company at the same time, telling what you want and to what destination and railroad to return parts. This will save a great deal of delay and misunderstanding at critical times.

PUMPS



Whatever kind of a pump you need—we have it. Handling all styles of pumps we are not obliged to urge any one type on you, but are in a position to help you select the pump best adapted to your particular requirements. We manufacture and sell

Horizontal Centrifugal Pumps
Vertical Centrifugal Pumps
Deep Well Pumps, Power Heads
Windmill Pumps, House Pumps

Illustrated are three of the many different styles. Don't decide on a pump till you put your needs up to our Pump Specialists. Their advice and suggestions will cost you nothing.
WRITE TO US and state your requirements—by guiding you to a right selection we can probably save you both money and trouble.
FREE CATALOG 28-B describes Bean Horizontal and Vertical Centrifugal Pumps.
FREE CATALOG 28-D describes all other pumps; also Bean Distillate Engines.
A postal will bring either or both by return mail.

BEAN SPRAY PUMP CO.
211 West Julian St. San Jose, Cal.

The KROGH Vertical Pumps

New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.
SAN FRANCISCO, LOS ANGELES

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam carefully soldered the entire length of the pipe stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.

This Spray Hose Stands the Wear.

Ordinary hose is practically worthless for spraying use. Sprays and chemicals quickly rot it away. For real satisfaction you've got to use a hose made for the purpose—and the best you can buy is

Bean High Pressure Spray Hose

Made to withstand high pressure and to resist the action of spray materials.

Costs no more than ordinary spray hose—but lasts twice as long. Write for prices. You can order from your dealer—or direct from us.

BEAN SPRAY PUMP CO.
211 West Julian St., San Jose, Cal.

Irrigation Machinery

Pumps-- Motors--Engines

Pumping Plants Installed and Guaranteed for One Year.
Send for Our FREE 72-page book on "IRRIGATION."
Expert Engineers.
Three Stores to Serve You.

California Hydraulic Engineering and Supply Co.
68 Fremont St., San Francisco
31 S. Briar St., Lindsay.
AMERICAN PUMP CO.,
129 No. Los Angeles St., Los Angeles.

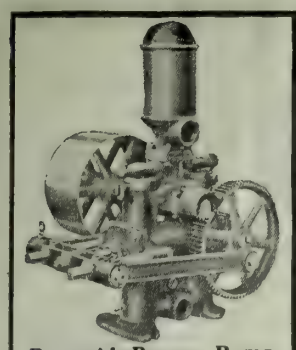
GET THE STUMPS OUT!

Make ALL Your Land Earn Money For You

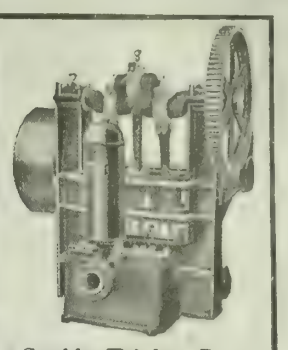
"K" HAND-POWER STUMP PULLER

Makes stump pulling a one-man job. This powerful machine *weighs* only 171 lbs., but it *pulls* 96,000 lbs. Two speeds, high speed for light work, power speed for heavy work. No chains. Pull more than horse machines. Complete equipment, including 200 feet Weatherproof English steel cable. Used by U.S. Gov't in Alaska, and by many states and counties.

Valuable Book on Land Clearing FREE—My new catalog tells costs of different methods of land clearing. Write for it today, and get special direct-to-you prices.
W. J. FITZPATRICK
Box 32 1926 2nd Ave.
Seattle, Wash.


Pyramid Power Pump

WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEM
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
GASOLINE ENGINES
Send for our large No. 36 Catalogue Mailed Free.
Inquire of your Local Dealer for full particulars.


Goulds Triplex Pump

PLANTING ADJUSTED TO TRACTOR.

[Written for PACIFIC RURAL PRESS.]

The sugar folks in the southern coast counties asked the Caterpillar people to make a special type to use in cultivating their beets. The manufacturers found that to make such a type would require an entirely new model and extra machinery for its manufacture, so the sugar people adapted their methods of planting and cultivation to the present machinery, using the narrower track hoes. They would plant two or three rows at a time closer together than usual and then leave room for the tractor tracks, then two or three more rows close together again. By this means they get planting, cultivation, and harvesting of beets by mechanical power.

LONG PLANK LEVELER.

[Written for PACIFIC RURAL PRESS.]

A soil leveler run over plowed land to fill dead furrows and level uneven places is used by G. E. Fetters of Sacramento county. The advantage of its great length is that it isn't affected by ordinary minor depressions such as crossing dead furrows, and it continues to rake the dirt in after the front end is considerably past. Two 2x8 planks, sixteen feet long, were laid edgewise side by siue eight feet apart; cross planks eight feet long were set at regular intervals between these, the front and rear plank being sloped from the top edge backward so that the two plank between them, which were left vertical, would scrape some of the dirt which the front one would miss, and the last one would make a smooth job. The slope given the front and rear planks gives them a clod crushing effect, too. Inch X braces across the top and a chain to hitch the horses to on the front end finishes the leveler.

PUMPS NEWLY INSTALLED.

A high capacity 12-inch centrifugal pump is the latest improvement on the ranch near Gardena owned by M. E. Wood of Pasadena. The pump was manufactured by the Layne & Bowler Corporation of Los Angeles.

The Santa Ana Valley Irrigation Company has just contracted for a 400-foot well, 26 inches in diameter, pump to have a capacity of 3000 gallons of water per minute. The contract was let to the Layne & Bowler Corporation of Los Angeles. The new pumping plant is being installed on Olive Road, a short distance from Santa Ana and is said to be one of the finest plants in Southern California.

Edward Kirkpatrick of Burbank has installed a 12-inch Layne & Bowler centrifugal turbine pump on his ranch capable of handling 100 inches of water.

DOUBLE DISK BEFORE PLOWING.

[By W. E. Vapion, Colo. Agricultural College.]

The disks should be set slanting to loosen and move the surface soil thoroughly.

1. It breaks the surface crust and helps hold the moisture that has gone into the soil from the winter's snows (and rains.)

2. It loosens the surface so that spring rains may easily get into the soil.

3. The manure which was applied in the winter will be well mixed with the soil by disking.

4. The surface soil is pulverized so that when the land is plowed, that part of the soil which will be on the bottom of the furrow will not be lumpy, which condition would cause the soil to dry out.

5. The upward movement of soil moisture called "capillarity" will be aided by having the surface soil well pulverized before turning it to the bottom of the furrow.

STARTING A CAR.

To the Editor: Following is an idea which has been very helpful to me: If you wish to start your car with very little effort after a period of idleness or when the cold has congealed the lubricants, you can do so in this way: Jack up one rear wheel and chuck the other to prevent the car rolling forward. This relieves the frictional resistance in the differential gears by transmission to the free wheel which spins in the air when the engine is cranked. After the machine has warmed itself up, the engine is stopped, the jack removed, and it may then be started in the usual manner without any trouble.—Wm. Curtis Clark, Athlone.

When the bolts wear the shoes of a Caterpillar track thin, put a washer under the head of the bolt so that it will strengthen the thin part of the shoe.

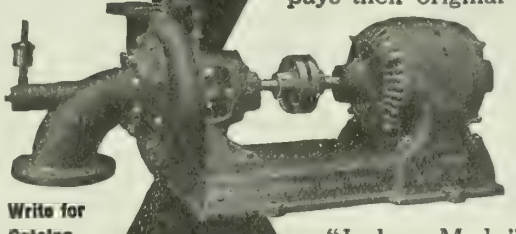
It is best to have both sides of the track of Caterpillar type tractors rebuilt at the same time, because if one is rebuilt and the other used, the looser side will give the machine a sidling gait.

The Krogh Pump Company have installed for the Panama-Pacific International Exposition six ten-inch turbines and three high pressure pumps. They are pumping from wells at Fulton St. and 49th Ave. through five miles to the Exposition grounds between two and three million gallons per day. This is used for all purposes at the Exposition, and shows that water can be developed in San Francisco for domestic supply.

"Jackson MADE"

The greatest test of any pump is its ability to raise the maximum amount at lowest cost per gallon, day in and day out, year after year.

True pumping economy is one of the great features of "Jackson Made" pumps; they work economically and their freedom from repairs and power saving pays their original cost in a few months.



If your pumping puzzles you, tell us—our expert engineers are at your service free of charge.

Write for Catalog No. 47A

"Jackson Made" pumps are manufactured in various styles to do your particular work at lowest possible cost.

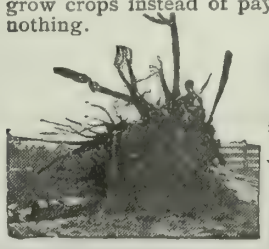
A Better Make Not Made

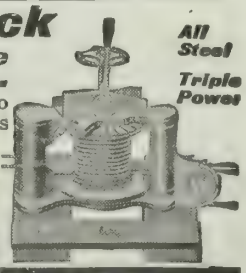
Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

BIGGER
THAN THE WORK IT WILL BE PUT TO
AMERICAN
SURFACE IRRIGATION PIPE

PROVES
its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.
American Steel Pipe & Tank Company
354-56 Pacific Electric Building, Los Angeles, Cal.
Branch 1228 "H" Street, Fresno.

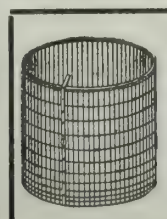
Pull Big Stumps Quick and Easy $1280 from 40 acres the first year stumps are out.
Pulls an acre a day. It doubles land values. Enables you to grow crops instead of paying taxes on land that yields nothing.



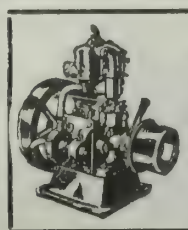


All Steel
Triple Power

HERCULES
Stump Puller
More power than a tractor. 60 per cent lighter, 400 per cent stronger than cast iron puller. 30 days' free trial. 3-year guarantee to replace, free, all castings that break from any cause whatever. Double safety ratchets insure safety to men and team. Accurate turning means light draft. Mail postal for free book showing photos and letters from owners. Tells how to turn stump land into big money. Special introductory price proposition will interest you. Write now.
HERCULES MFG. CO., 112 23rd St.
Centerville, Iowa
From Michigan



REDWOOD TANKS SILOS.
Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.
BROWN & DYSON
640 SO. CENTER ST., STOCKTON, CAL.



CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Write for Catalog
Light Weight
THOMAS R. BROWNE, Stockton, Cal.

Oliver No. 17-A Gang

The Vineyard Gang You Should Buy

Why ?

Because it can be used as a two or three-bottom plow with steel or chilled bottoms, each cutting 8 inches, and with steel, plain chilled or slip nose shares interchangeable on all bottoms. Both axles are adjustable sideways and land wheel may be run within the landside line of the second base. Wheels with 3-inch tires, dust proof boxes and ends of hubs cut off flush with rims are exactly opposite, insuring steadiness in cross plowing. Will plow the same depth, whether furrow wheel runs on land, turned furrow or bottom of furrow. Beams are of 1⅜" high carbon steel. Clevis adjustment 12 inches sideways and 7 inches vertically. Tension spring to assist in raising bottoms out of the ground. Rolling coulters for plowing under foul growth. Rear handle for convenient handling of plow is reversible and adjustable up and down.

The No. 17-A Gang is supreme in California vineyards.

Handled by dealers everywhere.

WRITE FOR CIRCULARS.

Oliver Chilled Plow Works

9 MAIN ST., SAN FRANCISCO

TREES Slaughtered

25,000 Surplus fine trees cut low in prices. Prunes, Peaches, Bartletts, Apples, Cherries, Figs, Olives, Walnuts. Prices reduced very low. Stock in fine condition. Want to close out yard quickly. Wire reservations, write or phone for low prices on your wants.

TABLE GROVE NURSERIES

Healdsburg, Calif.

Res. Phone 12F3. Office Phone 33

CAMPBELL

IRRIGATION

We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Turbo-Irrigator, and the new Automatic Oscillator for overhead pipes.

J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.

California Vegetables. $2 postpaid. Pacific Rural Press.

Agricultural Review

CITRUS AND SEMI-TROPICAL.

H. E. Stetson of Santa Barbara county will plant 300 avocado trees this season. These are budded stock of the best varieties.

The Bonniebrae groves near Exeter, Tulare county, netted $132,800 for fruit marketed the season just closed. The total crop was 97,000 boxes.

This season Exeter oranges were shipped to Australia, New Zealand, and various points in Great Britain, some of the fancier grades bringing exceptionally good prices.

Citrus growers of the State are complaining that the orange trees in front of the California Building at the Panama-Pacific Exposition are poor representatives of the industry.

DECIDUOUS FRUITS.

The total output of both green and dried fruit from Chico during the past season amounted to about 310 carloads.

Auburn is to have a thoroughly up-to-date cannery in the near future operated by Mrs. Thos. Hall, who has been conducting the Lotus cannery in El Dorado county.

The fruit crop of Kings county is estimated at 25 per cent more than for 1914. Apricots promise an abundant crop, 1000 acres having been set out this season.

Henry B. Martin of San Jose recently purchased 110 acres seven miles south of that place for $60,000, where he intends to grow prunes.

A cherry tree already in bloom, two months ahead of time, may be seen in Chico. Last year it was in bloom about this time of the year and bore the earliest cherries known in that section.

During the last ten days 28,000 trees have been received and planted in the Tehachapi mountain country of Kern county. All the trees received have passed inspection and were declared to be free from pests or diseases. Cherry, pear, and apple trees predominate.

A large number of deciduous and evergreen trees are in cold storage at the plant of the Chico Ice and Cold Storage Co. at that place, and will be held there until the ground in certain sections of the East thaws sufficiently so that they can be shipped there and planted.

The growers of Kingsburg met last week and organized the Kingsburg Growers' Association. Peach acreages are now being signed up and a co-operative cannery is assured which will be affiliated with the Porterville and other co-operative canneries in one central buying and selling agency.

GRAPES AND SMALL FRUITS.

A carload of trees and vines arrived in Williams recently for planting on land adjacent to that place.

Greenfield, Monterey county, is winning fame as a producer of gooseberries. Several thousand pounds of berries were shipped from there last season, bringing good prices. This year the acreage has been considerably increased.

Raisin grapes have been largely planted in Kings county this year and it is reported that 20,000 acres have been planted. The raisin company there anticipates large orders from Europe this year and inquiries at the present time indicate that they will have no trouble in disposing of this year's crop almost before it is picked.

OLIVES AND NUTS.

A co-operative association of olive growers along the lines of the California Associated Raisin Company is being planned.

G. K. Gibson of Chico recently purchased 100 acres of land near Oakdale where he intends to plant almonds.

A small grove of almonds, less than seven-eighths of an acre, near Oakdale, yielded the grower about $330 last season.

The Santa Ana Valley Walnut Growers' Association is planning a new packing house. The rapid growth of the Association has made this improvement necessary.

It is estimated that about 1500 acres of bearing olive orchards will be added to the present acreage in Kings county this fall. Olives are all contracted for a number of years ahead so that growers are not speculating when they plant.

A corporation was formed last week to be known as the California Mission Olive Groves, Inc., with property adjoining the new town of Mission. It is the intention of the company to develop olives and handle various olive products.

It is reported that the largest olive grove in the world will soon be planted in Porterville. The men interested state that ultimately 2000 acres will be set out. Los Angeles county now boasts of the largest—1200 acres at Sylmar.

GRAIN AND FIELD CROPS.

The Los Molinos Canning and Shipping Association recently purchased a carload of potatoes for seed.

It is reported that the sugar factory at Fallon, Nev., will operate the coming season, provided the necessary acreage of beets can be secured.

A large tract of land, between 25,000 and 30,000 acres, near Huron, in Kings county, will be planted to corn this year.

Melon growers of the Turlock section have organized under the name of the Co-operative Cantaloupe Growers for the purpose of controlling the melon prices the coming season.

The first case of asparagus shipped east last week sold for $18, from which it is assumed that growers

Importation from Europe

Just Arrived in First-Class Order.

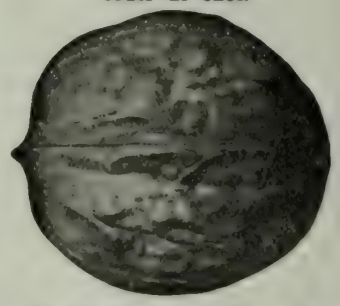
Some of the best-bearing varieties of **FILBERTS**; also two varieties of **RHUBARB**, the stalks of which often measure 4 ft. long and 3 inches in diameter.

Personally selected by the head of the firm while in Europe.

CONCORD and SAN JOSE MAYETTE WALNUTS.

Write for Prices.

Order at once.



LEONARD COATES NURSERY CO. INC.

MORGAN HILL, CAL.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery

163 South Market St., San Jose, Cal.

Trees for sale and samples of nuts also at

HALLAWELL SEED CO., 258 Market St., San Francisco.

CALIFORNIA SEED CO., 151 Market St., San Francisco.

SUNSET NURSERY CO., 92 41st St., Oakland.

VALLANCE BROS., 31 Glen Ave., Oakland.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS.

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground — Shield Brand — High Grade

Phosphate Rock

The Phosphate of Lime.

Efficiency and Economy are Inseparable Everywhere.

UNITED STATES PHOSPHATE CO.

405 Marsh-Strong Building, Los Angeles.

We are selling

Himalayas and Mammoth Blackberries

Vigorous Plants—direct from grower.

The best and the biggest blackberries there are—and the most fruitful. Plant within 30 days. Order now.

R. E. HODGES,

315 UNDERWOOD BLDG. SAN FRANCISCO.

this year will not receive the prices they did last season.

Several ranchers of Glenn county have commenced potato raising on a large scale and large tracts are being put in readiness for planting. It is estimated that the crop can be harvested earlier in that section than in others in the State.

The San Joaquin Valley Sugar Co. of Visalia recently received eight hundred sacks of beet seed from Galveston, Texas. Some of this seed will be distributed at once, but the greater portion will be kept for the 1916 season.

HERCULES POWDERS

For a High Score Or a Full Bag

At the traps or in the field, uniformity in the powder used is absolutely essential for consistent shooting. The experienced shooter or hunter knows this to be so, and uniformity is one of the qualities he demands of the powder he uses.

It is a significant fact that many of the most expert handlers of shotguns in this country shoot

Infallible
Smokeless Shotgun Powder

They know that this powder is always uniform, that it is carefully tested at the mill for high velocity, light recoil and even patterns; that it is water-proof, age-proof and weather-proof.

The next time you get shells see to it that they are loaded with Infallible. No matter when you get it, where you get it or how long you keep it, Infallible Smokeless Shotgun Powder is alway the same. Your dealer has shells loaded with it.

Two interesting books are yours for the asking: "Trap-shooting" treats of this delightful sport from the viewpoint of both the veteran and the beginner. "Hercules Sporting Powders" is of interest to everyone who owns a rifle, shotgun or revolver. These books are free. Write for them today.

HERCULES POWDER CO.
Chronicle Building,
San Francisco, Cal.

MISCELLANEOUS.

The annual congress of the Inland Waterways Association of California will be held in the Civic Auditorium, San Francisco, March 23, 24, and 25.

Healdsburg hop growers are attempting to form an association to affiliate with the Sonoma County Growers, and thus with the State organization.

The first drainage district of Merced county is being formed and if plans carry, over 10,000 acres of practically useless land in the vicinity of Atwater will be made valuable.

The University short courses in Agriculture, Horticulture, Poultry Husbandry, and Dairy Manufacture start on October 4. The latter lasts eight weeks, and the others six weeks each.

A huge colonization scheme embracing 72,000 acres in the southwestern part of Fresno county has been launched. Subdivision and sale of the land will commence at once.

The new packing house to be built at Armona by the Kings County Packing Company will cost in the neighborhood of $75,000. It is expected that about 80,000 tons of dried fruit will be turned out by October 1 of this year.

The Kerman Cured Fruit Association met last week and elected the following officers: President, W. J. Mowry; vice-president, R. S. Elliott; secretary-treasurer, Tilden Gingerich; and Oliver Dalbotten, manager.

SHINGLES FIX SQUASH BUGS.

To the Editor: In the Pacific Rural Press, issue of Jan. 23rd, last, reference was made to fighting squash bugs. Some years ago in New York I raised some Hubbard squash for market. When plants were beginning to run, I found thousands of squash bugs, of the variety commonly called "stink bugs," preying upon them. I soon learned they could not be poisoned, for they are "sap suckers." In thrusting their needle-like proboscis into the stem of the plant to suck the sap, they leave a poison, which injures the vine, which soon dies. I tried turpentine, applied to cobs and placing under hills. This did little good as a repellent. I took shingles, broke them into pieces four to five inches wide and placed one or two under each hill. I arose early in the morning and was in the field at daylight, armed with a small pail of kerosene oil. On picking up each shingle, the bugs were found roosting on its under side, sticking tight to the shingle, feet upwards. I took each shingle and scraped the bugs off into the oil, by drawing it across an edge of the pail.

Often I would get four or five quarts of bugs in a morning. The shingles were replaced and the operation repeated on successive mornings till there was no further need.

The oil killed the bugs. During the day swarms of the bugs could be seen coming from neighbors, to meet their oily grave the next morning.

I saved my vines. Here in central California these same bugs abound in large numbers and can be seen under boards and about lumber piles in the fall of the year.

I have also noticed another variety, with slimmer and longer bodies, which are very destructive to vines, but with these I have had no personal warfare. However, I shall try my former method.—M. H. Cusick, Lodi.

UNIVERSITY EPITOMES.

Use of Fertilizers.

[By Prof. John S. Burd, University of California.]

Fertilization should always be accompanied by proper cultivation of the soil.

On soils which are naturally deficient in one or more of the commercially important plant foods (nitrogen, potash, phosphoric acid). When the soil has been grown to a single type of crop for many years.

When growing high-priced crops.

When labor is the principal factor in the cost of production.

The kind of fertilizers to apply:

The one which contains the kind of plant food in which the soil is deficient.

The one which experience has shown to produce the best results with the given crop.

The form of plant food to apply:

The one which experience has shown to be best adapted to the crop (soluble phosphoric acid rather bone phosphate for turnips, for example.)

The one adapted to the type of soil.

The one adapted to the stage of growth of the crop.

In the application of fertilizers:

Easily soluble substances may be applied as a top-dressing.

Less soluble substances should be worked into the soil.

More than one installment may be frequently used to advantage, depending on its nature and that of the soil and crop.

BEET PULP ALL RIGHT.

To the Editor: I am obtaining splendid results from my milch cows by feeding dry beet pulp. One of my neighbors tells me that he understood that it was injurious to the cow, and was so insistent in knowing this to be a fact that I am asking you if there is any truth in that statement.—H. C. K., Suisun.

[If you are securing good results by feeding dried beet pulp, you need not be afraid of the ultimate results, regardless of what your neighbors may tell you. As we have said before, the belief that beet pulp hurts cattle originated around sugar beet factories where the wet pulp is fed, but this experience does not apply in any way to the feeding of dried pulp, and the fact that many large dairymen have fed the dried pulp continuously for several years is self-evident of its usefulness as a dairy feed.—Editors.]

ONION WORMS.

To the Editor: Can you tell me how to get rid of some little worms which are eating my onions? They seem to cut them off just below the ground when the onions are about six inches high. Could I spray the ground along the rows with something that would keep the worms away?—J. M. L., Ontario.

[We cannot tell what you have from the description, for there are several worms which eat young onions in that way. Subterranean insects are usually fought by sprinkling chimney soot along the surface or by sprinkling with water in which nitrate of soda is dissolved at the rate of one ounce to the gallon.—Editors.]

Saving Time and Money on the Farm

How much do you personally know about the use of dynamite on the farm? Have you ever used it? If you have, have you used it to the fullest advantage? Have you made it do all the work of which it is capable?

With Hercules Dynamite you can plant trees, drain land, dig ditches, remove rocks, subsoil land, excavate cellars, cisterns, etc., and do many other things that space does not allow us to list. In the great majority of cases you can do all of these things more quickly, more thoroughly, and with less expense by the proper use of dynamite than by any other method.

HERCULES DYNAMITE

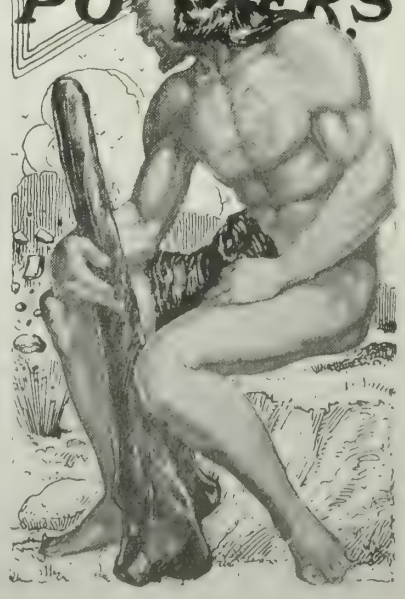
is not a Jack-of-all-trades. It will not always take the place of tools you are now using. Sometimes it can only be employed as a supplement to them. But most of the work usually done with a spade or an axe, a pick or a bar, can be done to better advantage with dynamite.

The place that dynamite is taking on the farm is growing bigger and more important every day. The man who is engaged in agricultural work and who has not thoroughly familiarized himself with this comparatively new factor in such work is not doing himself justice.

For your own benefit write for a book we have just published, called "Progressive Cultivation." It gives much information that many men now have at their finger tips and find almost invaluable in their daily work. It will help you in yours.

HERCULES POWDER CO.
Chronicle Building,
San Francisco, Cal.

HERCULES POWDERS



SHEEP have ever been in the vanguard of civilization. This country has been no exception in this respect. The magnetism of cheap lands has constantly drawn the industry westward, creating quite a general impression that sheep are unprofitable upon high-priced land. This may have been true in the past, but the industry is undergoing an evolution. The range is almost completely occupied and is constantly decreasing in extent. The cost of running sheep in the range country has gradually increased. The period of exploitation is passing and a new era of constructive live stock farming is at hand, which means that a more intensive system of sheep farming upon high-priced land must follow. This is already in evidence in certain localities and, with better care than is now generally given the sheep, should prove more extensive. In England the question is not whether you can afford to keep sheep on high-priced land, but whether you can afford to keep high-priced land without sheep, and the time is fast approaching when the same thing will hold true here.

[Contribution from Bureau of Animal Husbandry, U. S. Dept. of Agr., Bulletin No. 20.]

A New Place For Sheep.

To the Editor: When a man who has been a farmer and fruit grower for twenty years knocks at the door of the editorial sanctum for information and advice, he is apt to feel a bit sheepish. I trust, however, that you can give me such counsel that I may go away feeling yet more sheepish.

My experience as an orange grower has convinced me that animal manures, straw or hay, constitute, in the main, the best medium for fertilizing an orchard, largely because of the effect of the humus on the physical condition of the soil. My place is on a high mesa, consequently the cost of hauling wet stable manure, added to the cost thereof at my railroad station, makes a price that is well nigh prohibitive. Some one—was it the University?—once made the statement that the fertilizer value of a ton of alfalfa hay is $9 to a fruit grower. I do not know if that included any estimate of its value from the physical or humus standpoint. Anyhow, when the people of our little community appealed to us to supply them with fresh milk at city price we accepted the proposition and bought three cows, arguing, mentally, that we would make a profit on the milk and also on the resulting fertilizer. One of the boys delivers the milk by motorcycle, going in one direction in the morning and in the other at evening—and the plan is a success, except that we want still more fertilizer. We have frequently wished that there were some diminutive animal which the dweller in the country could raise and which would yield meat of the character of beef, pork or mutton. The tame hares are excellent, but we tire of the meat; hence the queries I am going to propound concerning sheep, and the resulting mutton—for I esteem good mutton above venison. Our little milk constituency would doubtless be glad to have fresh mutton once a week and would consume about one carcass—at least with the very able assistance of our own family. The price, like that of the milk, would be the full retail figure. The hay would cost an average of $10 per ton delivered here. Do not fear that I am going to ask you if we can make the deal pan out financially. It may be possible for a state to guarantee bank deposits with safety to itself; I, for one, doubt it—and I have never asked a rural journal to insure weather, crops or freak experiments. But, having had no experience with sheep, I shall be pleased to have your advice as to breeds and method of procedure. Of course if you feel it your duty to prick the bubble I shall be sadly grateful. I am assuming that, with the passing of Woodrow Wilson, there will be a slight increase in protection to the sheep industry.—Orange Grower, San Bernardino Co.

[We see no reason why your theory will not be practicable, providing you can interest your neighbors in the fresh meat supply. The mutton carcass, unlike the beef carcass, is of such a size that a quarter or a half, either of which supplies a variety of cuts, can be conveniently utilized in a household of ordinary size with ordinary refrigerating facilities. Another advantage is the fact that the leg, which has the smallest percentage of waste of any cuts of mutton, is of suitable size for family use, for a piece of meat which has not been cut up keeps better than one which has been cut.

Sheep husbandry should receive more attention from the farmers of this State than it does at the present time. Unquestionably, sheep raising could profitably be fitted into the general management of a great many farms where there are none at present, and while we know of no such undertaking in citrus orchards, we see no reason why you cannot profitably carry on such a program, providing you can secure a suitable supply of feed.

Sheep will increase the fertility of the soil if they are handled properly. To do this, they should be permitted to graze over the land freely, though it is not a wise plan to overstock or keep them on one field too long. Sheep manure, with one exception, is the most valuable of all farm manures, and when it is thinly and evenly scattered over the ground, it does not produce the rank growth of plants as do other manures. The manure is also worked into the soil by the sharp hoofs of the sheep, so it is not washed away, but becomes available as a plant food. Another important way that sheep increase the productivity of the land is their destruction of weeds. By eating the weeds, they make more room for the cultivated crops, and increase the supply of plant food and water available for them by preventing the weeds from using it. No class of live stock, with the exception of goats, will eat as many weeds as sheep.

By converting these waste products into wool and mutton, they do, therefore, hold out a source of profit to their owner which is not found with other kinds of live stock.

Sheep are good scavengers, but should not be made to subsist on weeds alone, with little or no attention on the part of the farmer. The sooner the owner realizes that his sheep cannot return satisfactory profits under such conditions, the better it will be for him.

Alfalfa hay is considered an excellent feed for sheep, but it would probably be better to make provision for some pasture crop. Alfalfa pasturage makes excellent forage for sheep with the exception of bloat, which is a serious factor with such pastures. Root crops are commonly considered of great value as a sheep feed and could very likely be grown by you in connection with your orange orchard.

In establishing a flock of sheep, as with other livestock, it is better to start on a small scale, especially when one has not had previous experience. Mistakes in management are not nearly so costly when started on a small scale and less capital is involved. If afterward it is desired to augment the size of the flock, this can be done by the natural increase, the best ewe lambs being selected each year for this purpose. This should prove more economical than purchasing all of the stock outright.

Most of the grade sheep in California are of a Merino base due to the fact that our sheep industry has been almost exclusively of a range nature and the Merino blood is a necessity for such purposes. They are not, however, considered the best for small farm operations, as in the latter case mutton is the chief requirement and wool a secondary consideration. For these reasons it would probably be advisable for you to purchase young grade ewes and cross them to a Shropshire or mutton type buck. Your plan is so startlingly new that we should like to know of future results.—Editors.]

Disk plows are generally better than moldboards for tule ground.

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Grandsons of Tilly Alcartra
At Prices Within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornkyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Each an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

De Laval Quality
The Ideal Green Feed Silo
in the same class as the De Laval Separator.

A SILO TO BE OF ANY VALUE TO THE USER must return as good ensilage every pound of good feed put into it.

TO DO THIS IT MUST BE ABSOLUTELY AIR AND WATER TIGHT and be so designed that the shrinkage, while [illegible] can be readily taken up.

The user of an

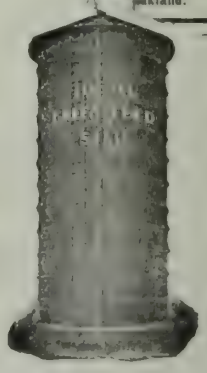
Ideal Green Feed Silo

has the same guarantee of quality in
PROPER DESIGN,
SKILLED WORKMANSHIP,
MATERIAL for LONG DURABILITY,
HIGH EFFICIENCY as has the user of a

DE LAVAL SEPARATOR

Not How Cheap, But How Good

Send for new 1915 Silo Catalog B that tells why an IDEAL GREEN FEED SILO is better than a water tank type or a homemade silo.



Everything for the Dairy.

De Laval Dairy Supply Co.
SAN FRANCISCO, SEATTLE.

Veterinary Queries.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

HORSE WITH BAD LEG.

To the Editor: I have a five-year-old buggy horse that got hurt on July 6, 1914. I turned him out in a 20-acre field where there were a few white fir limbs that had fallen down and lay scattered around on the ground. He had been in the stable three or four days. When I turned him out, he started to run and kicked around for about an hour. When I took him in that night, I noticed a hole on his leg about the size of a 25-cent piece. I soaked a wrapper in cold water and put it on every night for about a week. The leg swelled from knee to the hoof about three times its size. Proud flesh started right away, so I blistered it good four times about every 10 days and then I kept it greased and it healed-up about the middle of October. But it would discharge pus and a watery substance about every month for one or two days, then would stop and heal over again. Now I have been rubbing him with absorbine for two months, morning and night, and it does not reduce any swelling. He has never been lame. The only time he is sore is a couple of days before it breaks out. He does not like it when I rub around the sore, otherwise he never moves when I rub him. I keep him out all the time except stormy nights. He seems to keep well up in flesh. There was a barb wire fence all around in August while I was still driving him. He would be a little stiff in that joint, but in 15 minutes he could pace as naturally as ever, and the swelling would go down a little. As soon as he stood still it puffed up again.—J. H., Jr., Metropolitan.

[Your horse has a foreign body in the wound, either a piece of the limb that caused the trouble or a broken spicule of bone. Thoroughly sponge out the wound with a two per cent solution of cresol and wash your hand [illegible] ert your finger into the [illegible] if you can feel this rec[illegible] and remove it. it is [illegible] not heal up as long and [illegible] it as soon as removed [illegible] if you wash it out daily with the above antiseptic solution.]

Oak Grove BERKSHIRES

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

COWS BEFORE CALVING

To the Editor: I have a two-year-old heifer, due to calve in about a month, which I noticed when lying down would often squeeze quite a little milk from her udder. On trying to milk her, I was quite surprised to get five pints of milk. A nearby dairyman advised me to continue milking, although he has not seen her. Should I milk her regularly, how often, and up to how near calving time? She is on good pasture feed with a small amount of moistened beet pulp and ground alfalfa morning and evening, with occasionally a little rolled barley or bran mixed in.—E. L. O., San Diego.

[It is poor policy to milk cows just before calving, as the first milk, colostrum, secreted is necessary to calf to start his gastric organs working properly. As long as your animal has good pasture, do not feed mill feeds or beet pulp until after calving. If bag shows signs of hardening or caking, massage thoroughly and apply spirits of camphor rubbed in thoroughly.]

CRACKS IN HOOF.

To the Editor: I have a five-year-old mare that has some trouble with her feet which I think is thrush, but not being posted on that disease am not sure. I keep her in the stable on board floor, but in leading to and from the watering trough through a muddy corral three times a day it keeps her feet wet all the time. The frog of the foot seems to be the only place affected. On the surface it looks sound, but in places just under the surface it is sort of honeycombed and little cracks and crevices extend from ¼ to ¾ of an inch in the foot. She isn't lame and it does not seem to be sore. I am now keeping her feet as dry as possible. What should I do for it, or will it correct itself when dry weather comes?—J. L. T., Fresno.

[Clean out cracks and crevices in the frog, and pack them with powdered calomel once a day. Also keep feet as dry as possible. This treatment should be kept up till cracks show tendency to grow out sound and all odor leaves.]

LEAKY TEAT.

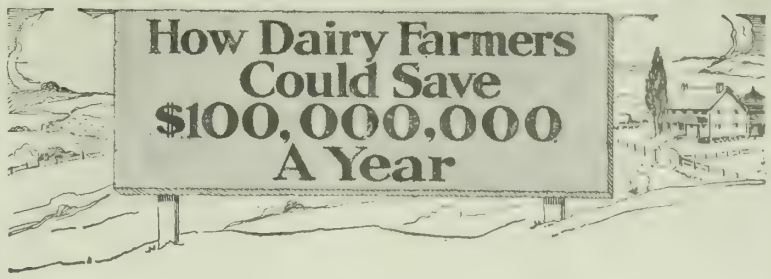
To the Editor: Will you kindly inform me if there is any preparation that can be applied to a cow's teat to stop leaking. Ever since coming in recently I notice every afternoon before milking that milk drops very rapidly from three teats and from the other teat it runs in a light stream. She has a fair size bag, and I only take enough milk for own use, calf getting balance.—F. H. G., Sebastopol.

[There is no preparation which, if applied to teats of cows, will prevent loss of milk. The best remedy is to milk often, say three times daily. Try removing the calf, and milking by hand entirely, feeding calf from pail.]

SWOLLEN UDDER.

To the Editor: I have a three-year-old heifer with her second calf. her udder is very badly swollen and caked. Have used vaseline, also warm vinegar and salt. The left half is getting better, but the right is not, and is even swollen between and back of her hind legs. The calf is six days old; hasn't sucked but a couple of times. What would be the best treatment for this?—F. W. O., Reedley.

[Get some camphorated oil and apply this quite warm to udder five or six times a day. Give internally fluid extract phytolacca 1 oz., and fluid extract belladonna, 1 drachm, three times a day.]



A saving to the dairying interests of $100,000,000 a year would result from the universal installation of the

SHARPLES MILKER

For this machine alone—now milking 250,000 cows twice daily—has developed the mechanical milker to its highest known degree of efficiency.

The Sharples Milker today is recognized by dairy farmers who have given sincere investigation to the milking problem as standard dairy equipment. "The Teat Cup with the Upward Squeeze"—a device that gently massages the teats **upward** by means of air pressure after drawing each squirt of milk, keeping the most sensitive teats healthy and pliable—is an exclusive feature.

It is our conviction that cows cannot be successfully milked by a machine without the upward squeeze. This process is covered by the broadest patent which our Government can grant—a process patent—owned by us. No other milker made in the world today gives an upward squeeze. We will promptly defend our customers and ourselves should any infringement be attempted.

The superiority of the **Sharples Tubular Cream Separator** is typical of its popular growth year after year.

Send for literature describing in full detail the manifold advantages accruing from the every-day use of Sharples products. Sent anywhere on request.

The Sharples Separator Company

West Chester, Pa.

Principal Branches: Chicago San Francisco.

DISTRICT OFFICES AND AGENCIES EVERYWHERE.

AT A meeting recently held at San Leandro by an association known as the Independent Ranchers of Alameda County, the present cost of producing a dozen eggs was computed at 30 1-5 cents. This estimate covers only the cost for feed and does not provide for labor, depreciation or death loss, interest on investment, rent, incidentals, or expense of delivery to the ultimate consumer. A resolution reciting these facts was adopted and a copy forwarded to the San Francisco Wholesale Dairy Produce Exchange, accompanied by a request that the wholesale market price be raised by the Exchange to 32 1-5 cents, which, was claimed, would afford the poultry raisers a profit of two cents a dozen.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by Geo. H. Croley, President Federated Poultry Ass'n of California.]

Who knows what it costs to produce a dozen eggs? At the head of this article we present the essence of a lengthy report by a committee of an association made up of egg producers, while at the foot we publish the exact statement in a recent letter received by us from the chief of the poultry division of the University of California. This wide difference in the estimated cost of feed necessary to produce a dozen eggs indicates that the Independent Ranchers and the poultry division of the University have not been in recent consultation; possibly neither knows of the existence of the other. Mr. Jacobs, Secretary of the Independent Ranchers, states: "We have been begging for years for an amelioration of conditions, not aiming to make fortunes, but only a chance to make a reasonable living. Instead of improvements and a forward movement, we have gone backward."

This is another illustration of the need of a Commissioner of Poultry whose duties should include the use, at a comparatively small cost, of much of the present expensive machinery of the State for the direct benefit of the poultry producers.

It has been the disappointing experience of the Federal Government —as well as State authorities—that the masses cannot or will not automatically absorb what appears to them to be academic information or advice. The common people who make up the rank and file of poultry farmers are particularly indifferent to the information directly supplied by colleges or expert investigators, no matter how good it may be. It requires a more familiar or rough-and-ready medium to make it popular and practical. The excellent results obtained through the efforts of the California State Dairy Commissioner supply a splendid example of what can be accomplished by presenting advice in this manner.

It has been demonstrated beyond doubt that the producers have been unable to discover just what it costs to produce a dozen eggs; the University figures in this case are incomplete, but if every item of cost was included, they would not be properly appreciated; and few consumers have any reliable knowledge bearing on what he should pay for good eggs. In addition there is much to learn regarding feeding, handling, storing, and selling of poultry and eggs before we can bring about a substantial saving of the present $7,000,000 annual loss. To accomplish this end, the Federated Poultry Association of California is asking the Legislature to pass the Agricultural Law — Assembly Bill No. 164—amended to include a Division of Poultry in charge of a Poultry Commissioner.

As the Legislature is now in session and the law covering this subject will be acted upon within the next three weeks, I would suggest that every poultry producer, as well as consumer, write at once to the representative and senator from your district asking for support of the resolution to amend the agricultural bill and to vote for its passage after amendment.

PROF. J. E. DOUGHERTY, head of Poultry Division, University of California Farm, Davis, states: "Our experiments have indicated that it will cost, on the average, from ten to thirteen, plus, cents for the grain and mash to produce a dozen eggs. In one of our experiments where we fed skim milk, it most us slightly more than ten cents for the grain and mash consumed to produce each dozen eggs."

Poultry for Profit

POULTRY OUTLOOK IS GOOD.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

The last few months have been very discouraging to the poultry men of this State, especially the southern part. But "hope springs eternal in the human breast," and while hope alone is a very poor tool for practical people, when it is combined with action it is a number one article to tide us over a crisis and stiffen the backbone up to a stage of resistance. The doctrine of non-resistance is very beautiful, on paper or as an ideal, but for the practical, every day living in the present condition of "marketing" produce grown in the soil or on it, you need something more resistant than whalebone for a back bone, and a hide as thick as a rhinoceros. But from the present outlook I really believe we are going to have better methods of marketing, and this means better things all around, for if the consumer can get eggs and other produce without such costly machinery to reach them, the poultrymen and farmer will never be met with that old bugaboo "overproduction."

American people know what is good to eat and the average working man will have eggs on his table the year round if he can get them at a reasonable price, and he is not close about the price, either. So this means a larger and better home market; the home market is the best to cultivate because the least expensive.

And this is the time to think and act on these things. The man or woman who can raise one or two hundred chicks should set about it soon; that is, he should figure out what he wants and how to get it. Figure out the cost of raising the chicks after they are hatched or bought; figure out how much room you have and then hatch the largest number you can do justice to all around. But be sure not to overestimate your capacity of either room or funds. One hundred or five hundred chicks, well raised and cared for, will give better returns, both in satisfaction and funds, than double the number poorly cared for, or half raised.

Every farmer and poultryman should produce what he can, even to the limit, this year; then if there are any crowns to be given for good deeds, surely the American producer will come in for a share. Feed, feed the hungry—this command is obligating on us who as a nation are free from the horrors of war. Let every man and woman do their duty. This is the best kind of charity; it ennobles both producer and consumer to produce healthy food for the world.

Would like to know if I am on the road to better results. Last year I bought 100 two year old White Leghorns. They got scared in transit; then when they arrived I had no good house to put them into. After three weeks I moved them to four colony houses and gave them free range. Fed them 20 per cent oil cake meal and soon everything was covered with feathers but still got no eggs. Kept up my feed and about the middle of November got five eggs for a start. They ran up to 18 eggs a day average. My feed has been Sure Lay Mash, kept before them all the time, warm boiled barley, four quarts morning, and four quarts wheat at night. Fed cabbage and onions once a week, fastening the cabbage up so high so as to make them jump for it. Am I feeding enough to make more of them lay or what is the matter? The hens will be three years old in April and cocks are going into their third year. Put one cock to 20 hens. How can I remove the spurs without hurting them?—W. H. E.

You are feeding plenty, the only trouble is that your hens are old and will not lay until spring. Leghorns three years old cannot be forced much, so you will have to be patient. Your reward will be in the strong chicks. It is best to keep the males away until ten days before you want to start saving eggs, then both males and females are fresh. I would prefer to soak the whole barley and let it start to sprout, this is better for layers than boiled barley; feed it for breakfast the same.

To Remove the Spur: Put two medium sized potatoes in the oven and bake, when done stick one on each spur and be sure it fits right up to the leg. Hold them on for five or six minutes, then pass a jack knife around the edge of the spur close to leg and the spur will peel right off, put a little vaseline on the bone and you have a good neat job. And right here will say that all spurs which run downward should be removed. It is more humane; besides, the flock does have that ragged appearance common to hens who are annoyed with a long-spurred male. Spurs are of no use whatever, so off with them, and add comfort to the flock.

Feeds and Breeding. —Are Egyptian corn and Milo the same thing and do hens lay as well on them as when fed wheat? Would the Hogan system be practical for a beginner, if so where can I get it? Does it take much extra time? Would pullets lay well that are raised from poor layers but are mated to a rooster from good laying strain?—B. M.

Gyp corn is not quite so strong as Milo; the latter is richer in fat. In feeding these grains care must be taken to make the hens exercise for them; if the hens can eat them from the ground they have a tendency to fatten. The protein in them is not so high as that of wheat, therefore unless the amount of protein is made up in other feeds hens will not lay quite as well as on a wheat diet, still they are cheaper at present and my hens are doing very well on these same grains. The Hogan system takes only five minutes per hen, and anyone who can read can use it.

Would prefer two year old hens of same strain if I had them and remove the pullets.

What would be a good substitute for cottage cheese for young turkeys? We have no cow and I want to raise them. Would it be good to cross a Bronze Tom on White Holland hens just for market turks?

The best substitute for cottage cheese for young poults is Spratt's Chick Meal. This is the feed par

Eggs Wanted

Egg Producers! Egg Shippers!
STOP! LOOK! LISTEN!
Highest prices paid for clean fresh eggs.
Address
E. F. ZUERN
Wholesale Produce
Butter-Cheese-Eggs-Poultry
354 Fourth St., Oakland, Cal.

Send for our booklet
"White Leghorn
BABY CHICKS"
FROM HEALTHY HAPPY HENS
and that helpful pamphlet,
"FEEDING CHICKS"
Free on request.
Must Hatch Incubator Co., (Inc.)
419 Seventh St., Petaluma, Cal.

Get the Best
for your chicks
Coulson's
Special Chick Food
Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

excellence for young chicks, turks, ducks, and goslings. Yes the cross will be all right for market turks, but they will not look very pleasing to the eye.

Which is best for chickens, milk from the separator or from the churn? Is there any difference as to nourishment on the supposition that both can be had for the same price?—E. O. M.

Personally I would prefer the milk from the separator unless the churning is done from perfectly sweet milk. A chemical change takes place in milk that stands, or perhaps we should say cream, that while it neither adds to or detracts from the nutriment, so far as I know, does affect the bowels of poultry and causes too much looseness when fed in quantities.

"CALIFORNIA POULTRY PRACTICE"

The fact that the book, "California Poultry Practice," was written by a woman may be against it in the minds of some unthinking people, say for a moment. But it should be for a moment only. Let us take into consideration that women are more successful with chickens than are men; and the reason is that they attend more closely to the little details—the apparently unimportant trifles which men are so fond of neglecting. Then we can readily believe that a woman can write a good book on poultry raising. Be it known, also, that Mrs. Susan Swaysgood, the writer of the book, "California Poultry Practice," has had forty-five years' experience with chickens. Understanding this, the reader of the Journal can more readily believe that Mrs. Swaysgood's book is a good one. The readers of the Journal are already familiar with Mrs. Swaysgood's writings on poultry, as she has written for many years for this publication. They know that she is a practical woman of common sense and a complete knowledge of the subject. Her book is well written, goes deep into the details and is plain to the most ignorant beginner. And, while of course it is of most value to the novice, old poultry raisers will find in it many items of value and will not regret the price. The book does not treat of eastern conditions but is written especially for those who wish to raise poultry on the Pacific coast. This is in itself a most important consideration, as the Pacific coast climate is so different from that of other parts of our "good old U. S. A." Take our word for it, the book is all right.—Petaluma Poultry Journal.

R. I. REDS VS. ORPINGTONS.

To the Editor: In your valuable paper of Jan. 23 Mrs. Swaysgood says that Orpingtons will outlay the Mediterranean breeds "three to one" in winter. Now I have 450 White Leghorns and don't claim any records for them, either; however, I would like to see the flock of Orpingtons that would outlay them "three to one," even in winter. As to the best all-round fowl for the farmer to raise, in my opinion the Rhode Island Red is a much better all-round fowl than the Orpington. Everything else being equal, they will lay at least as many eggs as the Orpingtons and will stand our summer heat much better and are better foragers. As a meat proposition, while the Orpingtons might be a little heavier than the Rhode Island Reds, their meat does not surpass that of the Rhode Island Reds. I have no Rhode Island Reds and this is no cheap advertisement; but merely a word in defense of the Mediterranean breeds and an opinion as to the best all-round fowl for the farmer to raise.

Aptos. WM. HAUFE.

Pullets must be well matured before they will lay many eggs.

FOUL BROOD IN WINTER.

Many beekeepers endeavor to carry diseased colonies through the winter because it is so much easier to treat them in the spring than in the fall. In a very large number of cases the diseased colonies die during the winter and the honey is robbed by other colonies, thus spreading the disease throughout quite an extended area.

The general idea is that, inasmuch as little breeding is done in the winter there is small likelihood of the disease spreading in the hive. This is quite true. However the following factor is the most important one: The diseased brood is so offensive in odor that but a very small amount is highly disagreeable to the bees. This militates against the natural tendency of the bees to cluster during severe winter weather. A colony lacking compact clustering during winter soon succumbs. Very few colonies affected with foul brood get through the winter for this reason.

If a colony is found affected with disease in the fall, either destroy it entirely or transfer the bees to a clean hive and furnish them with sealed combs of honey, after they have been deprived of any food for forty-eight hours. Sugar syrup cannot be successfully fed in the winter.

WESLEY FOSTER,
Colo. Bee Inspector.

[The Butte County Beekeepers' Ass'n was recently organized for the principal purpose of preventing importation of diseased bees. The number of stands in that county has increased greatly of late years, yet it is claimed that there is no disease among them. They have petitioned the supervisors to adopt an inspection ordinance and appoint a bee inspector. F. C. Williams is sec'y-treasurer. Editors.]

Pullets that start to lay in the fall before cold weather sets in will, as a rule, lay all winter.

California Poultry Practice. $1 postpaid. Pacific Rural Press.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve beekeepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco

FREE BOOK

Raising Calves without milk. Everytihng you need for stock and poultry raising. Write today.

F. F. SMITH & CO.,
1006 J St., Sacramento.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

BABY CHICKS
Standard Bred.
The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

LEAST SAID, SOONEST READ—Quality and price—good-will and satisfaction. Baby chicks. Hatching eggs from pure-bred, hardy, well-mated stock. Rhode Island Reds, Black Minorcas, White Leghorns. Circular with prices will interest you—Free. Roofden Poultry Ranch, Campbell, Cal.

EGGS—HEAVY WINTER LAYERS—Free range single comb, 2-year-old White Leghorns. For first 25 settings, $1 for 15, or $5 per 100 for introduction. After $1.50 for 15, $7.50 per 100. Satisfaction guaranteed or money refunded. Leffler Poultry Farm, R. 1, Box 39A, Ripon, San Joaquin Co., Cal.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for catalog. Whitten Ranch, R. 5, Box 646, Los Angeles.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

EGGS FOR HATCHING A SPECIALTY.—2-year-old S. C. White Leghorn Hoganized hens mated to Hoganized one-year-old cocks. Price for March and April, $5 per 100; $45 per 1000. Pine Tree Poultry Farm, Los Gatos.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First prize winners at leading California shows. Eggs for hatching. Year-old cockerels bred from my best layers at $3, $5, $7.50 each. Wm. Larm, 3854 39th Ave., Oakland, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

ENGLISH WHITE LEGHORN COCKERELS—Bred from hens imported direct from the Barron farm, England. Price, $5. Eggs for hatching, $3 for 15. English Leghorn Hatchery, R. F. D. 13, Cupertino, Cal.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE PLYMOUTH ROCKS and White Leghorn. Pure-bred stock. Exhibition and winter layers. Big hatch due March 25th. Write us. Pleasant View Farm, Box 291, Pleasanton, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred, Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. R. Tupper, Ceres, Calif.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

FOR SALE—200 White Leghorn yearling hens and a few males. Also chicks any age—White Leghorns or White Rocks. Shipped on approval. All pure-bred stock. Pleasant View Farm, Box 291, Pleasanton, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

CHICKS AND EGGS from prize winners. Buff Orpingtons and Barred Plymouth Rocks. Excellent layers. Prices reasonable. K. L. Kirby, Oakdale Poultry Farm, Watsonville.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

FOR SALE Last of March and April delivery. White and Brown Leghorn baby chicks from selected thoroughbred stock. Rose Hill Poultry Farm, Turlock, Cal.

FOR SALE—White Leghorn Chicks and Eggs. Rouen Duck Eggs. Dan Lieginger, R. 4, Stockton.

BLACK MINORCAS—Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

DIABLO WHITE ROCKS—EGGS FOR HATCHING Special exhibition matings, $7.50 per 15; utility, $2 per 15; $10 per 100. C. J. Struby, Concord, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUTTERCUPS—the new farmer's fowl; lay many, large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

BUFF LEGHORNS—Prize-winning, trap-nested, 250 egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

BARRED ROCKS—Cockerels, Pullets, Eggs. Winners of two specials, two firsts and one second, Stockton show. G. H. Grupe, R. 3, Stockton.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland, Cameron Bros., 689 Vine St., Sacramento, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS — Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BUFF ORPINGTON Eggs, $1.50. Runner Ducks, $1. Chix, 15c; dux, 20c. Glendale, Fleming Ave., San Jose, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

FOR SALE—S. C. Rhode Island Red Eggs for hatching. $5 per 100. L. F. Clayton, Hughson, Cal.

A FEW thoroughbred English White Leghorn Cocks. David Rueck, R. 4, Box 53F, San Jose, Cal.

ANCONA EGGS from prize-winning stock, $1 per setting of 15. R. L. Graybill, Live Oak, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. O. L. Hawley, Madera, Cal.

BELGIAN HARES.

LET BELGIUM HARES and New Zealand Reds reduce your living expenses. Breeding Does and Bucks at reasonable prices. Armstrong Rabbit Yards, Hayes, Lane & Webster, Petaluma, Cal.

FIR CRAGS RABBITRY—Fine breeding stock. Box 263, Sonoma, Cal.

Dehorning Cattle.

To the Editor: You may get tired of my writing your paper so often, but I have seen several times in the Pacific Rural Press pieces about dehorning cattle. I presume I have dehorned as many, or perhaps more, cattle than any one man in the State, having commenced it about 35 years ago. I have taken off the horns of a hundred cattle belonging to one man. I first commenced when you would read of someone being arrested for cruelty to animals. I admit that a few of the first ones were not a very good job.

I see in your paper of Feb. 20 about horns growing if taken off before the third year. They will grow at any age if not taken off close enough to the head. I have a butcher's saw, but don't like it as the blade is about ¾ of an inch wide and is liable not to cut straight, as the head is more or less on the move. I use a common saw that some call a siding saw, about 16 to 18 inches long. Cut by commencing three-quarters of an inch from where the skin or hair joins the horn on the top side and slanting so as to come out on the bottom side of the horn where the skin joins the horn, and they will never grow, I don't care at what age. I never had a single one die or not do well, and I never put on a single thing. I have seen them bleed from two streams like a thread for ten feet, but only for a short time, and never had one bleed to do any damage. I have taken them off only a few days before calving and only a few days after, and off from bulls that were strong enough to move the earth. One of my neighbors went by once and said, "You fellows ought to be prosecuted." In less than a year after he said, "Some day when I am gone to town, come down and cut them off my cattle." I don't like to take them off if too warm, as they will bleed more, but never too cold. Have cut them off when 44 degrees below zero (but it was not in California). My experience is that if you cut close to the skin from top to bottom of the horn they will often grow stubs, and commencing back on the top gives the head a better appearance. The way I take them off now, the skin will grow all over and hair grow out so it will never look as though any horns had ever been there. I hope this may help some one.

Winton E. LEATHERMAN.

EXHIBIT STOCK FROM QUARANTINED AREA.

To the Editor: Numerous telegrams and inquiries reach the office of the Department of Live Stock, of the Panama-Pacific International Exposition, asking for information with regard to the possibilities of importing cattle, sheep, and swine from states that have been infected with foot and mouth disease.

There are sixteen or seventeen states that have been visited with this disease; the rest of the United States has not been troubled.

The Department of Live Stock of the Panama-Pacific International Exposition will not ask Federal or State quarantine authorities to do anything that will jeopardize the health of the livestock in any part of the United States.

The cattle competitions in livestock at the Exposition do not begin until October 18. Sheep and swine begin November 31.

Long before these dates the foot and mouth disease will be effectually stamped out.

Dr. Chas. Keane, California State Veterinarian, has made the following rule:

"No cattle, sheep, or other ruminants, or swine, will be permitted to be shipped for exhibition purposes at the Panama-Pacific International Exposition from any area in which foot and mouth disease has been found, or from areas contiguous thereto until a reasonable length of time has elapsed since such territory has been declared clean by the United States Department of Agriculture and State Live Stock Sanitary officials."

Any negative action by individuals, associations, clubs, or states at this time would be premature. There will be a truly great live stock show at San Francisco and the wise breeder will get ready for it.—D. O. Lively, Chief of Dept. of Live Stock.

Stock Buyer

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

Copro

Look for this name on every sack

An Appetizing Food for Poultry, Dairy Cows & Hogs

Made From Selected Cocoanuts By Our Improved Process

Makes hens lay more eggs,
Increases butter fat in milk,
Makes hogs fat with clean flesh.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B
PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.

If Your Dealer Can't Quote Prices Write Us Direct

Three Carloads
Hereford and Shorthorn
BULLS

All of serviceable age, registered and tuberculin tested.
Bred in Nebraska and Missouri.
All first-class bulls.

For prices write
W. M. CARRUTHERS,
218 Hearst Bldg., San Francisco.

Short Horn Bulls

20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.
H. L. MURPHY, PERKINS, CALIF.

TAMWORTHS
The Big Red Bacon and Block Hog. Send for prices and circulars.
COTTLE & HOBSON CO.,
Amsterdam, Cal.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

DAIRY AND HOGS

A Most Unusual Opportunity

A well-to-do practical farmer with successful experience in alfalfa, hogs and dairy cattle can make a fortune by buying a half-interest in a magnificent eleven-hundred-acre ranch in the most productive section in the San Joaquin Valley, if he will relieve present owner from management. Not necessary to live on the farm; now being ably superintended. The land is first-class, suitable for alfalfa, orchard and vineyard, being an alluvial deposit of great richness and depth. Ranch is partly stocked with cows, calves, hogs and horses. Plenty of water at nominal expense. 250 acres now in alfalfa. 350 acres now in barley to be followed to Egyptian corn as soon as the crop is off. 100 acres in oats.

The ranch buildings, including dairy barn, are of superior type, and there is a complete stock of implements, machinery, pumps, Caterpillar engine, automobile. Good domestic water supply, family orchard, vegetable garden, etc.

THIS RANCH CAN BE EASILY DEVELOPED INTO ONE OF THE FINEST AND MOST PROFITABLE DAIRY STOCK PROPOSITIONS IN CALIFORNIA.

Owner will sell outright, but would prefer selling half-interest to experienced dairy and stock farmer of means. Will deal with principals only. For full information address

E. P., 810 NEVADA BANK BUILDING, SAN FRANCISCO, CALIFORNIA

Stock Beets For Dairy Cows.

To the Editor: Do you advise the feeding of stock beets to dairy cows in connection with alfalfa hay? I have been informed by some dairymen that it is more profitable to feed chopped stock beets with alfalfa hay than to feed silage with alfalfa hay. Should you recommend beets, kindly state number of pounds to be fed with alfalfa hay.—I. G. C., Colusa.

[Answered by Prof. F. W. Woll, University Farm, Davis, Cal.]

[Stock beets make a good supplementary feed for dairy cows on alfalfa hay. They are rather low in feed materials, containing 10 to 12 per cent of dry matter, or only one-half to one-third as much as Indian corn or sorghum, at the stage of growth when this is cut for the silo. To offset the low dry-matter content, roots generally yield heavily; viz., 20 to 30 tons, or more, per acre on rich land, and they have a high digestibility and are greatly relished by dairy cows and other farm animals.

In this State either the long red or half-sugar mangel is to be recommended. It may be sown in the fall in deep, well-prepared soil, in rows 30 inches apart, the plants being thinned to 4 to 6 inches in the row. The crop will be available for feeding during the winter and early spring and will furnish a large amount of valuable feed. While definite information is not available as to the cost of raising stock beets under California conditions, they will not be likely to cost more than 50 cents per ton when good yields are obtained, and at this figure are a cheaper succulent feed than any silage crop. Silage, however, has special points in its favor, and even if larger or cheaper crops of beets can be grown, many farmers will prefer to grow Indian corn or one of the sorghums for silage, so as to have a uniform readily available succulent feed for dairy cows throughout the winter. The fact that it is often difficult to get on to the fields and harvest the beets during the rainy season is a serious drawback, and American farmers appear, generally speaking, to have a constitutional dislike to growing roots on account of the labor of thinning and harvesting the crop.

Beets may be fed to dairy cows in considerable quantities, if desired. European farmers and some eastern farmers feed their cows 100 lbs. of beets, or more, per head daily; the latter feed such large amounts to cows on official tests with a view to securing a maximum milk production, without regard to the expense involved. Under ordinary farm conditions it will not be advisable, however, to feed much more than one-half this amount to dairy cows supplementary to alfalfa hay. A ration of 20 lbs. of alfalfa hay and 60 lbs. of beet per head daily will contain about 20 lbs. of dry matter, 2.7 lbs. digestible protein and 11.9 lbs. digestible carbohydrates and fat, which is about right for cows of average production. If a few pounds of grain be added to the ration this would be still further improved.]

BREEDING MARES ARTIFICIALLY.

[Written for PACIFIC RURAL PRESS By Dr. H. B. Wintringham, Petaluma.]

There are two reasons for artificial impregnation of mares, namely: impregnation of hard breeding mares and to increase the number of mares a stallion may serve in a year.

Two methods for gaining the desired end have proved successful in the hands of breeders for general use. One gains the desired result by the use of gelatine capsules size 12, the other by the use of the metal syringe.

In either case absolute cleanliness must be observed; the instruments should be boiled before using and if disinfectants are used they must have all traces of disinfectants washed off with sterile water before use. The same holds true of the hands of the operator, though in this case a little vaseline is permissible for use on the skin as a lubricant.

All mares to receive artificial impregnation should have the mouth of the womb dilated previous to introduction of the serum. Do not mistake the opening of the urethra which leads to the bladder for the os uteri, or mouth of the womb. The urethral opening lies just within the vagina on its floor. At times it takes considerable patience and pressure to insert one finger into the os uteri. As a usual thing two or three fingers inserted will give the desired dilation.

All mares must be free from disease and have no discharge from the vagina. These external genital organs should be washed clean with soap and water and dried.

The stallion is allowed to serve one mare. The capsule is then introduced and used as a scoop to catch up the serum from the floor of the vagina. When full the forefinger is placed over its mouth and it is then introduced mouth first into the womb or withdrawn and inserted into another mare. The gelatine is harmless and soon dissolves.

If a syringe is used it should first be heated to body temperature before insertion. The serum is sucked up and then carried on in to be expelled or withdrawn for immediate use on another mare.

The essential points are the preservation of serum at body temperature and protection from light and air.

The Registered Hackney Stallion
Lord Lovelace No. 1665

will make the season of 1915 at the Woodland Hackney Stud near Woodland.
Mares will be properly cared for at reasonable rates, but at risk of owner only.
The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.
A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.
Service with return privilege, $25.00.
For further particulars call or address
R. E. DRESSER,
Manager Woodland Hackney Stud,
Yolo, California,
or EDGAR J. DEPUE, Owner,
818 Merchants' Exchange, San Francisco.

Swineland

TAMWORTH'S DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

FOR SALE
The Registered Holstein Bull
Lord Asa, No. 117335.
Because we have his heifers and require another sire.
He was sired by
SIR COLANTHA JULIANA.
Dam, QUEEN OF HOPLAND.
He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.
R. E. DRESSER, Mgr.
WOODLAND HACKNEY STUD,
Yolo, California,
or EDGAR J. DE PUE, Owner.
818 Merchants' Exchange, San Francisco

730 times
every year you use a
Cream Separator

NO other machine or implement used on the farm receives anywhere near such constant use, nor is there any other farm machine or equipment with which quality of work means so much and first cost means so little.

If the separator runs hard, gets out of order, or isn't easy to wash, it's a constant bother, and it only takes a very little loss of cream at each separation, when multiplied 730 times, to run into a good deal of money, very soon more than the original cost of the machine. But no matter how small the loss, it is too big a handicap for any cow owner to try to work with.

As a matter of fact, the men who know most about cream separators, the creamerymen, long ago came to the conclusion that the De Laval was the only machine they could afford to use. That's why 98 per cent of the cream separators used in creameries and milk plants the world over are De Lavals.

All the more reason why you should buy a
DE LAVAL

No matter where you go you will find the biggest and best dairymen almost invariably are De Laval users. Experience has taught them that it is the best and most economical cream separator.

You don't have to experiment with cream separators any more because the men who are best able to judge as to the merits of the cream separator have already done that for you, and the result of their conclusion is evidenced by the practically exclusive use of the De Laval in creameries and milk plants and the fact that over 1,750,000 farm and dairy size De Lavals —more than all other makes combined—are in daily use.

The nearest De Laval agent will be glad to set up a machine for you and arrange for payment of same as is most convenient. If you don't know the local De Laval agent, simply address the nearest main office as given below.

DE LAVAL DAIRY SUPPLY COMPANY
165 Broadway NEW YORK | 101 Drumm Street SAN FRANCISCO | 1018 Western Avenue SEATTLE
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

With the Live Stock Men.

DAIRYING.

Corcoran, Kings county, holds the record in that part of the State for individual cream shipments; $1000 worth of cream is shipped daily to Los Angeles.

J. W. Scott of Turlock reports that one of his Jersey herd after her third calf has completed a test of 73 pounds of butter fat in twenty-eight days.

The Anderson Creamery of Shasta county is about to enlarge its capacity to 6000 pounds of butter per day. The growth of the dairy industry in that county has made this enlargement necessary.

W. R. Belknap, live stock dealer of Tulare, recently sold thirty Holstein cows belonging to Fred Harris of that place and twenty head belonging to Chas. Blais to Harold Dalton, dairyman of Corcoran. He also sold twenty head of R. C. Sturgeon's Holstein cows to Mart Raven, another Corcoran dairyman.

Theodore Stirewalt of Los Molinos has recently purchased sixteen registered Jersey cows and a bull from Marion, Ore. The cows averaged $150 a head and the bull comes from a herd which has proved to be one of the finest milk strains in the West. Mr. Stirewalt expects to found a record-breaking Jersey herd.

Would you deliberately snip your harness to pieces? Yet that's just what happens when you allow dust to work into the pores of your harness. The particles of grit cut the fibre of the leather with every movement the horses make.

EUREKA HARNESS OIL

keeps the dust and grit out of your harness. It lubricates and preserves the fibre. It adds years to the life and good service of your harness. Get your harness dealer to dip it. He has a Eureka Harness Oiler. Or buy a can at your dealer's and apply it by hand. Make your harness last longer. Dealers everywhere.

Standard Oil Company (California) San Francisco

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O

Durocs Cholera Immuned and GUERNSEY CATTLE.

Durocs out of R. D.'s Beauty, U. P. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.

ED. E. JOHNSON, TURLOCK, CAL.

HORSES AND SWINE.

An active campaign is to be inaugurated in Yolo county for the elimination of hog cholera.

E. M. Innes has taken charge of the Enterprise Farm at Newark and will breed Duroc-Jersey, Berkshires, and Poland China hogs. He intends to go in strongly as he has a large foundation.

O. H. Webb, stock buyer of Tulare, recently shipped four head of mules from Tulare and seventeen from Porterville to San Francisco, where they were reshipped to Honolulu to be used in the sugar cane fields.

John P. Daggs of Modesto reports the sale of purebred Duroc-Jerseys to the following: Elmer Lamb, Warren S. Tillson, Modesto; H. C. Wallace, Bakersfield; J. F. Fleisher, Pleasant Grove; M. C. De Fraga, Bolinas; J. L. Bollinger, Chowchilla; J. A. Ellman, Modesto, and R. B. Benjamin, Riverbank, Cal.

Chas. R. Hanna of Riverside reports the following recent sales of registered Poland Chinas: 5 head to D. W. Divine, Highland; 2 to D. B. Gregory, Anaheim; 2 to Robt. H. Bungay, Ocean Park; 3 to L. D. Webster, Julian; 6 to Aug. D. Bartol, Riverside; 2 to Aratus Everett, Moorpark; 2 to Valencia Ranch Co., San Juan Capistrano; 2 to J. A. Crawshaw, Hanford; 1 to W. F. Blaikie, Springville; 1 to J. A. Schoonover, San Gabriel; 1 to Geo. Barnholt, McFarland; 1 to R. M. Plympton, Arroyo Grande; 1 to I. Ford, Redlands; 2 to Clara Whitcomb Beiler, Redlands; 1 to A. E. Springborg, Hollywood; 1 to N. J. Hudson, Los Angeles; 2 to J. O. Pyle, Santa Ana; 2 to J. R. Stahlman, Riverside; 1 to R. Nadeau, Florence; 1 to N. Watts, Arlington; 1 to E. Tucker, Anaheim; 1 to C. S. Paden, Nestor; and 1 to C. W. Main, Corona; also sold his prize winning boar, Glenview Wonder, to the Lucky Baldwin Ranch at Santa Anita, Cal.

CATTLE AND SHEEP.

John De Martini of Concord recently left for El Paso, Texas, where he will purchase a carload of fine cattle.

Petaluma is expecting to receive shortly about 400 head of cattle, sheep, and hogs to be conditioned there for the Exposition.

A herd of 81 steers recently sold for $5,650 in Tulare county. The animals were two-year-old grade Durhams and Herefords.

The Gibson Estate of Woodland are sending a carload of Shorthorn cattle to the Portland Shorthorn sale to be held this month.

H. L. Murphy of Perkins, Sacramento county, has just returned from the East with 20 head of fine Shorthorn bulls purchased from Riley Bros. of Nebraska.

It is reported that wolves are killing Elko county, Nevada, cattle and sheep at an alarming rate, and an organized drive is being planned by the ranchers in that vicinity to destroy the wolves.

With the increased interest in silos in this State, the matter of purebred seed corn for silage is of growing interest, it having been difficult in the past to purchase home grown seed corn, which is usually considered best for California conditions. For that reason, the announcement on another page of Mr. Montgomery Baggs, to the effect that he has acclimated seed corn for sale, will doubtless be of interest to a good many of our readers.

Prof. C. F. Curtis, dean of Iowa State Agricultural College, was in California last week, making arrangements for the care of a trainload of registered horses, beef cattle, dairy stock, sheep, and hogs, about 400 head in all, to be shown at the Panama-Pacific Exposition this fall. Prof. Curtis is also president of the American Berkshire Association, which has twelve head of hogs now at the Exposition, that number to be increased to thirty at once.

MISCELLANEOUS.

A goat farm is to be started in Butte county by C. A. Sample of Chico.

The Portland Union Stock Yards' receipts for the week ending March 4 were as follows: 981 cattle; 2885 hogs; and 4496 sheep.

W. M. Carruthers has been appointed by F. W. Harding the secretary, and confirmed by the Executive Board of the Shorthorn Breeders' Association, as a representative in the West.

The famous Stock Parade, in connection with the Annual Farm Picnic of the University Farm School at Davis, will take place on Saturday, April 24, and it is expected to bring together not less than five thousand admirers of the University's highly pedigreed stock.

R. M. Dunlap, who for the last four years has been in charge of the Simon Newman herd of Herefords, has been engaged by the Whitehall Estates Co. of Tracy to take charge of their herds of Shorthorns and Herefords. Mr. Dunlap has been known as one of the best fitters and feeders on the Coast for many years, and the Whitehall people are to be congratulated upon his acquisition.

ANOTHER GUERNSEY RECORD.

[Written for PACIFIC RURAL PRESS.]

That the Guernsey cow is fast coming into its own as a record breaker is evidenced by a communication which has just been received from the American Guernsey Cattle Club, in which they inform us that the Guernsey cow, Murne Cown, 19597, has just finished her second record with 24,008 lbs. milk and 1098.18 lbs. butter fat, which places her at the head of all competitors regardless of breed in butter fat production.

An interesting fact in regard to this cow is that when O. C. Barber, of Akron, O., purchased her with eight other young animals three years ago, he paid but $1100 for the entire lot. The record which she has just made places their owner in a position where he can demand almost any price for the one cow, the increase in value being worth a great many times the comparatively small original cost.

The total cost for feed for this cow during the year was 53.9 cents per day and her milk when sold at 10 cents per quart amounted to three dollars per day.

Her record surpasses by a liberal margin, both in milk and butter fat, the former record of May Rilma, whose record last year created great enthusiasm among Guernsey breeders.

SWINE HERDS RENEWED.

Swine breeders will be interested in knowing that the Duroc-Jersey and Tamworth hog foundations, which were founded by the Swineland company at Yuba City several years ago, have been purchased by Wm. O. Pearson. Mr. Pearson has also purchased 100 acres of the Geo. Hoppin ranch in Yolo county, where he will specialize on the two above-named breeds.

Perhaps no company has ever done more to advance the hog industry than the Swineland people did during the time they were in the business, but with the withdrawal of Mr. Davis, the manager, who accepted a position with the Exposition company at San Diego, little has been heard of the company's operations since then.

Mr. Pearson states that he has secured the entire foundation of both these herds and expects to carry on the business in a large and progressive manner. There are at present over 100 head of registered animals in the herd, the major portion of which are at this time Tamworths.

With the increasing demand for purebred stock, and the fact that he has located in one of the best sections in the Sacramento valley, Mr. Pearson should be able to do a great deal of good for the swine industry of the State.

TO HOLD JERSEY SALE.

[Written for PACIFIC RURAL PRESS.]

Jersey breeders and well wishers in the State will be pleased to know that another consignment sale of purebred Jerseys is to be held this spring at Modesto. Mr. G. O. Hillier, who has previously held two of these sales, has informed us that since his return from England a number of Jersey breeders have persuaded him to act as sales manager of a large consignment sale during the first week in May at Modesto.

Mr. Hillier states that already thirty cows have been consigned, and that one hundred and fifty letters are now being sent out to breeders who own purebred stock, with the hope of securing the largest number of purebred animals ever offered at public sale in this State.

Modesto has been selected as the most suitable place on account of the large number of Jersey herds which are situated there, and the fact that buyers from all over the State are acquainted with the dairy industry in Stanislaus county.

Mr. Hillier informs us that Col. Benj. Rhoades of Los Angeles will conduct the sale the same as in the past, and from the success of previous sales there is every reason for supposing that the coming sale will do great good not only for the Jersey cow, but for the dairy industry of California as well.

Catalogs and other descriptive matter will be issued at an early date.

Producing Quality Corn.

[Written for PACIFIC RURAL PRESS by A. A. Wendell]

The selection of seed corn is a phase of farming which has been sadly neglected in this state in the past, due perhaps to the fact that in past years we have not considered California a good corn state.

With the increasing number of eastern corn growers who have taken up farming here, we are continually finding ways of improving the corn yield, and in this respect the experience of Mr. Wilber Rough of Arlington, Riverside county, should be of interest.

Several years ago, Mr. Rough sent east for seed, and by careful selection since then, he now produces as high as eighty bushels of corn to the acre. Great care is exercised in the selection of seed corn on this place, and various ways have been tried out with the result that it has been found that the fall of the year, about the time the husks begin to dry, is the best time to start. A sack is strapped to his shoulder, and so equipped that he passes between two rows, selecting the corn by the type of stalk as well as by the type of ear. He notes carefully the size and height of the stalk; also the distance the ear hangs from the ground. The object is to get a medium sized ear, drooped over, and not high on the stalk. The picking is done only from sturdy, vigorous stock which shows early maturity.

"In selecting seed corn," says Mr. Rough, "there are a number of essential features the farmer should observe closely, as length of ear, manner of filling, shape of ear, size, and conformity to type. I prefer a rather small cob with deep grains rather deeply dented. Avoid large ears on stalks standing singly. Preference should be given the plants that have produced most heavily in competition with a full stand of less productive plants. Seed so selected will produce vigorous sprouts.

"An important factor in selecting seed, is the method of housing it. When your seed corn is gathered, the husked ears should be put in a dry place where the air circulates well. Good seed is easily ruined if this precaution is not taken, as the moisture in the cobs and kernels, especially in warm weather, causes mildew in a very short time.

"By close observation in selection of acclimated seed, and intelligent care in housing and drying, I have been able to increase my yield from forty bushels per acre to sixty-five to eighty bushels. I used to be in the mercantile business, and I learned early that system and scientific methods pay big dividends. The hit or miss farmer is a thing of the past."

It is best not to plant the ranch to one crop, according to Mr. Rough's experience. On his ranch of about two hundred acres, he had twenty acres of seed corn which ran about eighty bushels to the acre; sixty acres of soy beans which when harvested netted four tons of hay and 1500 pounds of beans per acre; sixty acres in alfalfa yielding about four hundred tons of hay, and crops of Kafir corn, melons, garden truck, etc. It is his belief that any farmer who will select first-class acclimated seed and rotate his crops will have equally as good success.

On this farm is a herd of purebred Jerseys, some cows milking as high as fifty-five pounds a day and testing better than 5 per cent; also Poland China and Berkshire hogs, with a $350.00 Poland China boar heading the herd.

Italian queen bees also deserve mention, some of them having cost $10 to $25 apiece. He handles them without smoke or veil, claiming that such highly bred stock produces more quiet and industrious bees than the ordinary queen bee.

His favorite breeds of chickens are the White Leghorns and Barred Rocks, all of which are carefully trapnested, as he does not believe in keeping anything on his farm in the "loafer class."

A visit to this ranch, the "Greenfields," is well worth while. It will convince the skeptic that scientific farming on our California soils will pay big dividends.

CLOVER FOR BELGIAN HARES

To the Editor: Will you please state whether red top clover is as objectionable as alfalfa for Belgian hares, as I have seen in your columns where alfalfa is not esteemed very highly for the same?—S. J. F., Honcut.

[Try it in very small quantities on two or three rabbits until you find out. We do not believe it would be harmful.—Editors.]

Salvador Stock Farm

Shire Stallions and Mares

I have a very good selection of SHIRE STALLIONS and MARES in my barns at present, and they are for sale at prices which you can afford to pay.

I buy for cash and sell for cash, and in this way I can give you better value than you can possibly get on time. Don't be misled by offers of two or three years' time, for you will certainly pay far more than the horse is worth on those terms.

To buy for cash is much the cheaper way, and if the horseman will give you time, your bank will advance what you need. For prices and particulars address.

HENRY WHEATLEY, Napa, Cal. Phone 665J.

ACCLIMATED SEED CORN

For Ensilage and Stock Purposes

GOLD STANDARD LEAMING CORN.—I have for sale this celebrated corn, raised on my farm in Stanislaus county in 1914. Seed procured from Illinois corn breeders making a specialty of seed corn. No dairyman should plant other varieties for ensilage. Leaming produces large ears and abundant foliage. Prepare ground in March. Plant early in April. Price 5 cents per pound at my station, Hickman, Stanislaus county. Orders promptly attended to. Address

MONTGOMERY BAGGS, 311 California St., San Francisco, Cal.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

FOR SALE OR TRODE for stock. Choice of two fine stallions, Norman or Belgian, coming six years old. Guaranteed foal-getters. For prices and full information address, S. J. Elliott, Turlock, Cal.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE OR EXCHANGE—Percheron Stallion. Black. Nine years old. Weight 1800. Registered. C. H. Grupe, R. 3, Stockton, Cal.

FOR SALE—5-year-old Percheron Stallion. Black. Weight 2025 lbs. Guaranteed Breeder. We are selling out. Newark Farms, Newark, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Polled Durham Bulls. Dan Liegingar, R. 4, Stockton.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

SACRIFICE. REGISTERED JERSEYS—9 cows and heifers. One bull imported in Dam, Noble of Oakland breeding. Bull worth price of herd. This stock all show stuff and prize winners. Price, $1,800, one-third cash. Box 31, Davis, Calif.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. R. Cunningham, Box J, Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Lava Inyo county, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif.

BERKSHIRES REGISTERED—Young stock for sale from the following strains: Kennett, Longfellow and Masterpiece. G. Casey, Box 7, King Road, San Jose.

REGISTERED BERKSHIRE SWINE—all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

THOROUGHBRED POLAND CHINA PIGS—Large heavy boned type. Farrowed Oct. 1st. Sire Orange Valley, 77157. H. L. Morgue, Durham, Cal.

WAUKEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for services and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Allison Ranch, Turlock.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudler, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets, Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

EASY MONEY RAISING HOGS—Fatten on cactus fruit. Contains 16¾ per cent sugar. Three times the number may be fattened on one acre of citrus fruit than corn. Write N. Wilcox, Orland, Cal.

ATTENTION DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WANTED—50 or 55 head good grade Holsteins to establish dairy. Address, A. W. Beesemyer, R. 1, Box 12, Kerman, Cal.

The Home Circle

The Days of '49

W. E. Hutchinson.

Back to the days of Forty-nine, when greed for wealth called young and old,
From East and West, from North and South, 'till the brain grew dizzy with lust for gold.
When wagon trains from morn 'till night, wended their way o'er hill and dale,
Where the coyote howled 'round the campfire bright, and the lonely grave marked the dusty trail.

Back to the days of Forty Nine, when Sutter's creek was washed and panned,
And the lucky nugget of yellow ore was hefted and passed from hand to hand.
Where the buckskin bag with its precious dust, grew heavy and full with its run of luck,
And the miner grim with his trusty gun, held his claim by grit and pluck.

Back to the days of Forty-nine, when hill and stream gave their golden sand,
To the hardy men of yesterday, who spent their wealth with a lavish hand.
Those pioneers of other days, who opened the way and did their best,
Who toiled and delved from morn 'till night, and beckoned us on to the Golden West.

Where are the men of Forty-nine, who swung the pick and panned the dirt?
Who played the game to the bitter end, and wore the gun and the flannel shirt.
Who blazed the way o'er hill and plain, and left a path both clear and wide.
Gone, all gone on the lonesome trail: they have all passed over the great divide.

SEED TESTING AT HOME.

Seed Purity.—Garden seed should be pure. By "pure" we mean that it should have nothing else in it, but the seed we want to plant. The impurities in the seeds we buy may consist of dirt, chaff, pieces of stems, broken seeds, or noxious weed seeds. We know that many weeds get into our gardens and fields through weed seeds that are in the seeds we plant. We must guard against buying seed with such impurities. It is best to always deal with the most reliable seed dealers.

The wide-awake boy can tell for himself whether or not the seed he has bought contains impurities. Place a quantity of the seed to be tested on a piece of white paper. Get near the window where the light is good. Now with a knife edge, carefully separate strange weed seeds, dirt, broken seeds, pieces of stems, etc., from the good seed. You will need to observe closely. A simple and cheap hand lens or magnifier will help you to separate the foreign material more readily. Place the foreign material in a pile by itself. By comparing this with the pure seed, estimate the percentage of purity. Of course, in good seed, there will be a very slight amount of impurities.

Seed Vitality.—Every plant grows from a seed. Now, of course, to get the seed to germinate there must be enough moisture in the soil, and a proper amount of heat. But even with the best conditions of moisture and warmth, and even if we do find that our seed is quite free of impurities, all seeds that are planted do not germinate and grow into plants. Why is this? There are three chief reasons: First, they may have lain about in the seed store for so long that they lost, entirely or in part, their "vitality," that is, their ability to germinate. Seeds decrease in value with age. Second, they may have failed to ripen properly or have been harvested before ripening. Third, they may have been cured and dried improperly.

It is a simple matter for any boy to test the seeds he expects to use, and determine for himself whether a high percentage of them will grow quickly and strongly. One cannot afford to plant seeds of weak vitality. Seed vitality is determined by making a germination test. Take a large soup or dinner plate. Moisten a piece of cotton flannel cloth and lay it in the bottom of the plate. Count out 100 seeds from the lot to be tested, taking them just as they come, regardless of size, plumpness or color. Lay the 100 seeds on the cloth and cover with another piece that is moist. Over the plate containing the seeds place a piece of glass or another plate, upside down. Keep in a room with a temperature comfortable for a person to live in, and take pains that the temperature of the room does not fall much below 50 degrees at night. After 10 to 14 days find out how many seeds out of the hundred have germinated.

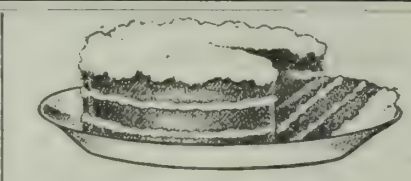
The vitality of seeds is expressed in per cent. For example, if 95 seeds out of 100 germinate, the vitality is said to be 95 per cent. In the Year Book of the United States Department of Agriculture for 1895 there is a table of the number of seeds in a hundred of some crops that should germinate.

Crop	Percentage
Beans	95
Carrot	85
Corn	93
Peas	98
Pumpkin	92
Squash	92
Turnip	95

BARN PAINT.

To the Editor: Please give me a formula for making a cheap barn paint. Will crude oil in a barn paint take the life out of the wood, as I am thinking of making a paint from crude oil and distillate?—A. B. P., Modesto.

[Neither crude oil nor distillate will take the life out of wood when applied as paint. The chief objection to such a mixture is the oily coat which is left on the exterior of the wood which collects the dust and dirt badly. By adding large quantities of distillate, this factor is eliminated to a certain extent, but in that case the mixture has very little pre-



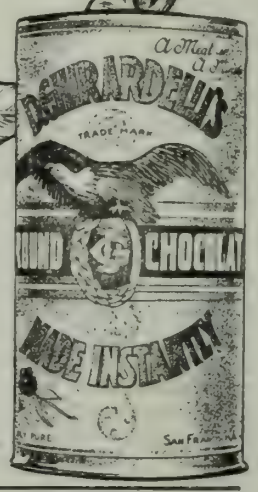
One cup of sugar; piece of butter, size of egg, creamed; two eggs; one-half cup of Ghirardelli's Ground Chocolate; one-half teaspoonful cinnamon; one-half cup of milk; one cup of flour; two teaspoonfuls baking powder; mix with flour, bake in layers, spread with either strawberry jam or white of egg beaten to froth with cup of sugar.

Ghirardelli's California Chocolate Cake

The making of dainty, tempting, delicious desserts is greatly simplified when

Ghirardelli's Ground Chocolate

is used. It is noted for its smoothness, and in the making of cakes like the above, it will give just the richness and flavor desired.



The daily use of Ghirardelli's Ground Chocolate as a beverage is to promote family health as well as to practice economy.

Sold only in hermetically sealed tins.

Order from your grocer to-day.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

Red Crown has lots of "pep" but burns clean.

RED CROWN

the Gasoline of Quality

is refinery gasoline—every drop. It's the best gasoline the Standard Oil Company can make. Dealers everywhere.

STANDARD OIL COMPANY (California)

FREE To Introduce Our Course

One Month's Tuition Without Charge. Send for Particulars at Once.

Learn Any Instrument

At social gatherings no one is in such demand as the person who plays. You can learn any instrument by our method in a very short time. Hundreds of others have. Our big free catalogue tells the story—send for it now! We teach piano, violin, mandolin, guitar, banjo, organ, cornet, etc. Reference: Northwestern National Bank. DON'T DELAY—SEND FOR OUR PLAN AT ONCE. It does not obligate you in the least.

American School of Music

Suite 750, Commonwealth Bldg., PORTLAND, OREGON.

serving ability. Though not so cheap, the most satisfactory, all-round barn paint is a mixture of red metallic and raw linseed oil. If you care to cheapen this, you may add distillate. Cheap paints of all kinds are usually expensive in the long run, as they do not preserve the wood and their appearance is not lasting. Linseed oil paint has always been recognized as the best preservative of wood exposed to weather, and for that reason, it is far better to use it when permanent improvements are considered.—Editors.]

CANDOR.

Lucy came in from school and found her mother trimming a hat. They were such good comrades—those two—that words were sometimes superfluous; so, after a kiss of greeting, Lucy seated herself on a little stool, and watched the not very skillful fingers, as they bobbed in and out among the ribbons, fervently wishing that some good fairy would suddenly appear and wave a magic wand over the unsatisfactory work. It was finished at last, and her mother put it on.

"Do you like the bow on this side, Lucy?" she asked, as she stood before the mirror.

"What do you think of the thing, anyway, Lucy?"

"I don't—know—I"—

"Oh, I see," cried the mother with pretended indignation: "you are a perfect George Washington. You cannot tell a lie."

Lucy laughed.

"Yes, I can, too, mother," she said, brightly. "It's a beauty."

A CHRISTIAN SPIRIT.

"How many of you, boys," asked the Sunday-school superintendent, "can bring two other boys next Sunday?"

There was no response until a new recruit raised his hand hesitatingly.

"Well, William?"

"I can't bring two, but there's one little feller I can lick, and I'll do my damnedest to bring him."—Everybody's Magazine.

"Now children," said the teacher, "who can tell me what the word 'odorless' means?" Willie Jones was sure he knew. "Well, Willie, what does it mean?" "Odorless means without scent," he piped. "Right. Now who can give a sentence using the word correctly?" continued the teacher. "You may answer, Jimmy." "Please, ma'am, when you are odorless you cannot ride in the trolley-cars."

At dinner one night a large meat-pie and a small roast duck were brought on together. The duck was intended for the father, as it would not make a mouthful apiece for the boys. "Which will you have. Bobby, duck or pie?" said the mother, and at once began cutting the pie. "Duck," said Bobby, promptly. "No, Bobby," answered his mother, cheerfully. "You can't have duck, dear. Take your choice, my son. Take your choice. But you can't have duck!"—New York Tribune.

Scribbler: "I've a poem here advovocating peace." Editor: "I suppose that you honestly and sincerely desire peace." Scribbler: "Yes, sir." Editor: "Then burn the poem."—Boston Transcript.

"I want you to understand," said young Spender, "that got my money by hard work." "Why, I thought it was left to you by your rich uncle." "So it was, but I had hard work to get it away from the lawyers."—Ladies' Home Journal.

The Panama-Pacific International Exposition established new pre-exposition attendance records before the gates closed on January 10 to remain closed until the opening day of February 20. The total attendance was 2,500,000. In addition to being greater than the combined pre-exposition attendance of all other great expositions this is almost equal to the total attendance of the Lewis & Clark exposition in 1905. Total pre-exposition receipts for the 1915 exposition were $679,383.37 as compared to the St. Louis pre-exposition tital of $208,149.31, which gives the California exposition an excess of $471,234.06. The attendance on the last day of the pre-exposition period was more than 50,000. The daily average at Buffalo during the exposition period was 29,000; at Seattle's Alaska-Yukon 20,000; at Omaha 11,600; at Jamestown 6,800; at St. Louis 68,000 and at Chicago 120,000.

Mr. Hilton: "Have you opened that bottle of champagne, Bridget?" Bridget: "Faith, I started to open it, an' it began to open itself. Sure, the mon that filled that bottle must 'av' put in two quarts instead of wan."—Philadelphia Record.

"Mother wants a penn'orth of glory divine." "We dont keep that," said the chemist. "Oh, yes, you do," the little maid retorted. "We've got it here before. Mother puts it down the drain in the back yard." Then the chemist knew that the "glory divine" was another way of saying chloride of lime.—Strand Magazine.

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

Blake, Moffitt & Towne
Dealers In PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

Paint Without Oil

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manuf'r., 262 North St., Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today

What Kind of Light for Your Farm?

The four kinds in the pictures are all in use on modern farms. Three of them are unreliable. Troublesome, unclean, and cause fires.

GENUINE EDISON Electric Light operated by the Thomas A. Edison ELECTRIC LIGHT PLANT is by far the most practical and economical and the safest.

The Edison Storage Battery is the only one guaranteed to be capable of developing full-rated capacity at the end of four years (a guarantee which it will far outlast). No internal cleanings or testings needed. No repairs or renewals. No waste of time, patience or money.

Write for Catalog N.

Edison Storage Battery Supply Co.
Distributors.
441 Golden Gate Ave., SAN FRANCISCO.
LOS ANGELES, SEATTLE, PORTLAND

EDISON STORAGE BATTERY SUPPLY CO., 441 Golden Gate Ave., San Francisco.
Send me Catalog N.
. . . . . .
. . . . . .
. . . . . .
PRP If information regarding complete plants is wanted, CHECK HERE. [ ]

New V. C. Prices for Ford Cars

30x3 . . . . . $13.00
30x3½ 16.20
Guaranteed 4,000 Miles

AT these reduced prices, with the unchanged guarantee, the best buy in the tire market for Ford Cars is more emphatically than ever

PENNSYLVANIA Oilproof VACUUM CUP TIRES

Reduced prices are also in force on regular Vacuum Cup Tires in the larger sizes, establishing a rate of cost per mile that makes cheaper tires an extravagance by comparison.

Contributing enormously is the absolute fact that our past years' experimentation and efforts have resulted in practically 50% more wear resistance in our product.

Considering that Vacuum Cup Tires of last season recorded an average mileage of 6,760 miles in The Automobile Club of America official tests—a performance no other manufacturer has attempted to duplicate—our product for 1915 offers a basis of service economy that cannot be resisted.

Guaranteed Oilproof. Guaranteed not to skid on wet or greasy pavements.

Write for new list of Users' Net Prices

PENNSYLVANIA RUBBER CO.
Jeannette, Pa.

Atlanta, Boston, Chicago, Cleveland, Dallas, Detroit, Kansas City, Mo., New York, Omaha, Philadelphia, Pittsburgh, St. Paul, San Francisco, Minneapolis, Seattle

NON SKID VC TRADE MARK REG. U.S. PAT. OFF.

An Independent Company with an Independent Selling Policy

Garden Helps

There is a pleasure in garden work when you have the right tools to work with. See that every garden implement you buy has the STILETTO trade mark.

In the STILETTO line you get the best that money can buy or that skill can produce—also full protection; every article bearing the STILETTO trade mark is fully guaranteed.

STILETTO goods sold everywhere—if you can't get them, write us.

Pacific Hardware & Steel Co.
SAN FRANCISCO, CAL.
701 Townsend St.

STILETTO REG. U.S. PAT. OFF.

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates From All Points Every Day During the Exposition

TICKET OFFICES:
Key Route Ferry in San Francisco. Phone Kearny 2339.
Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Mar. 10, 1915.

WHEAT.

Outside markets have rallied rather strongly in the last day or so, and values here are quite steadily maintained at the last level quoted, though there is not much trading of importance here.

Cal. Club, Ctl.	**$2.40@2.45**
Forty-fold	**2.50@2.55**
Northern Bluestem	**2.50@2.55**
Northern Club	**2.40@2.45**
Northern Red	**2.50@2.60**

BARLEY.

There has been little shipping demand of late, and with favorable crop indications and only moderate demands locally, values show further decline. There has been a little steadier feeling for the last day or two, but buying is on a small scale.

Brewing and Shipping	$1.45@1.50
Choice feed, per ctl.	1.40@1.45

OATS.

The demand is very light at present, and red feed oats have dropped about $1 per ton in value.

Red Feed	$1.55@1.60
Seed	**1.80@1.90**

CORN.

Larger supplies of California yellow corn are coming in now, causing a drop of about $1 per ton; and a good deal of off-grade stock is offered still lower. Quite a lot of milo is also arriving in poor condition, causing a drop in this line. Eastern yellow is steady at the old figures.

California Yellow	$1.80@1 85
Eastern Yellow	**1.85@1.90**
Egyptian White	**1.85@1.90**
Milo Maize	1.75@1.80

BEANS.

The bean market has settled down to a comparatively inactive condition, the principal domestic markets having pretty well covered their requirements for the immediate future, while little foreign business is coming up at the moment. Stocks of most varieties, however, are by no means heavy for this time of the year; and in view of further buying expected for both domestic and foreign markets, values are well maintained, most lines being a little higher than last week.

(On Wharf.)

Bayos, Cal., per ctl.	$5.25@5.40
Blackeyes	5.50@5.60
Cranberry Beans	4.50@4.75
Horse Beans	**3.50@4.00**
Small Whites	5.25@5.40
Large Whites	5.00@5.25
Pink	4.25@4.50
Limas	5.65@5.75
Red Kidneys	**5.50@5.75**
Mexican Reds	5.00@5.20

SEEDS.

Alfalfa seed finds quite an active demand at present, and as supplies are diminishing the price has been marked up. Other lines stand as last quoted, most of them being in very moderate demand.

Alfalfa	17 @18c
Brown Mustard, per lb	**Nominal**
Canary	**10 @12½c**
Hemp	**3 @ 3½c**
Millet	**2½@ 3 c**
Timothy	**7½@ 8 c**

HAY.

Hay is again arriving in large quantities, and the local market is considerably overloaded. The demand appears to be a little better than it was during the heavy rains, but it is very hard to dispose of the increased arrivals, and prices are not very well maintained, even at the low range quoted. Large shipments are arriving from Hollister, where there is a heavy tonnage in storage; and some good sized sales have been made there lately at $7 at the warehouse. Growers quite generally are trying to dispose of their hay before the harvest, but find it hard to do so. The pressure to sell alfalfa is said to be especially strong, as the crop is coming on well and cutting will begin before long.

No. 1 Wheat	**$9.00@10.50**
do No. 2	**6.00@ 8.50**
Barley	**5.00@ 8.00**
Tame Oats	**6.00@11.50**
Wild Oats	**6.00@ 8.00**
Alfalfa	**6.00@ 9.00**
Stock Hay	**4.50@ 5.00**
Straw, per bale	**30 @45 c**

FEEDSTUFFS.

The general demand is rather light, and prices show increasing easiness, largely due to the change in the grain situation. Bran has dropped sharply again, and middlings also are lower, in line with the recent drop in wheat. Rolled barley is also lower, and a decline in rolled oats is expected.

Alfalfa meal, ton	**$16.00@17.00**
Alfalfa-Molasses meal per ton	**19.00@20.00**
Bran, per ton	29.00@30.00
Oilcake Meal	**None here**
Cocoanut Cake or Meal	**25.00@26.00**
Cracked Corn	**41.00@42.00**
Middlings	34.00@35.00
Rolled Barley	31.00@32.00
Rolled Oats	**35.00@36.00**

VEGETABLES.

While dealers are looking for a heavy demand, local trading in garden truck so far has been nothing extraordinary. Offerings in many lines are still moderate, however, and prices show no marked decline. Artichokes are coming in more freely, but are still held at the old figures. Arrivals of asparagus are increasing nearly every day, and the top price is lower, though the range is not so wide as last week. The same may be said of peas, which are now coming in fairly well. Choice peppers from distant points are scarce and high, while Mexican tomatoes are easier. Celery remains quite firm, and lettuce shows a slight advance, owing to better quality of the offerings. Rhubarb shows a very wide range, according to variety: southern winter crimson is offered as low as 80c, while the best of the strawberry variety from Alameda brings as high as $2.75.

String beans, lb.	**10 @12½c**
Artichokes, doz., No. 1	**1.50 @60 c**
No. 2	**40 @45 c**
Asparagus, lb	12½@15 c
Peas, lb	9 @11 c
Peppers, Bell, lb., large	20 @25 c
Tomatoes, crate	1.25@2.00
Celery, crate	2.25@3.00
Sprouts, lb.	3 @5 c
Rhubarb, crate	1.50@2.50
Lettuce, crate	1.00@2.00
Cucumbers, doz	**.90@1.10**
Eggplant, Southern, lb.	20@22c

POTATOES AND ONIONS.

A few new potatoes are appearing, being held at 4 to 5 cts. per lb. Old Salinas stock is now down to the level of Oregon, while river goods are steadily held. Sweets are again higher, while onions are lower, with little demand and offerings nothing extra in quality.

Potatoes, Oregon, ctl.	**$1.40@1.50**
Salinas, ctl.	**1.40@1.50**
River Burbanks, ctl.	**1.10@1.25**
New Potatoes, lb.	4 @5 c
Sweet Potatoes, ctl.	2.25@2.50
Onions, yellow, sack	65 @85 c
Garlic, per lb.	**17 @20 c**

POULTRY.

The trade has beei badly disappointed in the expectation of a large demand at this time, as the market this week is extremely dull in all lines. Arrivals from the east continue rather heavy, and large shipments of fryers and broilers are appearing this week, causing an easier feeling in these lines. Values, however, show no change.

Live Turkeys, lb	17 @19 c
do, dressed	18 @21 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb.	18 @19 c
Small Hens, per lb.	17 @18 c
Young Roosters, per lb	17 @18 c
Squabs, per doz.	2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz.	6.00@9.00
Belgian Hares, live, lb.	8 @10 c

BUTTER.

Arrivals of butter continue heavy from several nearby producing districts, and as there is no active shipping demand to support the market, prices have been gradually declining, extras showing a loss of 2c for the week.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	26	25½	25	25	24	24
Prime	25½	25	24½	24½	23½	23½
Firsts	24	24	24	24	23	23

Almond Growers

California's largest almond crop was 3500 tons. Recent planting will increase this to over 15,000 tons. Are you awake to the necessity of co-operation to insure satisfactory market for this surplus?

CALIFORNIA ALMOND GROWERS' EXCHANGE,

SACRAMENTO, CALIFORNIA.

MOCOCO

SUPERPHOSPHATE

Do You Raise Fruit?

If you do, remember that Nitrogen promotes wood growth, while **PHOSPHORUS AND POTASH ARE ABSOLUTELY NECESSARY FOR FRUIT DEVELOPMENT.** California soils are rich in Potash, but deficient in Phosphorus. Try Mococo Superphosphate on your fruit trees. It will do wonders. For sale by

The Mountain Copper Co., Ltd.

332 PINE STREET, SAN FRANCISCO.

EGGS.

Pullets' are a little higher than last quoted, while extras are back to the figure of a week ago, after slight fluctuations up and down, with varying supplies.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	20½	20½	20	20½	21	20½
Sel. Pul.	17½	18	18½	18½	18½	18

CHEESE.

Y. A.'s continue in rather light supply, and are stronger than last week. Flats and Monterey cheese, however, are both arriving freely, and show further declines.

Fancy California Flats, per lb.	12c
New Young America, fancy	15½c
Monterey Cheese	10@12c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	26	24	24	24	24	24
Eggs	19	20	20	18½	19	18½
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

Some lines of California apples show further weakening in prices. Some dealers report a little more interest in this line, but at best it is moving very slowly, and stocks are still heavy.

Apples, Newtown Pippins	40@ 80c
Belleflowers	25@ 50c
Baldwin	**50@ 75c**

DRIED FRUITS.

The last few weeks have brought no particular change in the dried fruit quotations, and little new feature has developed in the market. The demand in general has quieted down considerably, with few export inquiries at the moment, and the domestic trade buying only for current needs. The dullness in peaches is shown by the stir caused last week in New York by an export inquiry for 3,000 boxes for prompt shipment; and the condition of stocks is shown by the fact that is was difficult to fill the order in that market. There is practically no export movement of this fruit from here, and very little domestic demand; while holders are getting increasingly anxious to sell. In other lines, however, local packers regard the situation as very strong, owing to the limited supplies remaining and the prospect of further export requirements. Stocks of apples have been well reduced, and there is still some local demand. Apricots are dull, but scarce, and figs pretty well cleaned up. Prunes receive less attention at the moment, but there is not much left; and raisins are firmly controlled, with Sultanas scarce and higher, and all prices guaranteed up to Aug. 1 The decision of the Associated Company to pack only one grade of seeded has brought out considerable protest from eastern jobbers. The New York Journal of Commerce says:

Nothing much is being done at present in forward shipment prunes on the current or coming crop for domestic consumption. Further export business has taken several large lots of California prunes out of the New York market, cargo space for which has been secured in spite of the scarcity of freight room from this port. More business could have been done, it is reported, if steamer room had been available. Demand from Europe for prompt shipment prunes from New York continues.

Coast advices report increasing interest on the part of Southern buyers in both immediate and future shipments of apricots and peaches, though no important sales to that section are to be reported. Local buyers are placing few orders for either variety on the Coast at present, but, with increasing local consumption, they are said to be seeking information as to the cost of near and distant future supplies.

As an indication of the extreme dullness in California seeded raisins interior jobbers are endeavoring to find an outlet here for surplus stock, but meet with no encouragement at this end.

A bulletin issued March 4 by the California Cured Fruit Exchange says:

The dried fruit market is firm and steady but business is not particularly active. While sales are being made, orders are not coming with any regularity. Many of the trade have supplies still on hand and for their immediate requirements are filling their wants from supplies on hand in their various markets. Steamer space for export business has been hard to get and on account of recent developments in Europe, war risk insurance has advanced, which, along with other things, increases the cost of shipping. The demand that we looked for on peaches has not materialized, but we are hoping for a better market later. Sales of this variety are being made at prices at which we do not want to sell until forced to. Advices have been received of sales of Choice Muirs having been made by others as low as 3¼c packed in 50s. There is practically no change in prunes and while prices are being held strong the price in some instances is being shaded by outsiders. Many small packers are anxious to clean up, so are making prices with this object in view a little under the quotations held by the larger operators. Apricots are strong and cleaning up and the market inclined to advance. There is very little doing in pears, but this variety also will have a better demand before long and prices will be dependent upon the grade. Raisins are about the same as last report. There is very slight demand for figs, but a better one is looked for before very long.

Evap. Apples, 1914	**5½@6 c**
Apricots, 1914	**6 @9 c**
Figs: White, 1914	**3 @3½c**
Black	**2½@2¾c**
Calimyrna	**5 @6 c**
Prunes, 4-size basis, '14	**5½@6½c**
Peaches, new	**3 @4 c**
Pears	**6 @8 c**
Raisins (in sweatbox):	
Loose Muscatels	**4 @4½c**
Seedless Sultanas	**5 c**

CITRUS FRUITS.

Heavy shipments of oranges have gone east from California during the past ten days — the average being over 200 cars daily. Eastern auctions have been low on poor fruit but firm on sound stock. Decay has been

prevalent, but from now on it is hoped that fruit will reach destination in better shape.

On the auction at New York, Monday, March 8th, navels brought from $1.40 up to $2.40 per box, while lemons averaged $2.05 to $2.40 per box. Other auction points showed about the same prices as the above. Some fruit is being sold at $1.30 to $1.60 per box f. o. b. California.

Shipments of oranges from southern California for the season to March 8th were 9,663 cars, and of lemons 1220 cars. Practically no shipments are being made from Tulare and Butte counties.

The general demand for all lines of citrus goods in the San Francisco market shows some improvement in the last few days, and prices are more firmly held. Sales of fancy navels have been made at a premium, and tangerines are marked up a little.

Oranges, navel, box	**$1.00@2.00**
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx.	**1.50@2.75**
Lemons, box	**1.50@2.50**

NUTS.

There is little new to report, as the great bulk of the California stock is sold out. There is a very fair demand for walnuts, a few of which have been moved at full prices, while there is not much doing in almonds.

Almonds, 1914 crop:	
IXL	**16½c**
Ne Plus Ultra	**15½c**
Drakes	**14 c**
Texas, Prolific	**14 c**
Walnuts, new crop:	
Jumbo, lb	**19 c**
No. 1 Softshell	**16½c**
Budded	**18 c**
No. 2	**12 c**
Ungraded	**12½@14 c**
Manchurian	**7 @9 c**

HONEY

It seems impossible to move any honey except in a very small jobbing way. There is hardly any demand here, and efforts to find a market in the east have met with little success, while offerings both here and in the country are large, and bee men seem to be preparing on about the usual scale for the new crop. Prices are largely nominal, as liberal concessions would doubtless be granted to make large sales.

Water White, comb	**10 @12 c**
Light Amber	**8 @10 c**
Water white, extracted	**6½@ 7 c**
Light Amber	**5 @ 5½c**
Dark	**3½c**

LIVE STOCK.

The live stock market shows no quotable change. A good many cattle are being shipped in fron northern California points, and the market is fairly well supplied. Offerings of sheep and lambs are coming out slowly, and dressed stock in these lines is a little higher.

Steers, No. 1	**7 @ 7¼c**
No. 2	**6¾@ 7 c**
Cows and Heifers: No. 1	**6 @ 6½c**
No. 2	**5½@ 5¾c**
Bulls and stags	**4 @ 6 c**
Calves: Light	**9 @ 9½c**
Medium	**8½@ 9 c**
Heavy	**7 @ 8 c**
Hogs: Grain-fed:	
225 to 300 lbs.	**7 c**
100 to 225	**7½c**
Prime Wethers	13 @14 c
Ewes	11½@12 c
Yearling Lambs	14 @15 c

DRESSED MEATS

Steers	10¾&11½
Veal, large	13½@14
Steers	10¾@11½c
Small	15 @15½c
Prime Wethers	13 @14 c
Ewes	11½@12 c
Yearling Lambs	14@15 c

HOPS.

There is a very fair demand for export, but little business of importance is going through at present, as most of the larger offerings have been disposed of. A good many small scattered lots, however, are being picked up at about the prices quoted.

1914 crop, lb.	**11@13c**
1915 crop	**12c**

WOOL.

There is so far little to report on the local market, as the buyers are inclined to wait a little, and among growers there is a general expectation of high prices. A large sale was made in Salt Lake City March 5 at 22½ to 23c.

Publisher's Department

Last week was a good one for our subscription department, as the weather was fine. Part of our field force was not working, but in spite of that we added 242 new paid subscribers to our list. Our Mr. Knox again broke his previous records by sending 67 new subs., besides attending to work of securing renewals in his territory.

Read what Mr. Snow of the Petaluma Poultry Journal says in another column of our new book, "California Poultry Practice." The price of $1 for this book is but an incident of its worth.

"California Garden Flowers" is now ready to tell you how to make your spring garden work successful. $1.50 per copy, postpaid.

DRAINS YOUNG ORANGE ROWS.

[Written for PACIFIC RURAL PRESS.]

Last spring we watched the Natomas Consolidated men setting out a tremendous acreage of orange trees on the lowlands of the Feather River. This season we note that practically all of the trees have lived and are making vigorous growth. E. K. Carnes, who has charge of the work, has recognized the value of keeping the water away from the trees even during the winter. Two or three furrows of soil next to the trees have been turned toward the trees, running up and down the grade where this was possible, rather than crosswise.

It is noticeable now that the trees are high and dry, while there is more or less water between the rows.

The Samson Mfg. Co. of Stockton has just shipped 13 of their new model "four-horse-pull" sieve grip orchard tractors into Porterville. Eight of them were sold before arrival. There is fine demand for these small sized power pullers.

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

LAND FOR SALE.

TULARE COUNTY DAIRY FARMS—One, 200 acres; one, 320 acres; all leveled; mostly improved to alfalfa; good buildings and fences; electric pumping plants; deep, rich soil, price $130 per acre, easy terms. Also improved 40 and 80 acre tracts at bargain prices in this community, where land rents for $20 per acre cash. Located near R. R. station and store; free mail delivery and good schools. For particulars write, W. T. Kneen, Paige, Cal.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms, P. O. Box 97 Salinas, Cal.

WANTED to hear from owners of good fruit ranch, or irrigated land well adapted for fruit ranch Send price, terms, legal description. O. O. Mattson, 923 Andrus Bldg., Minneapolis, Minn.

A BARGAIN—10½ acres orchard in bearing, 4 years old. Fine location 1½ miles from Hughson on Santa Fe. Six miles from Turlock. Ten miles from Modesto. Good terms. Address Turlock Nursery, Turlock, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

FOR SALE BY OWNER—Forty acres improved A1 soil. Abundance of water, sunshine, alfalfa, fruit, cows and hogs. Terms. Address Box 42, Princeton, Cal.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
ARBUCKLE, COLUSA CO., CALIF.

The only exclusive Alfalfa Seed Dealers in the West.

CALIFORNIA LAND—Money-making little farms. High class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F.

BEES AND HONEY.

FREE FOR THE ASKING—Our special booklet, six easy lessons in Beekeeping. It's worth ten dollars per copy to any one having a small farm or home desiring to add a few dollars to their income with small outlay. It demonstrates the real value and earning power of a few colonies of bees, shows how a small sum invested will double in a few months. Write now and we will sent it free with price list of either bees, supplies of honey as desired. Sample pure delicious ripe California honey, ten cents. Spencer Apiaries Co., Route 12, Nordhoff, Cal.

WANTED.

A MAN of good education with life experience in horticulture wishes position on estate or ranch. Up-to-date landscape engineer, greenhouse management, able to handle help to advantage. Age 30. Nationality, English. State salary. Address Box 11, Del Monte, Cal.

FOREMAN (married) for large ranch sub-division in San Joaquin Valley. Must have thorough knowledge of farming under irrigation. Address stating age, size of family, experience and references; also salary commanded heretofore. Box 44, Pacific Rural Press.

TREE GRAFTERS wanted immediately. Walnut nursery work. Apply or write to Tribble Nurseries, Elk Grove, Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

SOUDAN GRASS SEED—The wonderful new forage crop. Lately introduced and now highly recommended by the U. S. Dept. of Agriculture. One of the surest and most productive crops that you can grow. This seed was grown in Southern California and is warranted to be pure and absolutely free from Johnson Grass contamination. 45c a pound or $40 a hundred. F. O. B. Santa Ana, Cal. C. E. Lewis, R. 5, Box 52A, Santa Ana, Cal.

GRAFTED WALNUT AND PAPER-SHELL PECANS—Exclusive propagators of Tribble Mayette, Kerr Parisienne, and Improved Franquette. All walnut grafts taken from our bearing trees. Finest trees in the State. Eureka, Wiltz, San Jose Mayette, Concord and other varieties. Bartlett Pear on Blight Proof Root. Olives, fruit trees, etc. Reduced prices. New list ready. Tribble Nurseries, Elk Grove, Cal.

GENUINE BURBANK Spineless Cactus. Large mature slabs, $15 per 100. On cash orders placed in March to be shipped in April or May 20 per cent discount. Address DARROW-WINCHESTER CO., 1605 Telegraph Ave., Oakland, Cal. Satisfaction guaranteed.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, budded trees of standard frost-resistant variety; from 4 to 7 feet high, $2.00 to $3.00, according to size. Write for literature. W. A. Spinks, Duarte, Calif.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25. per hundred. Address J. C. Johnson, Azusa, Cal

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

CLING PEACHES in quantity, 3 to 4 feet at 15c. Also Lovell and Elberta, 4 to 6 feet at 10c; 3 to 4 feet at 8c. We have a full line of fruit and ornamental trees. Price list free. Turlock Nursery, Turlock, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

ALFALFA HAY FOR SALE—Several hundred tons of clean, leafy alfalfa must be sold at once. This hay was not wet by early or late rains is properly cured and free from weeds. For particulars, write V. L. Wiser, Manager Sunset Ranch, Gridley, California.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wiltz orchard at San Jose. Price very reasonable. Address Chas. Story, Rivera, Cal.

RHUBARB PLANTS—Now ready. Burbank's Crimson Winter, 75c per dozen. Wagner's Improved Giant Crimson Winter, $1.50 per dozen. Quantity prices on application. "Do it now!" Reginald Bland, San Luis Rey, San Diego County, Cal.

SPINELESS CACTUS—Strictly first class. Very reasonable prices. The real thing—not slabs with the spines brushed off. You can save money by writing to me. Nick Kass, Lincoln, Cal.

FINE STOCK ORANGES, Lemons, Deciduous Trees in variety. Walnuts on Black and Soft root. Grapes, Roses, Ornamentals. Get my prices. A. B. Marshall's Nurseries, Santa Ana, Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color. 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Dagg, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalogue free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

SUDAN GRASS SEED, grown in Santa Clara county without irrigation; none better. Five pounds for $2.50, postpaid, this month only. G. W. Lane, Morganhill, Cal.

SEED CORN—Large growing dent from ninety bushel per acre crop. Improved Kaffir Corn having heads sixteen inches long. C. W. Jenkins, Live Oak, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

WALNUTS—Willson Wonder, budded on Northern Black root. Eucalyptus in large quantity of the leading sorts. Ekstein Nurseries, Modesto, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence Stratton's Nurseries, Petaluma, Cal.

SOUDAN GRASS—Send for circular, free sample seed and lowest possible prices. Will take produce. Address C. Ullery, Lubbock, Texas.

SOUDAN GRASS SEED—The wonderful new forage Reliable seed. Reasonable prices. Responsible grower. T. W. Buell, Krum, Texas.

NURSERY STOCK—Navel Oranges, Valencia late trees. Seedless grapefruit. Reasonable prices. K. Matsuoka, Sanger, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

RHUBARB—Crimson Winter, $3 per 100. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

BERRY PLANTS, Rhubarb, Cacti.—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 286 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FOR SALE—One model No. 7 Simplex Turbine Separator and all equipments. All in first-class condition. Write Pitcher, Pedrini & Kimball, Occidental, Cal.

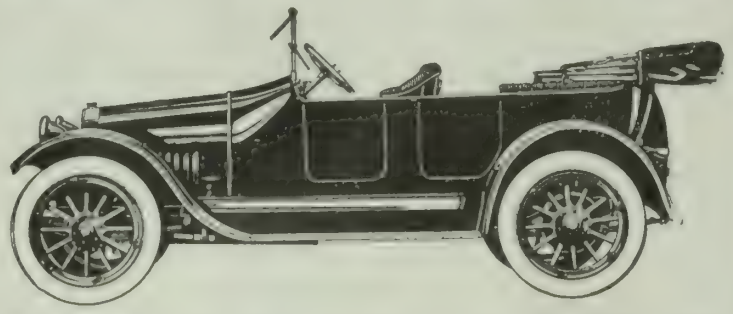
BUY YOUR APPLES direct from grower. Newtowns, Missouri Pippins, selected, 4 and 4½ tier, mixed bulk box, 60 cents. Edward A. Hall, Watsonville, Cal.

ASK FOR Snow's grafting wax. In use all over the State. If your grocer does not have it, send to D. A. Snow, Lincoln Ave., San Jose, Cal.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.

Mitchell

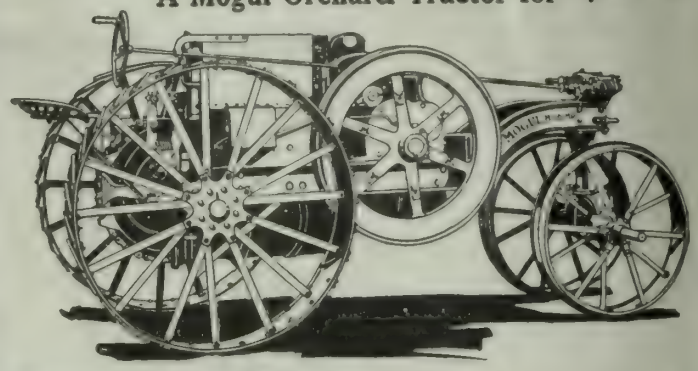
Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco.

Our New Year's Announcement
A Mogul Orchard Tractor for **$675**



We announce for 1915 an all-purpose Orchard tractor with 8-H. P. at the drawbar and 16 on the belt—Mogul 8-16

An Easily Handled, Short Turning Tractor

THIS new Mogul 8-16 tractor will do the work of eight horses in the orchard.

Being a four-wheeled, all-purpose tractor, you can use it every working day.

It will do plowing and seeding as well as orchard cultivating.

It will draw manure spreaders, wagons, mowers or binders.

It will run a corn sheller, feed grinder, small shredder, thresher or ensilage cutter.

Any farmer can buy this new Mogul 8-16 tractor for **$675.00 cash, f. o. b. Chicago.**

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8-16 tractor can be sold.

If you want to use a Mogul small-farm tractor for spring work, your order should be placed now with the I H C local dealer.

Write us for full information.

International Harvester Company of America
(INCORPORATED)

Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

SALT LAKE ROUTE

THE WAY TO THE EAST

BEFORE YOU GO EAST THIS SPRING

Please see a Salt Lake Route Ticket Agent and let him tell you about the excellent service to all points East of and including Salt Lake City.

Three daily trains have through standard and tourist sleepers to many points, and we are certain you will be well satisfied if you make the journey over the

SALT LAKE ROUTE

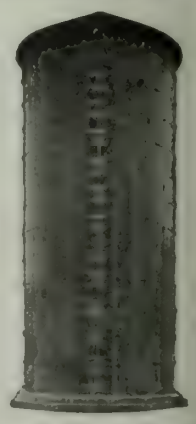
Any agent can give you full information. San Francisco Office is at 643 Market St. Phone Douglas 3614.

CALIFORNIA ORANGE DAY MARCH 20. EAT ORANGES.

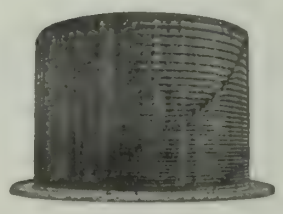
SILOS

BUILT FOR YOUR PARTICULAR NEEDS, EXACTLY AS YOU WANT THEM. ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press.. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged, and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

"Campbell" Gates — Anderson Flume Gate Company — Diamond Gates

Redlands, Cal. Phone Black 96

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

Vol. LXXXIX—No. 11 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, March 20, 1915 LOS ANGELES

7-1-16 State Library

Experiences in Growing Silage Crops.

[Written for PACIFIC RURAL PRESS.]

Silage planting season is nearly here, and with it comes an increased demand for information concerning the various crops that may be grown, and the best cultural methods for raising same.

Owing to the large variety of crops suitable for silage purposes that may be grown in California, it is no easy task to define the best silo crop, in fact, so many variations in climate and soil are found that it is doubtful whether there is any best crop for the State as a whole.

Locally, however, experience will show some one crop better suited than others for that section, and in this way a standard will eventually be set for the various conditions all over the State. It was with the hope of aiding in this work that the following data was secured from stock men who have had one or more years' experience with silage in a wide range of territory.

Indian corn here, as elsewhere, is the most favored crop so far grown, the varieties and cultural methods being best described by the following statements of growers: C. G. McFarland of Tulare: "Two years ago last March, I planted a large white corn grown in Virginia that produced almost 20 tons of silage to the acre, which was the highest yield I ever received. I have used home-grown Yellow Dent and Red Cob Ensilage, the former producing about 14 tons per acre and the latter about 16 tons per acre. Both of these estimates are in tons of silage. The Red Cob produced about twice the amount of grain of the other varieties. I always irrigate twice after planting, once at tasseling time, and once when the ears are forming.

Indian Corn Is the Most Popular Silage Crop at Present.

A Sorghum Field on the Sayre Ranch, Madera County, Which Made Good Silage.

"I used some Kafir corn one season which produced fairly well and was fairly good feed. I also tried Milo Maize one season, but had to dig it out of my silo as the cattle would not eat it after eating silage made of Indian corn."

Ralph Watson, manager of the Rancho Dos Rios ranch in Stanislaus county, says: "I have never experimented with Eastern grown seed, as it is rather hard to get, and we have had very good success with Hickory King and White Dent. The former was the most satisfactory, and I should judge that our yield has been eight to ten tons to the acre. When planting for silage, we drill the seed in as near six inches as possible, with rows 30 inches apart. When corn is planted this thick, the stock does not get as hard and woody as when planted as far apart as one would if the grain was the chief consideration. As all of our corn is planted on river bottom land we do not have to irrigate.

"I have never tried any of the sorghums, but did try Kafir corn two years ago in connection with Indian corn. The feeding results were so much in favor of the latter that I shall never use Kafir again. Last year I siloed beardless barley and Oregon vetch, which has been one of the most satisfactory feeds that we have ever used, and needless to say, we have already in a large field of the same crop this year. We plant this about the same time that we do our barley, harvest it in May, and are then able to raise a crop of corn on the same land. The yield of vetch and barley runs much heavier than any other cereal crop we have ever grown." Relating his experience with silo crops, J. M. Bomberger of Stanislaus county says: "I have always used California grown seed corn, having tried both Semi Dent and Red

(Continued on page 376.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., March 16, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.29	37.89	35.35	60°	40°
Red Bluff...	.36	28.28	19.64	78	42
Sacramento.	T	12.76	15.59	74	46
S. Francisco	.20	20.80	18.28	73	48
San Jose....	.08	17.54	13.43	74	40
Fresno.....	T	8.70	7.42	76	46
Indep'nd'nce	.00	2.84	7.24	74	32
S. L. Obispo.	.00	23.00	16.09	88	48
Los Angeles.	.00	14.75	12.70	90	50
San Diego...	.00	12.75	8.13	80	52

The Week.

Of course every one will remember Orange Day, which is to be observed on Saturday of this week, the date of this issue, and if one does not receive this notice soon enough to betake himself to the Exposition, or some other citrus-celebrating center on that day, let him squeeze a lemon into a glass with it alone or with some of its conventional accompaniments, as his "principles" provide, drink deep and high to the citrus industry, which, by itself unaided, constitutes California greatest of the United States.

Next week will be notable as the first of the great stock events of the Exposition. It will be an assembly of stockmen, however, without stock. The stock will have its days in autumn, as Mr. Lively has already announced, but next week Wednesday to Friday (March 24, 25 and 26) there will be the meetings of the National Live Stock Association, which is the great beef-producing organization of the United States. This organization has particular local interest in California, because H. A. Jastro of Kern county is its president and it is not only a tribute to the man, but to the State, that, though California is not a great range State, this national Association continues to choose a Californian to preside over its important, wide-reaching affairs. The secretary, Mr. Tomlinson, a distinguished leader in live stock policies and transactions, writes that this meeting in San Francisco will be the most notable and important ever held of representatives of the various live stock organizations and prominent stockmen from all the States of the West. Thus there will be a meeting of leaders of the leaders. Those who desire to see men who are great in great affairs of the animal industry—men who are great in stock oratory, transactions and science, should gather at the Exposition Auditorium, and see what the beef industry means from a national point of view; what its interests are and how it works to protect and advance them. On March 23 the California Cattlemen's Protective Association will meet at the Palace Hotel and declare itself upon pending legislation at Sacramento. Thus from Tuesday until Friday the stock-grower will find matters of interest and importance to him aligned with the glories of the Exposition, which are of interest to everybody.

Why Uncle Sam is of Age.

When the Panama-Pacific Exposition was planned probably no one dreamed that it would signally celebrate the attainment of national manhood by the United States, and yet at this moment it seems likely to be more significant in that line than in any other. For Uncle Sam "came of age" at the end of 1914. The age of majority for a nation is perhaps less definite in terms than for a man, but the signs of it are the same and the meaning may in our case be similar. When a boy attains his twenty-first birthday he is entitled to shake off the bondage of boyhood. Legally his father can no longer claim his personal service nor pocket the wages he may win and, legally also, his mother has no longer the right to tie his Sunday morning neck-tie, but must transfer that prerogative to any other lady who has a contract for it. Sometimes the break is made by the young man when he serves a writ of habeas corpus on his father and strikes the trail in quest of his fortune: sometimes the break comes from the parental side when the old man says: "John, you've been a good son to us, but you've been getting a little cocky of late; suppose you see what you can do for yourself." It was by the latter route that the word has come to Uncle Sam, and he gets it all the worse from the fact that he has several fathers to push him out to shift for himself. Father Germany says: "Zam, ven you don't keep oud o' der vield, vere I vas tynamiting stumbs, you vill get your tamhead plown off!" Father England says: "Sam, if you come around here with that mare o' yourn, which you keep to ride around with those Dutch girls, I'll put her in the plow-team and make her earn her board, by George!" And so they both give Uncle Sam the hint that he is of age. But that is not all. For the first time since his birth in 1776, probably, Europe has taken away from Uncle Sam more than she has given to him. Statistics just made public from Washington by Immigration Commissioner Caminetti show that in December last, the number of emigrant aliens leaving this country was greater by 2240 than the total of immigrants entering. The departures for the six months from August, 1914, to January last, totaled 18,545 more than the arrivals, including both emigrant and non-emigrant aliens. And so it becomes clear that Uncle Sam must learn to grow by himself and not pose longer as a "remittance man" upon European endowments.

The Burden of Manhood.

But some one may say, these people have been called home for the war; when that is over they will swarm back again and bring all their sisters, their cousins and their aunts, and immigration will be greater than ever. We doubt it: for several reasons. When the war is over there will be millions less men in Europe. There will probably be changes in the map, so that growing nations will have more room for expansion, and there will be patriotic push to populate it. It is a great mistake to think that Europe as a whole is over-populated; it is only congested in spots. Institutions and ideas which have caused this congestion will be shaken to their foundations in human ambition and greed. This war will probably be the greatest push for industrial and social freedom that Europe has ever experienced, and this will give chances for people at home which for generations they have crossed the ocean to find. Besides, Europe will be poor for generations, and people will be unable to accumulate enough for over-sea travel and establishment. Besides, whatever forms of government emerge from this explosion will try to hold the people to help bear the burden of debt and make waste places fruitful. American governments will also be awake to safeguard themselves against pauperized and incompetent refugees. It is our conviction that immigration of classes which have to face a struggle and are likely to be burdensome will be reduced for an indefinite period. We have faith to believe that Europe, too, will be a much better place for the average man to live and take delight in because he will have a better chance to be a man and less to be a puppet of class domination.

These things being true, as our nation goes, it seems clear that the question of burdensome immigration seems likely to be negligible and the question of independent self-development for the United States grows in importance. The dream of national amity, reciprocation and interchange is being followed by a rude awakening. The nations of Europe are not overburdened with love of or for us. They have to start over again to work out their destinies, and more than ever they will be influenced by what they can or cannot make out of us for their own rehabilitation. And we hardly blame them for that; it will be necessary for them to strain every economic nerve to save themselves from poverty and suffering. How can we help them most by courting dependence upon them? Not at all. We can help them most by developing our own independence as completely as possible; not by aloofness or retaliation for the affronts which they place upon our rights to the high seas. They must pay for all that in the future. Our course now should be a national attitude toward our own industries, which will make for their upbuilding; toward our finance, so that all our capital shall be reasonably and fairly productive; toward our labor, so that it shall be well paid and progressive. Uncle Sam is of age: let him act like a man!

The Secretaryship of Agriculture.

Friends of ours who have been listening around Sacramento since the reassembling of the Legislature do not seem to hear much to indicate that the measures providing for notable changes in the State's agricultural machinery are taking a very deep hold upon popular support. Constituting a secretaryship of agriculture with absorption of a bunch of existing commissionerships does not widely commend itself because of the difficulty in finding an incumbent with knowledge enough of the included specialties to enable him to administer expertly and appreciatively and because of the fear that someone might be

chosen who has only a genius for organization of all kinds, including political, without understanding of the intrinsic values handled in the office thus created. Theoretically there might be a saving in expenditure and a gain in efficiency by a merging of executive functions of an agricultural nature in one office, and this is, we presume, why a good many who are well disposed toward agriculture but have only remote knowledge of it, have approved this measure. It must be said, however, that if the office does not commend itself to acceptance by a man of adequate experience and standing in California agriculture, there is little chance for good in its enactment. California agriculture is the most intricate and the broadest in the country, and it is wisely recognized as different and advanced. If such an office as proposed is filled by either a local ignoramus or by a man who has only demonstrated agricultural expertness under distant and different conditions, it would be an insult to the leadership of California in agriculture of her own kind, and would be a hindrance rather than a help to the governor in discharging executive functions for the promotion of the chief industry of the State. There seems to be more faith in the old California way of multiplying special commissionerships, for even while the merging is proposed new creations are also being worked for, and with rather more zeal if we are correctly informed. The rural credit propositions which are pending do not seem to command more support than does the proposed secretaryship, and unless some clearer sign appears than is now above the horizon, the whole bunch of bright ideas for reorganization of California agriculture may be found in the discard. We continue to hold our columns open for remedies in this line, while the patient is still alive, and we have several communications awaiting space. They are interesting, although they are rather negative to the policies proposed.

A Great Discovery at Washington.

Government officials at Washington are giving out to the near-farming journals interviews to the effect that they have made the great discovery that though millions' worth of agricultural science has been wrought out by the government research outfits, not a cent's worth of it has ever reached the farmer, and he is therefore groping in outermost darkness. One might think by reading some of this stuff that the American farmer was still driving an ox-team and cutting grain with a cradle, and that the government had now made the discovery that it is necessary to shoot some of this science into the center of him with a howitzer, before he can be expected to rise to his opportunity. Now this sort of thing seems to appeal very strongly to the publishers of near-farming journals, whose only knowledge of farming is the number of inches in an advertising column, and it also appeals, more or less, to their readers, whose chief interest in farming is to find somethng to preach at or to condemn. Perhaps we could leave them all to their enjoyment were it not that the silly racket gets to the ears of people who are in other activities of men, who do not know anything about farming and honestly do not profess to, and they are misled into wrong ideas of the quality of farming citizenship and industry, with the result that the character and influence of the farming classes is discounted and popularly misunderstood. There ought to be some way to choke off these smart Alecks, who tell the reporters that they are going to press a bureau button which will double all the crops in the country because they have found a way to make the farmers know what science can do for their industry. Their discoveries are of the get-rich-quick; they are the Wallingfords of government departments; they do politics that way and the host of near-farmers applaud their patriotism and philanthropy and feel sad for the benighted farming classes, who are made not to know science and are denied even common horse-sense. There are, of course, plenty of poor farmers, just as there are poor cobblers, lawyers and bureaucrats, but the mass of the farmers do know, or are at least affected by, the natural, mechanical and economic science which research has disclosed during the last half century. The farm papers bring it to them, the extension departments of the agricultural colleges shower it upon them, even the traveling salesman is always carrying about embodiments of it in his wares and talking some true things about it, along with a lot of jargon, of course. But it is known and has influenced production, policies and prosperity. The American farmer is not driving an ox-team; he is riding in an automobile; he is not cutting grain with a cradle, he uses a self-binding reaper, or a combined harvester, and well-bred draft horses or tractors are becoming common motive powers. But it is, of course, silly to argue seriously against demagoguery, and that is what we find in much of the proclamations which national saviors make through journals claiming to minister to the development of agriculture. They are quack doctors every one of them—picturing the desperate illness of the patient to weeping relatives to magnify their own mastery of the healing art. They make us tired.

Queries and Replies.

Querists must give name and address.

Chick-Peas or Garbanzas.

To the Editor: I am sending you for identification some seed. It grows so well here I would like to know what it is, and if there is an established market for it, and if so, about what is the average price?—Subscriber, Stratford.

It is a chicken-pea or garbanza. It is chiefly grown and used in Mexico—not in this State, and we cannot tell its value. Send a sample to a Los Angeles dealer. Presumably it would sell better there than elsewhere in this State.

Is the Scale Dead?

To the Editor: About a week ago I had my prune trees sprayed with the prepared lime-sulphur solution, to do away with the scale. The scale still remains on the trees. Is the scale dead, or should I have done otherwise? The trees are about 20 years old. I notice in an article on page 293, March 6, "Spray for Fruit Trees," you do not mention prune trees. Probably, I sprayed at the wrong time.—Reader, Chico.

You do not say what kind of scale you sprayed for. If it is San Jose scale, about as big as the head of a pin, spraying does not knock it off, but if you take a magnifier and lift up the scale with the point of a knife and find a little brown body under it, the scale is dead. If alive it is lemon yellow. If you were spraying for other scales of the prune, which are larger, say as large as half a sweet pea seed, the lime sulphur does not usually kill the eggs which are under such a scale. The little scales are to be killed by a summer spray, which does not injure the foliage. The San Jose scale is the one called pernicious scale in the article to which you refer. The article was especially written for fungus, which does not attack the prune tree, and therefore it was not mentioned.

Winter-use of Roots.

To the Editor: We have been told that carrots and parsnips, if planted in April and May, and left in the ground until the following January, February and March, before being eaten, develop a deadly poison. Kindly give us your opinion.—Subscriber, Colusa.

It's a lie.

Walnuts and Oranges.

To the Editor: I have a lot of English walnuts to set out, which are 8 to 9 feet high. The first branches are 4½ to 6 feet from the ground. How far from the ground should I cut them, and should I cut them back as I set them out? Also have an orange tree sent me which has 3 oranges on it; should I remove these oranges and top the tree?—Subscriber, Galt.

We should not cut back the walnuts. The branches should be considerably higher than with other trees. The tree will probably make more laterals this summer, which you can use in shaping the tree later. Take off the oranges and cut back reasonably, thinning out the shoots somewhat, probably to secure well-placed branches of those you retain.

Black Knot of Grape Vine.

To the Editor: I enclose piece of grape cutting that has some kind of fungus growth on it, a number of vines being affected. I first saw signs of it a year ago on the vine trunks near the ground. Now it is climbing up higher, and more vines are affected. Can you tell me what it is, and what to do for it?—N. H., Parkfield.

It is the trouble known as "black knot," from the dark-colored warty excrescence which it manifests. The treatment consists in pruning out a cane or spur affected by it, if it can be spared, or in removing the knot, with knife or chisel, when it is on a root stem or spur which cannot be dispensed with. In this way the trouble is often avoided and healthy growth secured, but sometimes vines are killed by the growth and encompassment of the knot.

PROFESSOR WICKSON is at the head of the Department of Horticulture, University of California, and he has had an experience in garden work of thirty-five years. He is an expert authority on gardening.

His book, California Garden Flowers, is one that fills a great want—there has been a genuine necessity for it. Most books on gardening have been written for an eastern or an English environment, and they are not of the greatest use to the California would-be gardener.

The book is the greatest help possible to the homekeeper in the development of a garden, and it is written in such a charming way, without the use of technical terms. It is indeed a California classic, wonderful in its simplicity, and most helpful in its instructions. It is an encyclopedia of garden information—very charming—one feels as if a friend had come to visit one's garden, and had brought with him a happy message to add to "the glory of the garden."—Mollie E. Conners, in Oakland Tribune.

Causes and Prevention of Mottled Leaf.

[Written for PACIFIC RURAL PRESS by Gordon Surr of San Francisco.]

(Concluded from last week.)

Points in Prevention of the Trouble.—Evidently, if mottled leaf is mainly due to the causes outlined last week, concoctions, cure-alls, and "dope," applied to the soil or tree, can be of little service. If the observations mentioned are, in general, true, and their interpretation, on the whole, correct, then mottled leaf may be largely prevented by careful attention to three points. These are:

(1) To keep the ground uniformly moist, as far as possible;

(2) To improve the condition of the soil; and

(3) To use fertilizers which act slowly, or other fertilizers in such a manner that no great amount of plant food is at any time available.

Moisture.—Keeping the ground uniformly moist means that very wet and very dry conditions are to be avoided, either by more frequent irrigation, with less than the usual quantity of water to each irrigation, or by more thorough irrigation in other cases, depending upon soil and sub-soil conditions. The ground, of course, gets soaked with heavy rains and, if comparatively large quantities of commercial fertilizers are then within reach of the roots, so much the worse for the trees, as more available plant food may be absorbed than can be digested, resulting in mottled leaf or other troubles. A hearty meal of wholesome food may be very bad indeed for a starving man. This partly accounts for the excellent results attending the use of barnyard, stable, sheep and goat manure, which are relatively slowly available, and rarely give up a lot of plant food all at once under any conditions. The abuse of commercial fertilizers is probably, therefore, a potent indirect cause of mottled leaf. Heavy applications at one time, say in Florida, may not be anything like as dangerous as they might be in California; and in our climate, if used at all, they should be applied in small quantities from time to time, instead of once or twice a year. The former, blind, unreasoning faith, in so-called "complete" and "balanced" commercial fertilizers seems to be largely on the wane among California growers of citrus fruits, and this lack of confidence is doubtless chiefly due to the abuse, rather than to the use of such fertilizers. On the other hand, balanced fertilizers are, in many cases, unbalanced because badly proportioned, regardless of the composition of tree, fruit or soil, but their influence on bacterial activity must also be considered.

Mulching.—If the surface is bare, frequent irrigation would entail frequent cultivation, otherwise the water would quickly evaporate and leave salts like nitrates near the surface largely out of reach of the roots, for the upper roots are destroyed by cultivation. Cultivation, furthermore, causes the destruction of organic matter and of valuable bacteria by exposure to the hot sun, and brings about the formation of plow-sole, and does not prevent the accumulation of nitrates near the surface. Cultivation should therefore be dispensed with, as much as possible, by such systems as mulching or summer cover crops. If mulching is resorted to, the surface should be covered and kept covered with alfalfa hay, bean-straw or other materials. Alfalfa hay is about as rich as our southern sheep manure in nitrogen, phosphoric acid and potash, analyses of each being closely similar in these respects. In the case of mulching, cultivation could be done away with, and the roots of the trees would then be able to work toward the surface in peace instead of in pieces. Weeds could be mowed down, before going to seed, and left where they fall. In some respects, the best way to water land covered with a mulch would be by an overhead system which, incidentally, might also help to keep insect-pests in check. A series of permanent sprinklers might also work, such as are used on some large lawns, but teams and wagons would be apt to play havoc with them. With either system, in the case of gravity water, a pump and reservoir would be required to get the necessary pressure, but, on the other hand, the grove could be watered as often as desired, with little trouble and with no cultivation. The basin system of irrigation suggests itself as an alternative, but this means a good deal of work and also some disturbance of the roots. Sub-irrigation might also fail to properly carry down the surface nitrates. In the absence of cultivation, many roots would soon be close to the surface, hence mulching should first be tried on a small scale, as, if cultivation were later substituted, the upper roots would suffer great injury. Even with the ordinary methods, root injury is frequent; in fact I know of one case in which an orchard was plowed later than usual, after which most of the oranges fell from the trees.

Cover Crops.—Instead of a mulch, cover crops may be grown both in winter and in summer, such crops being disked in but not plowed under, for the deeper the ground is stirred the greater is the harm to the roots of the trees. Summer cover crops, however, take a good deal of water and care must be used to see that the trees themselves do not lack moisture. Mottled leaf is bad in some orchards in which the ground is well covered with growing alfalfa, and it is folly to expect trees to thrive when the alfalfa is periodically cut, and the hay removed from the grove. Good results from cover crops are to be looked for, not so much while the crops are actually growing, but after they have been turned under and have commenced to decompose. Nevertheless, summer cover crops doubtless also do good by shading the ground from the hot sun, and possible by further cooling it through the condensation and evaporation of moisture. On many a morning grass is soaking wet with dew, and the bare ground alongside lawns quite dry. The inorganic elements of cover crops, of course, come from the soil to which they are returned, and to a small extent from th irrigation water, but the plant food in the crops soon becomes available, and their decomposition liberates more from the soil. If legumes are grown, the store of nitrogen is thereby increased, nitrogen being the chief element in which our citrus soils are deficient, and the most expensive to buy. Yet the air over every acre contains about 35,000 tons of nitrogen.

Manures. — In humid, warm regions, vegetation is rank and organic matter abundant in the soils, and citrus trees are natives of such regions. In Southern California, on the other hand, even the virgin soil of the citrus districts are miserably supplied with organic matter, and many cultivated groves are in still worse plight. Yet organic matter, in actual process of decomposition, is one of the first requisites for fertility, humus being merely the residue after the good work has been largely accomplished. Both fresh organic matter and humus are, however, of the greatest value in increasing the capacity of soils for retaining moisture, thereby making the nourishment of trees more regular. The good results of stable manure are due as much to the organic matter and bacteria present as to the relatively small amount of actual plant food in the material, and also, as before stated, to the gradual yielding up of the plant food, which slowly becomes available. First and foremost our citrus soils require organic matter, which may be supplied by barnyard, sheep, and goat manure, and by cover crops and mulches. Organic matter greatly adds to the efficiency of commercial fertilizers; in fact thousands of dollars invested in these have been thrown away simply because organic matter was deficient. "By their fruits ye shall know them," and, judging by this criterion, such fertilizers as barnyard and sheep and goat manure are among the best for citrus groves in Southern California. Exceedingly large quantities of stable manure, applied all at once, may, in some cases, injuriously affect the quality of citrus fruit, probably largely owing to the absence of sufficient lime carbonate to neutralize acids formed by the decomposition of the manure.

Potash.—Granite soils contain tons of potash to the acre-foot, on account of the presence of the potash feldspars, orthoclase and microcline, and of their decomposition products. The application of potash is therefore rarely needed for groves on such soils. Potash, for example, has hitherto had no effect whatever in increasing the yield of citrus fruit at the Riverside Experiment Station, muriate and sulphate having been used on different plots. If available potash appears to be low, the addition of ground limestone will release potash from insoluble silicates such as potash feldspar.

Phosphorus.—Phosphorus is not abundant in granite soils, as the mineral apatite, from whence it is derived, occurs but sparingly in the parent rocks. Phosphoric acid is also relatively low in stable and in sheep and goat manure, but citrus trees and crops draw much less heavily upon phosphoric acid than upon nitrogen and potash. Finely ground, raw, phosphate rock is a comparatively cheap source of phosphorus, such material gradually becoming available in the presence of plenty of decomposing organic matter.

Lime.—Our citrus soils, in general, contain enough lime to supply the actual needs of the trees and crops, but they are mostly very low in lime in the form of carbonate, running from none to a few hundredths of one per cent. Lime carbonate not only releases potash, but also improves the physical condition of soils tending to pack. Moreover, organic matter, in decomposing, gives rise to acids, which retard or prevent nitrification and other desirable bacterial activity, unless these acids are neutralized, preferably by ground limestone. Carbonate of lime also increases the efficiency of "complete" commercial fertilizers and improves the quality of most kinds of fruit, a sufficient amount of it being essential for the best results with the great majority of trees and plants, cultivated outside of the tropics. The difficulty is that it is not yet definitely known whether citrus trees prefer soils containing lime carbonate or the reverse. In warm, humid regions of which they are natives, the soils are apt to be acid, on account of the abundance of decomposing organic matter and the leaching out of any carbonate of lime formerly present. On the other hand, citrus trees do well in certain parts of Spain and Florida, and probably elsewhere, on soils containing a good deal of lime carbonate. The whole system of treating cultivated trees and plants depends, largely, upon their attitudes to carbonate of lime, whether they like it or dislike it, and this point should be thoroughly investigated in the case of citrus trees, for it is of fundamental importance. Lime carbonate will not, in itself, prevent mottled leaf, as I have seen affected trees at the foot of a steep hill, of solid limestone, locally termed a "mountain."

Iron.—Plants develop no green color without iron, as iron is absolutely essential to the formation of chlorophyll. Our citrus soils, however, mostly contain an abundance of iron, soluble in such a weak solution as one per cent, cold citric acid, hence available iron does not appear to be lacking.

General Conclusions.—Some have attributed mottled leaf to microscopic nematodes or thread-worms, in and among the roots of affected trees, but the observations outlined above seem to be against this idea. Possibly the worms prefer sickly trees to those in good health.

Apparently the aim should be to improve the general health of the trees by insuring a regular supply of nourishment, thus promoting proper assimilation or digestion. In endeavoring to get rid of mottled leaf it would probably be well, at first, to dispense with commercial fertilizers altogether, as their presence, in fair quantity, might result in the trees getting an excess of nourish-

YOUNG men who have an ambition to conduct a farm on progressive lines ought to have the earnest support of their parents— not only because modern methods pay, but because they will be likely to hold the interest of a studious and energetic boy.

ment. Frequent small applications could be used after recovery of the trees, if thought desirable. Meanwhile stable, sheep or goat manure could be substituted, and additional organic matter furnished by cover crops or mulches. Above all, as far as possible, the ground should be kept from becoming too dry or too wet. Instantaneous cures cannot be expected, as recovery may be slow even with the best of treatment.

This article is largely based upon my own observations and deductions, but I have also drawn freely upon Bulletin No. 218 of the University of California, an excellent treatise on "California Plant Diseases" by Professors Ralph E. Smith and E. H. Smith.

Suffice it to say in closing that, while mottled leaf may be due to many causes, irregular nutrition seems to account for much of it.

Sulphuring New Grape Shoots.

[Written for PACIFIC RURAL PRESS

Sulphuring for mildew this spring in the vineyards where the mildew was bad last year ought to begin as soon as the shoots are a few inches long because the over wintering spores are lying in wait for the new growth.

If the weather is under 75 degrees maximum daily shade temperature until the flowers come, the mildew does not develop much; and the sulphur does not give off its fumes much when the temperature is under 75 degrees. Nevertheless, if it should get warmer, mildew would likely start on the new buds and show up later at the bases of the canes. It would also get into the flower clusters and prevent setting of the fruit.

This early application is not necessary in the interior valleys except after seasons of unusual mildew. This is because the hot, late fall weather killed most of the fungus so that it could not form enough spores to do serious damage before blossoming time.

In the Coast counties, however, the coolness and moistness late in the season allows the formation of the winter spores in greater numbers, so that the sulphuring on shoots just well started is practically always of considerable value.

Attacks All Green Surfaces.—The fungus is like a gray powder, attacking all parts of the vinifera and American varieties of vines on all their exterior, green surfaces. It may be easily rubbed off and no signs of the fungus will remain until a little later, when the outside cells of the fruit, leaf or cane turn dark owing to the fibers of the fungus which have penetrated them. The mildew fungus attacks both the upper and lower sides of the leaves, and in severe cases, especially along the Coast, it wilts them on the outsides of the vines, destroying the usefulness of the canes whose leaves are attacked.

It is well, wherever in California the mildew has ever been, to apply sulphur when the blossoms are in the early stages of opening. Frank Henry of Fresno county advises this, and H. J. Cooper of San Joaquin county also practices the blossom sulphuring. Mr. Henry advises repeated sulphuring about every week through the season, even through ripening, of raisin grapes at least. This would seem all right if not too much sulphur reaches the consumer.

Blossoms attacked by the fungus drop off without setting berries; berries of small size when attacked do not develop; those that are large when attacked may continue to grow, but the skins will be discolored and the berries often misshapen, due to the arrested development of the surfaces attacked. Such surfaces thicken and are especially noticeable in Muscat raisins as smooth, hard spots which are not wrinkled as the other parts of the berries are. In both table and raisin grapes, the mildew is likely to cause the berries to crack if the attack is severe; and in this case, blue mold is likely to get into the berries and make them valueless. Badly affected vines give off enough of a moldy smell to be noticeable to anyone who has ever learned what it is.

Mildew Inside.—The common cause of failure to sulphur in time is the fact that the fungus develops inside the vine where it is cool and moist, while often the outside leaves and canes show no signs of the trouble. For this reason, in vigorous, dense growing vines which really ought to have been pruned more openly, it is necessary to examine inside periodically.

Vines in moist regions or in moist sections of the vineyard along irrigation ditches should be especially examined in order to catch the mildew before it does serious damage.

Mr. Cooper has observed that the grapes are not attacked after they begin to ripen. He lays this to the presence of sugar in the berries because second crop grapes which are coming along at the same time the first crop is ripening are often badly mildewed.

The fungus cannot grow where it is hot and dry. When the thermometer gets above 100 degrees as the maximum shade temperature of the day it kills most of it, but where it is hot and moist, the mildew seems to thrive. This is why the mildew is not so bad in the interior valleys as on the Coast.

Sulphur Control.—The most practicable control yet devised, because it is easiest applied thoroughly and because it is the cheapest, is sulphur which has come to be applied in all parts of the State, though very regrettably not by all vineyardists in these parts. The action of the sulphur is due to fumes generated when the thermometer rises over 75 degrees, being proportionately greater with a greater temperature. It is well not to sulphur when the thermometer is over 100 degrees, since the heat itself does the work very well and in case of moist sections sulphuring at that temperature is likely to injure both grapes and vines. If it is necessary to sulphur for mildew in moist sections when the temperature is over 100 degrees, it is well to throw the sulphur on the ground under the vines rather than on the leaves or fruit. In this case, cheaper sulphur may be used because its effect is due to whatever of the fumes which will be generated may reach the fungus, and a large part of it is wasted. It should not be applied after the grapes begin to color or soften for ripening, since there is still a question as to whether it damages the grapes then. Mr. Henry says it does not. The action of the sulphur is greatest within a minute distance from each particle. The mildew is killed the quickest next to the sulphur particles, and for this reason, the finely ground sulphur is cheapest if applied thoroughly, but not wastefully. It is often noticed that if part of the vine is sulphured and the rest not, it is likely to allow the mildew on the part that is not, due to the dispersal of the fumes by air currents.

Sulphuring Helps Fruit Setting.—Sulphuring seems to stimulate vines regardless of its effect on the mildew, and for this reason is advisable especially during blossoming time, in order to help invigorate the vine and set the fruit better. Mr. Cooper has heard the complaint that sulphuring at this time killed some of the blossoms, but he doubts the truth of this and he figures that anyway not enough are killed to produce gaps in the bunches, and if any are killed it is that much gained in the loose ness of the branches. Prof. Bioletti of the University believes that sulphuring during bloom should be practiced because it helps the setting of the fruit, possibly due to the action of the air from the bellows in blowing the pollen about among the blossoms.

Nursery Inspection at Destination.

To the Editor: I would call your attention to Senate bill No. 861, introduced by Senator Chandler, referred to Committee on Agriculture. This bill has been gotten up for the purpose of helping the nurserymen to evade that portion of the existing law which I consider is the greatest protection to the Horticultural and Agricultural industries of this State—the inspection of all trees, plants, vines, and plant products at destination. This, in my opinion, is the most important protection we can give the grower.

Seventy-five per cent of our inspection trouble has been caused by shipments of trees, plants, etc., coming into the county even from the Agricultural Department at Washington, D. C., which were infested with harmful insects.

Hundreds of cases have come to us from all over the United States with Inspector's certificates attached stating that these trees, plants, vines, etc., were free from injurious insects and diseases, but on closer inspection here, our men find many of such shipments infested with very injurious insects.

Only last week we got two shipments of peach trees from Missouri that were both infested with black peach aphis, notwithstanding that certificates were attached, certifying that the trees were clean and free from injurious insects or diseases. This is typical of many cases.

Now, in my opinion, if the inspection of all plant products at destination is done away with, we might as well be without any inspection. I trust that you will see this matter as I do, and try to defeat this bill.

Assembly bill No. 1212 originated in my office, but I have come to the same conclusion as Dr. Cook's cabinet—that we do not want it. Assembly bill No. 1211 also originated with us. This bill is approved by Dr. Cook and his cabinet. It will place all quarantine measures in the power of the State Commissioner. It is intended to prevent the County Commissioners from quarantining against a whole county, only when a small section of that county is infested. This is why nurserymen who often are long distances from any infestation and have perfectly clean stock, complain. They say: "We can ship our stock into some counties, and others quarantine against us." Nurserymen want a uniform quarantine law and this cannot be as long as the different counties have different county ordinances. If the State Commissioner only has the regulating of the quarantine of the whole State, we will then have uniform quarantine laws that should satisfy the nurserymen.

Assembly bills No. 1211 and No. 164 have the approval of the State Association of County Horticultural Commissioners according to a letter we have just received from the president of that body, as well as of the State Horticultural Commissioner's staff, and I am very hopeful that if given the proper attention they will pass without amendment.

I would respectfully request, therefore, that you use your best efforts to that end and also to defeat the objectionable bills. Their defeat is even more important than the passage of the good ones.—**William Wood**, Horticultural Commissioner Los Angeles County.

IRRIGATE FOR SUBSOIL.

[By Prof. I. Lewis, Corvallis, Ore.]

I would caution the growers to study their subsoils much more carefully than they do. So often irrigation is based entirely on surface conditions. By supplying themselves with a soil auger and studying subsoil very carefully, never allowing the soil to become either excessively dry or excessively moist, they will secure better results with their trees. It is impossible to study these conditions without using a soil auger.

Temperature of Water.—You will find also there is a very close relation between the temperature of the water and the temperature of the soil; that it is possible on heavy soils to use such large amounts of cold water as to really be detrimental to the trees. I have known growers in the Northwest to pour on large amounts of cold well water on a heavy soil, and the trees were very seriously checked. They did not overcome the entire effect for several years. Such things are bound to occur unless we are constantly on our guard and study the problem in all its details.

IT IS reasonably certain that any business man who runs a diversified farm as carefully as he conducts a store can clean up a satisfactory income from year to year, keep his place in proper order and have a delightful country home. He also will gain considerably in the appreciation of land, and he has always the satisfaction of knowing that rightly administered his investment is perfectly safe.

"Winter Rhubarb, Culture and Marketing."

By

Reginald Bland

A complete manual of field culture for this valuable crop, filling an important vacancy in Agricultural Literature. Chapter titles are, **Rhubarb — and Winter Rhubarb, Selection of the Location, Preparation for Planting, Planting, Culture, Picking and Packing, Marketing, Propagation and Development.**

This new book will be useful to successful growers; **invaluable** to beginners, to prospective planters and to those who may have been unsuccessful! interesting and instructive to all.

The strenuous pioneering years are over. Recent develments have brought new life and impetus to rhubarb culture. One company, shipping from 200 to 250 cars annually (over 90 per cent of the total California production), says, "We now have more customers on our books than we have rhubarb" —and only a few of the big eastern markets have been supplied. Every one who wishes to profit by this great opportunity should have the sound, practical instruction and advice to be found in

"Winter Rhubarb, Culture and Marketing"

In cloth, 50c; in paper, 25c; postpaid.

Reginald Bland

San Luis Rey, San Diego Co., Cal.

Easy to own an Engine Now

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 219.90
16 H-P, 298.80
22 H-P, 399.65
Portable Engines Proportionally Low.

WITTE Engines

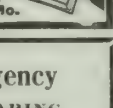
Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Long-wearing, separable, semi-steel cylinders and 4-ring pistons; automobile ignition; spark shift; vertical valves; variable speed; and other merits without which no engine is now high-grade.

Liberal 5-Year Guaranty

Cash or Easy Terms. Why pay double price for any good engine, or take a poor one, for any price, when the WITTE costs so little and saves you all the risk?

New Book Free. Tells you the "inside of engine *selling* as well as *manufacturing*. Get the facts whether you buy from me or not.



Ed. H. Witte, Witte Iron Works Co.
2868 Oakland Ave., Kansas City, Mo.

San Jose Berry Agency

SEEDLESS, EVERBEARING BLACKBERRY

St. Regis Everbearing Raspberry. Specialties.

Room 7, 193 S. 1ST ST., SAN JOSE

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.

NEWCASTLE, CAL.

REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL.

TREE PLANTING

20 years' experience in Northwest and California. Average price 10c per tree. Go anywhere. Work guaranteed, or no pay.

F. C. Caswell, Orland, Glenn Co., Cal.

Soft Soap Vs. Apple Borer.

(By A. J. Cook, State Horticultural Commissioner.)

If the number of inquiries received at this office is a safe criterion, then the flat-headed apple-tree borer (Chrysobothris femorata, Fabr.) is one of the most common insect pests of our northern California orchards. Though usually known as the flat-headed apple tree borer, it works on other deciduous fruit trees, quite often on peaches, and is even found on oaks. I have known it to do great damage on apricots in northwestern Los Angeles county. It is abundant East, and probably exists the country over.

Life History.—The imago, mature, or adult beetle is about one-half an inch long; gray, flecked with black, with bronze or greenish reflections; the legs and under side copper colored. It is rough, oval, flat, with the head deeply sunken into the thorax. In the East, the beetles may be seen on the south and southwest sides of the trees, enjoying the warm sunshine in June and July. They lay their eggs at this time, probably in early May in California, on the southwest side of the trees, possibly because the trees are usually blistered and rough on that side. The eggs soon hatch into grubs which eat into the tree, burrowing just beneath the bark in the cambium layer. The bark at this place becomes dark, nearly black, and a sharp pointed knife blade, because of the burrow, pushes easily through the bark. In the burrows will be found frass and the sawdust-like chips.

The joints of the thorax back of the rather small head of the grubs are much broadened and flattened, so we have the term "flat-headed borer." The six legs are very minute and scarcely visible. When the grub attains its full size it is fully one-half inch long, and when taken in its burrow is usually curled up. It passes through its life cycle in a year, and so will be found as a grub or larva from May or June until late in the next spring, when the pupa, much resembling the adult beetle, will be found in the tunnel formed by the grub.

This borer need not be confused with the peach borer (Sanninoidea opalescens). That is a caterpillar with sixteen legs. This is a grub with six very minute legs, scarcely visible. That works nearly always at the crown of the tree, just beneath the earth. This works almost always on the trunks above ground. That gouges out a large, ugly gash on all stone fruit trees. This destroys the cambium layer of apple, peach and other trees. That attacks sound and feeble trees alike, is no respecter of trees as to their vigor. This rarely attacks vigorous trees. The flat-headed borer is specially likely to attack newly set trees, as the trees are very likely to have their vitality impaired by being transplanted. The location of these borers on the southwest side of the tree is likely due to the same fact.

There are three suggestions regarding the control of this pestiferous borer. First, if we take great pains to maintain the tree in full vigor, we shall suffer much less from its ravages. Second, if we shade the trees from the hot sun, the blistering effect of the heat rays will be prevented, egg-laying lessened, and damage checked. Third, if we rub the tree trunks in May, especially trees newly set from the nursery, with a cloth or the gloved hand, after dipping the latter in a strong solution of soap, or better, of soft soap, we will almost surely save all our trees from attack. One year I set about my farm in Michigan one hundred maple and other shade trees. A friend set the same number on the very same day. I used the soft soap freely each spring for the next two years; he did nothing. At the lapse of two years I had lost one tree, broken down by a careless driver; he had one tree remaining, as the borers had ruined all the others. One year I set several apple trees on my yard in the campus of the Michigan Agricultural College. My colleague, Dr. W. J. Beal, did the same, at his place only a short distance away. I used soft soap freely for two seasons; he left his trees severely alone. My trees are all living and bearing luscious fruit today; his were all sacrificed years ago to the greed of these voracious borers.

The nurserymen are rarely to be blamed for the presence of these flat-headed borers, as the eggs are not usually laid till after the trees have been planted. It would, however, be very wise for the nurserymen to suggest the remedies already given above whenever they sell a bill of trees to a prospective orchardist.

GOOSEBERRY CLIMATE.

To the Editor: I wish to speak to E. S. T., Hollister, if I may. Better than a mildew resistant gooseberry bush in a way is a mildew resistant locality and climate as well. In some places, gooseberries mildew; other places they do not. There is one condition of climate very essential to success commercially, and that is a cool, dry atmosphere through the growing season. If you have it hot through the day with foggy, wet mornings, success is doubtful. I have tested out some twelve or fifteen kinds, both American and English, and I have here in Greenfield, Salinas valley, yet to find one kind subject to mildew. Have planted three new sorts this year; I do not know what they will be.—E. C. Hall, Greenfield.

GROWING LOGANBERRIES.

To the Editor: I am thinking of planting Mammoth blackberries and Loganberries. What will it cost to put in one acre, what will the returns be per acre a year for both, the price per ton, and the cost with first-class care per acre a year?—J. M. P., Stockton.

[Answered by T. R. Fiala, Sebastopol.]

Loganberries are considered in this district the best all round berry for profit; good bearers, ship well, average under favorable conditions six tons per acre, and sell at market quotations $50 to $60 per ton, some growers at Sebastopol receiving $90 for eastern shipment.

Plant in rows eight feet apart, use six foot redwood stakes, drive into the ground to a depth of two feet, string two lines of No. 16 galvanized wire two feet from the ground and on top of stakes, place a

Behind each tree is our guarantee

You Will Have to Hurry

It is only a matter of days now and then—

YOU LOSE A WHOLE YEAR FOR PLANTING FRUIT TREES.

Send today for our revised FEBRUARY STOCK LIST.

We are fruit growers and shippers as well as nurserymen. Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree. Our years of experience, knowledge and observation as nurserymen and fruit growers are at your service. We show you how to succeed.

If you already know

just what trees you want, do not wait for the STOCK LIST. Send in your order. If the trees you want are still in stock, your order will be immediately filled.

Don't delay
Order today.

stake every ten feet, fasten wire with small staples, and plant the vines between stakes ten feet apart.

At first plowing, throw furrow to center, harrow, then hoe remaining strip. Plow to the vines, harrow, and cultivate according to moisture and season.

Shoots or canes continue to grow until September. Select the strongest ones and twist on lower wire. They will bear quite a crop that year. After picking berries, cut away all the old wood or canes on the wire. The second year's growth will be much stronger and more canes. These should be put up on both wires. The vines will be in full bearing by that time.

Cost.—Plants for one acre—	
450 @	$ 7.00
Stakes—450 @	13.50
Wire and staples, 100 @ ...	4.50
Plowing, hoeing, cultivating, about	6.00
Cost per acre first year	$31.00

UNIVERSITY EPITOME.

[By Prof. M. E. Jaffa, Univ. California.]

The fundamental principles of nutrition are the same for man and animals.

Food is material which when taken into the body either builds tissue or yields heat and energy.

Foods are classified roughly according to those two uses.

If protein is neglected, growth is limited or delayed, repair checked, and resistance to disease lessened.

An excessive amount of protein is uneconomical, both physiologically and financially.

Carbohydrate food gives bulk to the diet and insures an economical use of the protein.

Fat supplies heat and energy in a more concentrated form than carbohydrates and prevents an excess of bulk.

The modern standard for a ration must meet all needs of the body, maintain it in perfect health and at the highest level of efficiency.

An economical ration provides for all these needs at the least cost.

In a scientific ration the measure of the food fits the measure of the body.

The measure of the food is its nutritive value (expressed as protein, fat, carbohydrates, etc.).

The measure of the body is its size, its ratio of growth, and the work it performs.

The nutritive value is the only comparative gauge of the real money value of the foods.

A balanced ration must contain the proper proportion both of the food classes and of the bulky and concentrated foods.

Protein foods are more expensive than others, in all the markets of the world.

Fresh vegetables, fruits, greens, etc., are worth more than dried foods.

All food should be fresh, sound, and clean.

Food should be purchased under pure food guarantees.

WHAT CAUSES SHOT GRAPES?

[Written for PACIFIC RURAL PRESS.]

Shot berries are not caused by sulphuring, according to Mrs. H. J. Cooper of San Joaquin county, because she remembers cutting out the shot berries when picking her husband's Tokays in the early years before they knew anything about mildew or sulphuring for it.

Whether or not shot berries are due to lack of cultivation, as the Coopers rather believe, it is observed that they are more common on young vines than on older ones, for very few are grown on Mr. Cooper's block of 22-year-old Tokays.

Plant grapes in blocks by varieties in order to facilitate sulphuring for mildew. The first application should be made about blossoming time, and this comes at different times with different varieties, so that each variety had better be set apart by itself.

Don't Delay -Send in your order for TREES now

THIS is going to be a season when planting can be done successfully throughout March and April—but if you don't want to be disappointed in securing the varieties you want—we urge you to get your order in ***now.***

We have had an enormous season thus far and a splendid stock to meet the demand with, but orders are coming in very fast and we don't want to disappoint any of our past customers or any new ones who are counting on setting out the famous "Roeding True Trees."

Our stock still includes all the best varieties of

APPLES	APRICOTS	ORANGES	FIGS
OLIVES	CHERRIES	PEACHES	PEARS
PLUMS	PRUNES	LEMONS	WALNUTS
PECANS			POMELOS

As well as many other fruit trees, vines, shrubs and plants.

Surplus Stock. Special Prices

We have heeled in at our packing grounds a complete line of deciduous fruit and ornamental trees, small fruits, grape vines, and roses. Write us at once for our surplus List and Special clean-up prices on this stock. The trees are in perfect condition and ready for immediate shipment.

Olives

We have a fine stock of Mission and Manzanillo and every prospective planter should get in touch with us before placing his order. Trees can be delivered either from our Fresno or Los Angeles Nurseries. Special quotations for stock in any quantity.

Our Book for Planters

"Roeding's Practical Planter's Guide, the result of 30 years' experience in California Horticulture," contains complete cultural instructions with illustrations showing "before" and "after" pruning. The regular price of the booklet is 25c, but if you send us your list for prices and suggestions, we will send you a copy free. Write us today.

Illustrated Catalogue

for the season 1914-1915 is FREE, fully illustrated. Contains 60 pages and briefly lists and prices all stock carried by us, consisting of over 2000 varieties of trees, vines and plants. A copy will be sent free to any address upon request.

Fancher Creek Nurseries, Inc.

Paid up Capital, $200,000.00. Geo. C. Roeding, Pres. & Mgr.

Box 18 FRESNO CALIF.

Understanding Oil Sprays.

[Written for PACIFIC RURAL PRESS.]

Penetration of the insects is the purpose of spraying with oil insecticides, but penetration of the tree is the thing to be avoided. The tendency of oil to penetrate all pores of the bark and to take the place of the water which carries plant food, makes it necessary to exercise great caution in spraying with oil or oil emulsions, according to Prof. C. W. Woodworth, who recently addressed a meeting of Farm Advisers at their convention at the State College of Agriculture.

The penetration is greatest when the bark is dry. One can kill every bud on a tree by spraying right after a drying wind, with the same spray that would be entirely safe if the trees were full of sap. An oil spray that would be fatal when the leaves are out in the summer time may be applied safely on deciduous trees in winter. But the same principle applies to leaves as to bark, in that an oil spray which might be applied on the leaves if they are wet with dew, would burn them dead if applied at noon or when dry.

Lime sulphur is used to kill insects, but is not so effective on the more resistant ones, as the oil. Oil sprays spread more thoroughly and evenly, and they have a marked stimulating effect on some kinds of fruit trees.

The action of oil sprays on insects used to be thought to be due to suffocation, but later investigations have practically proved that almost all oil sprays owe their effectiveness to penetration into the insects and evaporation there which acts on their nerve system and is usually fatal. Some very heavy crude oil sprays may have a suffocating effect, as seems shown by such spraying for Italian pear scale in Santa Clara valley.

Since the killing power is due to penetration and evaporation, it is true that the lighter gravity oils are most effective up to the gravity of gasolene. The trouble with gasolene is that it is likely to stupefy the insect as an anesthetic, from which it may recover because the gasolene evaporates and vanishes before the insect is dead enough. Therefore, lighter weights of kerosene are about the highest gravity oils that can be used economically and effectively. Kerosene would make an ideal spray oil were it not for its expensiveness. It is generally "narrow cut" to get the highest possible flashpoint so it will be safe to use in the household.

Two ways of distinguishing different grades of oil are: (1) by their gravity, which is expressed in degrees Baume (B), and (2) by the flashpoint. The first is the way of telling density or weight only, and it doesn't tell the nature of the oil at all. Thus, two different oils may be the same gravity, but one may be pure kerosene while another would be crude oil mixed with enough gasolene to regulate its density to the desired point. Obviously, the latter oil would be much less effective and much less desirable for emulsification or spraying as a mechanical mixture than the pure kerosene.

Crude Oil Variable.—Crude oils as they come from the ground are very different in one section than in another. Hence, pure "crude oil" may be first-class for spraying or it may not. As it comes from the ground in some sections, it is safe to use on the trees, but ordinarily, the gasolene should be and is distilled off before it is sold as crude oil. If gasolene is left in, it is more dangerous to the trees because "it penetrates them worse."

In the process of distillation, all crude oil is heated and almost the first part of it which evaporates is condensed and called gasolene; the next part is called kerosene. Unrefined distillates are usually of only two grades, engine distillate and store distillate, the former containing most of the gasolene and the latter the light lubricating oil, heavy lubricating oil, and all the remainder except the asphaltum.

It is easy to see that the grade of gasolene produced would depend on the temperature at which the crude oil is kept while the gasolene vapor is being drawn off. If only a few degrees of variation between the temperature at which the gasolene part of the crude oil begins to evaporate and the temperature at which the vapor is turned into another condenser for a different grade of oil, then the gasolene is of lighter density, or degrees B., and is pure gasolene. If a wider variation of temperature is allowed, heavier gasolene is produced with a lower degree of purity. A test for this is to pour gasolene on a cloth. If it leaves a grease mark, some of the kerosene has been left in it. A small variation produces what is called "narrow cut" oils, while a wider variation produces "wide cut" oils.

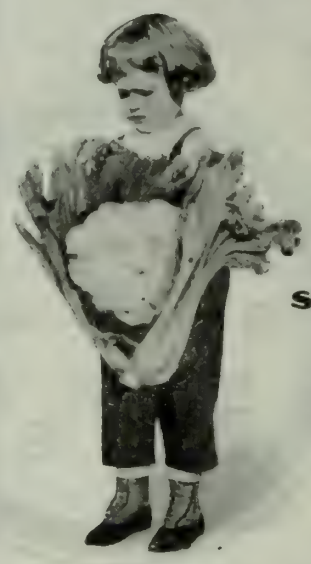
Considerable variation may be expected in buying spray oils because kerosene and distillates are able to be distilled with wider variation and consequently less uniformity. Most spray oils, however, are narrow cut, especially if put up under a known and advertised brand.

In buying spray oils in bulk, there is very little chance to tell the nature and desirability of it by any test except the gravity test, and with reliable dealers this is usually satisfactory. It should not be above 42 degrees B., and should have as high a flash point as possible with the gravity found. The gravity of most spray distillates is much lower than 40 degrees, averaging probably about 26 degrees. The flash point should not be under 70 degrees or 80 degrees F., as a low flash point increases the liability to penetrate the tree. Flash point is the term used for the temperature F. at which the material will crackle and flash in the presence of fire, and indicates its relative tendency to evaporate under whatever conditions may surround it.

Heavy oils, if narrowcut and unadulterated, have high flash points; but if mixed with more or less gasolene, the gravity may not be materially raised, but the oil will flash at a much lower temperature, i. e., it will have a lower flash point.

How to Find the Flash Point.—Set a small dish of the oil to be tested on the stove so it will heat slowly. Have enough oil to cover the bulb of a reliable thermometer. Be careful in testing gasolene or lighter oils, as their flash point is near that

GARDEN COLLECTIONS
MADE TO ORDER



Economize. Produce is high and every vegetable you buy is money lost. You can grow clean, fresh, crisp vegetables, flowers and fruits in your back yard or on that little ranch, with profitable pleasure. School children make it a success. So can you. To help you we offer our latest and best innovation, "Made to Order Garden Collections" of insecticides, trees, plants, flower and vegetable seeds; all

SEASONABLE IN MARCH

Our offer allows you to make your own selection from a large variety of seasonable vegetable and flower seeds, trees, plants, insecticides, etc., at one-third less than regular price. Every Collection includes our new and beautifully illustrated catalogue which is so complete in descriptive matter and cultural directions as to earn the title of

GARDEN ENCYCLOPEDIA—FREE

We issue a special pamphlet explaining our "Made to order collection" offer. Write NOW for PAMPHLET P

Germain SEED & PLANT CO. Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

We Raise 60 and 70 Bushels of Corn Per Acre

and GUARANTEE you the same. HOW? Get acclimated, pedigreed seed. Note results. 1904 bought 80 bushels per acre Nebraska pedigreed seed. See our yield same year 25 bushels. 1905 selected and planted. YIELD 35 bushels, etc., until now we have the above results.

Price F. O. B. our station:

Select on ear $4 per 100 lbs.
Select shelled $4 per 100 lbs.

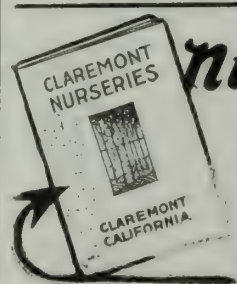
ROUGH'S GREENFIELDS, Arlington, Riverside Co., Cal.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN, CALIFORNIA.



Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

of summer air and they may explode if tested at too warm a temperature. In other words, these oils burn at about their flash point temperature. As the oil warms up, pass a lighted match or taper across the surface of the oil as close as possible without touching the oil with the match. The lowest temperature at which a crackling accompanies the passage of the match over the oil is the flash point. The crackling resembles that of a match scratched slowly over a slightly roughened surface. It grows louder with increased temperature and when it is hot enough, the oil will take fire.

Tests are checked for accuracy by repeated them as the oil cools. The point at which the flash-crackling ceases is the flash-point and should be the same as found before.

All kerosene flashes above 100 degrees F., and some of it is guaranteed to have a flashpoint not under 150 degrees. Stove distillate is often redistilled to get the narrowed cut spray distillate, because one can never get a very narrow cut oil with one distillation. Distillates often have one of two faults, a too low flash point, which makes them dangerous, and a too dark color, which indicates an overabundance of asphaltum with a corresponding decrease of insecticidal properties.

However, distillate is used more than other spray oils in California, though not elsewhere. We are fortunate in having an asphalt base for our natural oils; for such stay on the tree in good shape two or three years, while paraffine-base oils crack and weather badly.

Emulsion and Mechanical Mixture.—In spraying with a mechanical mixture, the oil is simply mixed with water by continuous agitation, usually with paddles. It is dangerous because likely not to be well enough agitated. Emulsions are safer and may be made into stock solutions to be diluted to whatever strength is safe for the variety and the season. Soap is mostly used, though Prof. Woodworth says sour milk is as satisfactory where it costs no more. It equals the soap solution, gallon for gallon.

Well-made emulsions do not separate for several hours if at all, though it is always well to keep them agitated while applying. "Whale oil" soap, which is really made from high-grade fish oil of other fish than whales, is commonest, and is sometimes made up on the farm, as it is on one ranch near Santa Clara. This is in solid form, but must be dissolved. One firm puts out a liquid whale oil soap which is always ready for business.

EGYPTIAN WHEAT

To the Editor: Can you tell me if Egyptian wheat will take the place of regular wheat? Has it the ingredients of regular wheat, or is it more like Egyptian corn? I want to raise some for chicken feed if it is nearly the same as other wheat.—G. S. L., Winton.

[Answered by Geo. H. Croley, San Francisco.]

[Formerly Egyptian corn was often called Egyptian wheat, but now there is a somewhat similar cereal bearing a smaller sized grain that is now offered in the market as Egyptian wheat. It appears to possess approximately the same qualities of the larger variety, except that the samples we have seen seem to carry more husk or fibre.]

KEEPING AWAY FROM THE TREES.

[Written for PACIFIC RURAL PRESS.]

W. W. Marvin of Selma has a useful device for harrowing his peach orchard without crowding his horses so close to the trees as to bruise the lower limbs.

He discards the regular drawbar for his ten-foot harrow and substitutes one that leaves a five-foot space between the two sections. This throws the horses two and a half feet away from the tree row.

The peach tree rows are usually 20 feet apart. Thus two trips along each space between rows finishes the job up nicely. The first trip, one section goes close to one tree row, then there is a five-foot space, then the other harrow section, then a a five-foot space next to the opposite tree row. The second trip the harrow sections are dragged over the two five-foot strips not touched by the first trip.

CORK OAK.

To the Editor: Can you tell me through your columns whether the cork oak is grown in California, and with what success commercially?—H. H. B., Vacaville.

[Answered by U. S. Forest Service.]

[Cork oak has been grown experimentally at the University of California Forestry Station, Chico, California, and a few cork oak shade trees have been planted in various portions of southern California. The species is not grown commercially in this State. The Forest Service has planted cork oak in the foothills of the Santa Barbara and Angeles Forests, but these plantations have all been failures. If you desire further information, it would be well to communicate with the Agricultural Experiment Station, University of California, Berkeley. General information about cork oak is contained in Bulletin 11 of the United States Department of Agriculture, entitled "Some Foreign Trees for Southern States." This Bulletin can probably be obtained from the Superintendent of Documents, Washington, D. C., if it is not out of print.]

POMELO MARKET LOCAL.

"I have 10 acres of seedless Pomelos and about three times as many navels," said Mrs. Lahan of Tulare county some years ago, "but if I had to lose either all of the oranges or all of the pomenos, I'd keep the latter."

The pomelo market is practically all west of the Rockies, because our grapefruit can scarcely compete in the East with that from Florida and Cuba. For this reason it would be well to consider of how much expansion the western trade is capable before making large plantings. Marsh Seedless is the commercial variety, admittedly inferior in quality to seeded varieties, but usually superior in looks and seedlessness.

The United States Fuel Ship Caesar brought 500 tons of government exhibits to the Panama-Pacific International Exposition on January 13. The display constitutes the largest exhibit ever made by a government in an exposition. It will occupy more than 192,000 square feet, and will represent every department of the government.

Armstrong Nurseries
ESTABLISHED 1889

—My Prices on
Olive Trees
are the lowest to be secured.

—my stock is of the highest quality to be obtained.

If you have not already placed your order with me write or wire at once for present low quotations.

Can make immediate shipments on receipt of your order

No delay or disappointments, and you are assured of receiving the best stock produced in the State; straight, clean, thrifty trees, scientifically propagated—from the best Olive bearing trees in California.

DON'T WAIT—WRITE OR WIRE TODAY.

JOHN S. ARMSTRONG, Proprietor
406 Euclid Ave.
Ontario California

Attention, Planters

ON HAND, IN FIRST-CLASS CONDITION:
FRENCH PRUNE, on almond, apricot and plum roots.
IMPERIAL PRUNE, on almond.
ROYAL and BLENHEIM APRICOT on apricot and peach.
SUGAR PRUNE, on apricot and almond.
WILTZ, or SAN JOSE MAYETTE and MAYETTE WALNUT;
Almonds, Pears, Peaches, Apples, Cherries.
ALL AT GREATLY REDUCED PRICES.
ORNAMENTAL stock in great assortment; special rates to the trade or to gardeners.
Landscape Gardening a Specialty.

Leonard Coates Nursery Co.
MORGAN HILL, CALIFORNIA.

A 40-ACRE EQUIPPED FARM
in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.
SOIL: Deep San Joaquin loam.
WATER: Unlimited water at 20 to 25 feet.
EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.
SPECIAL: Land absolutely above all flood from rivers; titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.
THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms. I want to show you this specially selected piece of land.
OUR CO-OPERATIVE BUYING-SERVICE will enable you to get any acreage, in certain selected tracts, at strictly wholesale values. You should know about this. Write today.

DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Blackberries Need Cultivation.

Under good management an average yield of 2,300 quarts of blackberries per acre can be expected, according to a recent publication issued by the United States Department of Agriculture. Where the soil is very deep and rich and the best moisture conditions are found this may be increased to 5,000 quarts, and certain varieties on the Pacific slope have even given 7,000 quarts an acre. The last census showed that approximately 50,000 acres were devoted to blackberry plantations in the United States.

This acreage is distributed over practically the entire country. Missouri leads with nearly 6,000 acres and New Jersey is second with 4,300. As a matter of fact, blackberries can be grown successfully on almost any type of soil and in a wide range of climates. In the colder parts of the Northwest the severe winters frequently kill the plants, and in the arid sections of the West hot, dry winds destroy the ripening fruit. The choice of proper varieties, however, will do much to overcome natural difficulties.

In selecting a site for a blackberry plantation, the most important considerations are the moisture of the soil and the accessibility of a market. The blackberry is a tender fruit, the keeping qualities of which are seriously affected by jarring over rough roads. It is, moreover, essential that the berries should be placed on the market as quickly as possible after they are picked if they are to command a good price. The best land is a deep, fine, sandy loam with a large supply of humus and abundant moisture at the ripening season. On the other hand, the plants are often killed if water stands on the plantation during the winter.

The year before the establishment of the blackberry plantation the land should be planted with a cultivated crop. This insures the thorough rotting of the sod and will help to destroy the cutworms and other insects injurious to the young plants. The soil should be plowed to a depth of about nine inches in the spring and a thorough harrowing should be given the whole field before the plants are set. This is usually done as early in the spring as the land can be properly prepared. The earlier the plants are set the larger the proportion that live and the better their growth. The roots should be set deeply for the canes break easily if the crowns project above the surface of the ground. The tops should be cut back to six inches or less in length. Cultivation is necessary and the plants should, therefore, be set sufficiently far apart to permit it.

During the first summer some intercrop may be grown between the rows, which will greatly reduce the cost of the berry field that year. This should be one that requires constant cultivation and at the same time one whose growth will not be large enough to shade the blackberry plants. Such truck crops as cabbage and potatoes are excellent for the purpose, while corn and small grains should be avoided. By the second summer the plants will be large enough to occupy all the space and an intercrop will not be possible.

In both summers, cultivation should begin early in the spring and be continued at intervals of one to two weeks throughout the season in order to provide a dust mulch for the retention of moisture and to keep down suckers and weeds. Suckers are apt to spring up from the roots at various distances from the parent plant, especially when the roots are cut. Digging up these suckers is a favorite way of securing new plants, but this practice interferes, of course, with the yield of the berries.

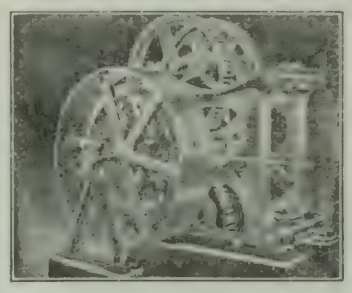
Blackberry roots live for many years, but the canes—excepting two varieties—bear only in their second year. After the fruiting season, therefore, they should be cut out and burned. The one-year old canes may usually be left to themselves throughout the winter. Not more than three or four new canes should be left to each plant, however, and the others should be thinned out at the same time that the canes which have fruited are cut out. In some cases, it will also be desirable to train the plants in order to facilitate cultivation as well as to prevent them being damaged by winter snows. A wire trellis may then become a profitable investment. The simplest form of such trellis consists of a single wire attached to posts set at intervals of 15 to 30 feet in each row of plants. The canes are tied to this wire about 2½ feet above the ground. Another method is to nail cross pieces to the posts and stretch two wires from the ends of these cross pieces, which form a support for the blackberry canes on each side. Varieties that grow somewhat like a grape vine require a much higher trellis with two wires; one about five and one about three feet from the ground.

One hundred and forty different varieties of blackberries are now recognized, divided into three classes —the hardy the half hardy, and the tender. The hardy variety should be able to withstand a temperature of below zero and the sudden changes of temperature in the western states. The half hardy class is more susceptible both to cold and to change, and the tender variety can only be grown where mild winters prevail. More detailed information in regard to blackberry culture is contained in Farmers' Bulletin No. 643, which has just been published by the United States Department of Agriculture.

FIGHTING LINNETS.

To the Editor: I notice in the Press of Feb. 6 a query from a Gridley subscriber asking what to do to save the buds on his prune trees from the ravages of linnets. The writer in answer ventures to say that there is undoubtedly a lack of forage at this time of year, such as those little winged marauders like and prefer. I had good success while an employee on the Piru ranch in Ventura county in eliminating these birds, also the Louisiana Tanager, by slicing apples or oranges into quarters, then mixing powdered strychnine with an equal part of wheat flour. Mix well, put the poison into a suitable can with a closed top, together with the sliced fruit and shake well. Then take the powdered fruit out and impale on twigs in various places (on shady sides of the trees) in the orchard. By this method I have decreased the numbers of fruit eating birds materially. —C. F. Roth, Bridgeville.

A community can safely be judged by the kind of highways it maintains.



Pomona
DEEP WELL
Pumps

For deep lifts, as well as shallow lifts combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalogue 104, with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.

SURPLUS TREES

AFTER MUCH DELAY, CAUSED BY CONTINUED WET WEATHER, WE HAVE FINISHED DIGGING, AND HAVE A SURPLUS OF SOME VARIETIES WHICH WE HAVE BEEN REFUSING TO SELL FOR SEVERAL WEEKS.

We have a few thousand each:
French Prune on Myro and Peach.
Apricot — Royal, Blenheim, Hemskirk and Tilton, on cot or peach root; Blenheim on Myro, in ¾-foot trees.
Peach — Tuscans, Phillip's and other Clings.
Plums, Pears, Apples, Figs, in assortment, and some **Almonds.**
Heavy stock of all leading varieties of **Grape Vines.**
Fine supply of **Olive** and **Citrus** trees; also Grape Vines in Thompson, Sultana, Muscat, Cornichon, Emperor, Servian, Blancha, etc., etc.

Mission Olive Trees in our Nursery at Fresno propagated from selected large Mission Trees.

All grown by us in Fresno, Madera and Tulare counties and up to our usual standard.

Our immense stock of trees and vines is moving fast. this spring, wire us (our expense) for quotations on If you will need some stock your orders.

We've been growing high-grade nursery stock in California for more than a quarter century.

"He profits most who serves best."

KIRKMAN NURSERIES, 2523 Tulare St. Fresno, Cal.

California Redwoods Commended to Java.

[We recently received an inquiry concerning the character and uses of the big tree lumber of California from a railway official in Java and referred it for answer to the District Office of the U. S. Forest Service in San Francisco. The answer we append will be of interest to our readers in the uttermost parts of the world and will add much also to local knowldege of these truly California pioneers who have stood for thousands of years testifying to California's large place in the creative scheme of the universe.—Editor.]

The Bigtree (Sequoia washingtoniana), regarding which you inquire, is easy to raise in the nursery and has been sufficiently widely planted both in this country and in Europe to show that it has great adaptability under good soil and moisture conditions. It makes a rapid growth and I should say it is well worth trying out in Java.

I am enclosing a copy of Forest Service Bulletin No. 95, entitled "Uses of Commercial Woods of the United States." On page 57 of this Bulletin you will find considerable valuable information regarding the physical properties, supply, age and size, methods of manufacture and products, etc. Bulletin 28 of the Forest Service, entitled "A Short Account of the Bigtrees of California," is also interesting because of the general information which it contains.

The Southern Pacific Railroad Company of Mexico informs me that they have used ties made of the Coast Redwood in the State of Sinaloa and the territory of Tepic, Mexico, where the white ant is found. So far no destruction has been wrought by this insect and it is believed that the redwood tie is immune from such damage. The wood of the Bigtree has very much the same properties as that of the Coast Redwood and I therefore believe that this may be taken as an indication that white ants would not be harmful to the wood of the Sequoia washingtoniana.

Wood of the bigtree is brilliant rose-purple red when first cut, later becoming more and more dull purplish red-brown. It is very light, brittle, variable in grain from coarse to very fine-grained. It contains, as does the bark, a large amount of tannin, which doubtless has much to do with its remarkable durability in an unprotected state. Prostrate trunks lie for centuries on the ground with no sign of decay, except in the perishable sapwood. The wood is widely useful for commercial purposes, passing in the market as "Coast Redwood"; though lighter and more brittle than this species, it is stated to be of about the same value for lumber. This species probably reaches an age of about 5000 years and a diameter of about 25 feet measured 10 feet above the ground above the root swelling.

Redwood is used for all kinds of construction and finishing purposes, ties, shingles, paving blocks, telephone and telegraph poles, and tank and pipe staves. In Australia, and on the Pacific Coast, it is extensively used in the manufacture of sash and doors. As a tie its average life is about 10 years, but if steel tie plates are used to prevent abrading and cutting under the rail, the average life is much longer. Ties laid in a side track of a railroad in California in 1855 or 1856 were removed after 35 years' service perfectly sound. In use as shingles it has been known to last 40 years. Its durability, immunity from decay and ravages by white ants, makes it desirable for timbers, tunnel timbers, foundation work, mud sills, curbing, fluming, paving blocks, fence posts, and telephone poles. It does not check in the sun, has remarkable resistance against fire, and when set on fire burns very slowly, being nonresinous, which makes it desirable for use on the inside and outside of buildings. It is easily worked and keeps its place well when well seasoned, making it desirable for pattern work. Its durability, nonchecking in sun, resistance against fire, immunity from the attacks of worms and ants, makes it very desirable for tank and pipe staves. Its remarkable resistance against fire was well demonstrated in the fire following the earthquake of 1906 at San Francisco, California. — **T. D. Woodbury**, Acting District Forester, San Francisco.

UNIVERSITY EPITOMES.

Forestry Helps Irrigation.

[By Prof. Walter Mulford, Univ. of Cal.]

Forestry, man's care of the forest, means the management of permanent crops of timber and the best means of utilizing those crops.

Large forests on the mountains mean more water in the irrigation ditches.

Small forests in the valleys mean local supplies of fuel and posts, and often mean more moisture in the fields because of checking hot winds.

On the mountain and in the valley, the forest should be a wholesome recreation ground.

Nature's methods of maintaining forests are wasteful and shiftless; without help from man nature is unable to meet the demands which are made upon the forest by civilized man.

The forest crop will respond to man's care by greatly increased quantity and much higher quality of the product.

The control of forest fires is the first step in forestry.

Forest fires can be controlled when public sentiment insists upon it.

A leaf mulch on the forest soil serves as the fertilizer, the cultivator, and irrigator of the forest; without a leaf mulch, the forest suffers severely.

Proper thinning increases the rate of growth of timber.

The axe and saw are frequently the only planting tools needed in the forest; skillful cutting of the ripe timber is often all that is necessary for starting a desirable young crop.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices.. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco. California.

Fuel and Power Economy

Alpha Gasoline and Distillate Engine

READ THIS

NO BATTERIES,
NO COIL,
NO CRANKING,
NO TROUBLES.
A BIG HOT SPARK,
A QUICK START,
RESULTS.

Equipped with a built-in, gear-driven, gear-timed, magneto, which is guaranteed for the life of the engine.

The Viking Rotary Pump

All Sizes.

NO FOOT VALVE, NO PRIMING,

HIGHEST EFFICIENCY.

POSITIVE DELIVERY AT VARYING HEADS.

ALPHA ENGINES & VIKING PUMPS.

A combination hard to beat.

Before you install a pumping plant it will pay you to investigate. Our Engineering Department will work out your pumping plant problem without any obligation on your part.

Write for Special Engine Circular 2B.

De Laval Dairy Supply Co.

SAN FRANCISCO, SEATTLE.

SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS

525 MARKET ST., SAN FRANCISCO, CAL.

Publishers

Avocado Pear Trees

We offer 4000 budded alligator pear trees in the choicest varieties for immediate delivery and planting.

Trees three years old, budded two years, grown in the open nursery and never under shelter. The stock we offer is strictly first-class. Single balled specimen trees, $5.00 each. Correspondence invited from large planters.. Agents,

Hockridge Nurseries, Inc.

REDLANDS, CALIFORNIA.

Fruit Trees ! Fruit Trees !

Fruit and Nut Trees, Ornamental, Evergreen and Deciduous Shade Trees, Berries, Grape Vines, Flowering Shrubs, Palms and Roses. The best that care and experience can produce.

Northern California Grown

Write and get our prices. You will find them as reasonable as any, considering the quality. Remember a cheap tree is dear at any price.

CHICO NURSERY CO.

Phone 170. Cor. First and Cedar Sts., Chico, Cal.

Cantaloupes For Dry Climate.

[By Prof. R. H. Forbes, University of Arizona.]

Climate for Cantaloupes. — The most important prerequisite to successful cantaloupe culture seems to be an arid or semi-arid climate. In such a climate, in Colorado, under irrigation, melons from eastern seed developed the superiority which gave rise to a new industry. An early growing season is an added advantage in that it gives the producer a wider range, in point of time, of markets for which to calculate his plantings. Dry, sunny climate, early seasons, fertile irrigated soils, and necessary commercial facilities are all to be found combined to excellent advantage in the irrigated valleys of the arid Southwest. To the resulting excellence of the product, and its successful management, is due the rapid development of cantaloupe growing in Arizona, and in California.

Light Soil Needed. Cantaloupes are grown to excellent advantage on light, warm loams, properly fertilized by the addition of the organic matter and nitrogen in which our desert soils are usually deficient. Heavy soils may also be used for cantaloupe culture, but are less easily prepared and tilled during the progress of the crop. Old alfalfa ground is most excellent for cantaloupe culture; and well rotted barnyard manure is effective. Bermuda sod, plowed up and exposed to the sun without irrigation the preceding summer, makes excellent cantaloupe ground. The intensive cultivation necessary serves both to benefit the crop and to restrain this formidable weed.

Alkaline lands should be avoided, since soluble salts in excess, even though insufficient to kill the plants, are commonly believed to be detrimental to the quality of the melons.

Layout of the Ground.—The soil should be so arranged that the rows may be irrigated without submerging the vines and the fruit. One good way to accomplish this, and also to fertilize the soil, is as follows: The field is first irrigated, plowed, and harrowed to a condition of fine tilth. With a twelve-inch plow, at intervals of six feet, lengthwise of the field, double furrows are then broken out, going and returning along the same lines. In the deep, wide furrows thus formed, well rotted barnyard manure is distributed to a depth of three or four inches, then plowed in, and the field again harrowed level. By then ridging the spaces between the fertilized furrows with a plow, the soil is finally left in oval ridges for the vines to run on. In making these ridges, a plow furrow is left on each side very near the fertilized furrow where the seeds are to be planted. The vines will bridge this furrow to the high ground while the roots are close to the irrigation water in the furrow. The rough furrows and ridges are then finished with a harrow and the newly prepared ground irrigated to establish the water line for guidance in planting.

Seed.—Seed should be selected most carefully with reference to flavor and appearance of the fruit; to good shipping characters, including small cavities and heavy netting; and to a tendency to produce melons of standard size. Early strains are desired for some situations; rust resistance is not a necessary character, as this class of disease is little to be feared under our arid conditions.

Seed should be purchased only from the most reliable sources. Rockyford growers are at present the principal means of supply. Some associations go so far as to send a representative to Colorado to select, in person, the seed melons from which to supply their members. Home grown seed in Arizona is sometimes sprouted and inferior, due to the heat to which the mature melons are oftentimes sujected in the field.

About one pound of seed is required for an acre. Cantaloupe seed improves to some extent with time, and is stated by experienced growers to germinate better at two years of age than at one.

Planting.—With irrigating furrows six feet apart, rows may be planted one on each side of each furrow. The hills should be ten feet apart in the rows, "breaking spaces" between rows. On this plan the ground will be quite uniformly occupied, with a distance across the ridges of about six feet between adjacent hills.

With a hoe, each hill is planted by making a small furrow a foot long just above the water line. About ten seeds are dropped in this furrow, covered an inch deep, and the soil pressed down lightly with the blade of the hoe. After early plantings, when frosts are feared, a second set of hills may be planted alongside the first, ten days or two weeks later. When danger from frost is past, while the plants are still small, they are thinned to one or two of the strongest, to each hill. Care must be taken not to overcrowd the ground with vines, as a high percentage of pony melons will follow.

Irrigation and Cultivation.—A dependable supply of irrigating water is essential to successful cantaloupe growing. Early in the season when the plants are small and the irrigating supply is cold, water should be applied sparingly. But between the setting of the crop and the ripening of the first fruits, when both vines and melons are developing rapidly, and when the weather is usually hot and dry, frequent and copious irrigation is necessary, for if the water is stinted at this time a large percentage of small or pony melons is likely to follow. During the picking season, water should be again applied sparingly—just enough to prevent the vines from wilting. This procedure gives quality and solidity to the melons, and, incidentally, maintains the field in convenient condition for picking.

As long as the vines will permit, the middles should be kept free of weeds by means of a one-horse cultivator, and the furrows run through with a small plow after each irrigation. The young plants should also be hoed by hand two or three times. When the ground is once well covered with vines, weeds will make but little headway, even Bermuda grass being effectually checked by the dense cover.

Preventive measures are more satisfactory than curative ones in the case of the aphis, which is first established at comparatively few points

California Garden Flowers,

Trees, Shrubs and Vines.

By Prof. E. J. Wickson.

In this new book the amateur flower grower of the Coast will find just what he wants to know about the care of his garden, with detailed instructions, telling how to get the best results from the soil.

No new book is receiving the endorsement of the authorities that has already been accorded "California Garden Flowers." Here are same of the endorsements:

John W. Gregg of U. C. at Berkeley, says: "The literaure dealing with floriculture and landscape gardening for California is extremely scarce, especially that which is in a form to be of assistance to the amateur gardener. We appreciate your contribution because I believe it will materially help in furthering the interests in California Gardening."

Carroll B. Smith, Redlands, says: "There is daily need of just such a book, and I am sure better gardens will follow."

Luther Burbank, Santa Rosa, writes: "This book meets with my hearty approval, as it will be of great use to amateurs, and is also of more or less use to specialists as a reference book. There is a call for this class of books."

W. Vortriede, Sacramento, says: "There is nothing that could have pleased me more in this line. I have been an ardent admirer of Prof. Wickson since 1887, since which time I have been a reader of the Rural Press. I am always glad to recommend the Press and its books, because I know I can do a great deal of good to many Californians."

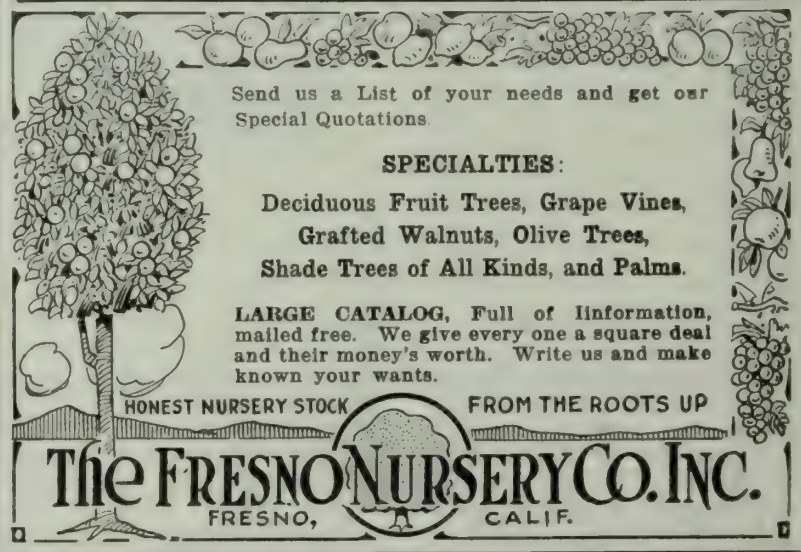
The book contains 260 pages of text; also a dozen full-page plates and other illustrations. It is handsomely bound in cloth with two-color cover.

No plant lover, be he farmer or suburbanite, can afford to be without this book. **The price is $1.50 postpaid.**

The time for your spring work is at hand, and you should have this book to help make your work more successful.

Pacific Rural Press, Publishers

525 Market St., San Francisco.



SAFETY FIRST in purchasing

Citrus Trees

Will save years of labor and expense.

DON'T BUY CHEAP FAKE STOCK.

We are selling,

GUARANTEED CITRUS TREES

at reasonable prices.

Substantiated by 20 Years in Business.

Write, wire or call, you take no chances.

POLLARD BROS.

Mission and Los Robles, South Pasadena, Cal.

MAXWELL'S NURSERIES, Napa, Cal.

Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.
FIRST CLASS STOCK TRUE TO NAME.

in a field by means of old females which have wintered over in protected situations. These pioneers colonize on the young vines early in the season, at which time, when the plants are small and easily treated, the grower would do well to assume the presence of aphids and spray the whole of his plantings thoroughly with kerosene emulsion, diluted thirty times. California growers also have colonized their fields with lady bugs (Hippodamia convergens) brought from high mountains by the State Insectary to feed upon the aphis. It is common practice among growers, also, to burn or bury infested plants early in the season. these are discovered by the wet or greasy appearance of the infested leaves, due to the excretion of honey dew by the aphids or by the presence of a species of lady-bird which preys upon them. It is important to burn all the old vines at the end of the season, thus lessening the number of possible holdovers for the following year.

Fertilizer Effective For Soil Bacteria.

[By Prof. C. B. Lipman, University of California.]

A large increase in the use of commercial fertilizers in this State, which during the past year showed an increase of ten thousand tons or more over the year preceding, taken together wit hthe fact of the enormous amounts applied in certain of the fruit districts in this state, make it of great interest to follow the relationships of fertilizers and their action in soils and their effects on the soil flora. So far as organic nitrogenous fertilizers are concerned, there can be no doubt that they increase not only the numbers but the activities of the soil bacteria in that they offer a form of organic matter which is quite readily attacked by the soil organisms. Such substances as dried blood, concentrated tankage, cotton-seed meal, and some of the guanos are in a fine state of division and contain large quantities of nitrogen, and therefore are readily attacked and changed to ammonia and to nitrogen in the soil through the activities of the ammonifying and the nitrifying bacteria. That such fertilizers greatly enhance the activities of bacteria in general in the soil is something which we have good reason to believe, but unfortunately the researches in this direction have not been carried out far enough to make definite statements with regard to it. We do know, however, that the application to the soil of soluble nitrogenous fertilizers, such as the ammonia salts and the nitrates, have very profound effects on soil bacteria. Nitrates in large amounts tend to discourage the activities of the nitrogen-fixing bacteria, while ammonia salts seem to increase the activities of the nitrifying bacteria.

It would, therefore, seem reasonable, in studying these effects, to suppose that the proper time to supply nitrates to the soil would be at a time when the soil is yet cold and the nitrifying bacteria inactive, and but small amounts of nitrogen being fixed by the nitrogen-fixing bacteria; that is, as above indicated, in the late winter or very early spring. Whereas it would seem better to supply the other soluble nitrogenous fertilizers, like the ammonium salts, later, if later fertilization be necessary on certain of the soils, so that nitrification may be enhanced without in any way depressing the nitrogen-fixing bacteria or their activities. In addition to this, it must be added that it has been noticed in field experiments with alfalfa that small applications of nitrate of soda, as a top dressing, have been instrumental in producing a much better growth of alfalfa, so much better indeed that it does not seem to be easily accounted for by the comparatively small supply of 25 to 50 pounds per acre of the nitrate thus added. It has been even supposed that such effect may be due to so far strengthening alfalfa as to make it a plant highly resistant to the entrance into its roots of any but the most vigorous forms of nitrogen-fixing bacteria, and therefore bacteria which supply the plants with larger amounts of nitrogen, and hence increased growth. Whether this theory is correct or not has not yet been settled, but it forms an interesting speculation of the complicated and intricate relationships between the plant, the soil bacteria, and the fertilizer applied.

It should be added here also that there can be no doubt that most forms of soil bacteria will feed on the soluble nitrogen supply in preference to producing it themselves, and that, in preference to adding nitrogen from the air to the cell. By supplying large quantities of soluble nitrogen, therefore, we are discouraging the activities of the bacteria and paying high prices for material which our natural friends in the soil should be made to supply at the expense of the organic matter there contained. It must, therefore, be urged as a practical phase of this relationship between the soluble nitrogen fertilizers and the soil bacteria that nitrates and ammomium salts should be used carefully and in small amounts, and only at such periods of the year when the soil's natural supply, through the activities of soil organisms, of those substances is not sufficient to maintain the normal growth of the plant.

So far as the effects of the other minerals are concerned, we have gained in most directions only scant information. We do know, however, that phosphoric acid and potash are not only important and essential in the soil, because of the fact that they are essential elements to the life of the plant and likely to be lacking in many soils, but because they are necessary to the life of the soil organisms and when a soluble supply of phosphoric acid or potash is introduced into a soil there can be but little question that a goodly portion of it is absorbed by the bacteria as well as the higher plants. In fact, we have already learned by direct investigation that the phosphoric acid supply in soils may be changed from the soluble to the insoluble state by bacterial action and vice versa, depending upon how the phosphoric acid is added or whether or not it is added in the presence or absence of large amounts or organic matter. Just what relationship, however, the form of the phosphoric acid and potash bears to the numbers kinds, and activities of the soil bacteria are still questions which have been only slightly investigated and which from the practical standpoint we cannot treat of extensively now, but it is important for the bacteria, as well as the higher plants, that a plentiful supply of soluble phosphoric acid and potash must be maintained in the soil. Therefore in the soils which on analysis show a lack of phosphoric acid and potash, such lack is not only impeding the progress of the growth of the plant itself, but making inactive and perhaps cutting down the numbers of the bacteria in the soil upon which we have to depend for a large supply of our plant food.

Our investigations with reference to the effects of lime on soil bacteria, however, are more extensive and of greater practical value. We know that bacteria are profoundly influenced by the addition of lime to a soil of a slightly acid reaction. All bacteria in which we are interested in the soil demand for their proper activities a slightly alkaline reaction which can best be supplied by an excess of lime in the soil. On the other hand, bacteria are undoubtedly responsible for the loss of considerable lime from our soils owing to the fact that they produce large quantities of carbonic acid gas in the destruction of organic matter and in their respiration processes, which dissolved in the soil water, carries the lime as bicarbonate down to the lower layers of the soil, where, in the absence of sufficient carbonic acid gas it may be reprecipitated. This process may bring about such a deficiency in the upper layers of the soil in lime carbonate as to make the soil acid, as we have indeed found by direct investigation on the soils of the Sacramento Valley. Under such conditions liming is imperative in order to maintain good bacterial conditions in the soil, and in order that the production of nitrates may go on normally and the fixation of nitrogen may not be hindered.

Gypsum, also, we find has important effects on some of the soil bacteria. Several soil bacteriologists claim to have discovered very marked beneficial effects of gypsum on the legume bacteria and think that the encouragement of the legume bacteria to fix nitrogen may be accomplished through the application of small amounts of gypsum to the soil, so far as legumes are concerned, whether it be in the raising of sweet peas for seed, alfalfa for forage, or vetch as a green manure crop. These ideas teach us a modification in the application of lime and gypsum to soils which undoubtedly are of the greatest practical importance.

Fertilizer

You must use the right kind—to get the best results.

Animal fertilizer, which originated in the soil, by returning to it produces results in increased crops.

GOLD BEAR brand is animal fertilizer made at our government inspected meat-packing plant.

There is a thoughtfully prepared booklet full of scientific information in plain understandable language, dealing with soils, crops and fertilizers.

A copy will be cheerfully sent on request.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Western Meat Company

704 Townsend Street

San Francisco

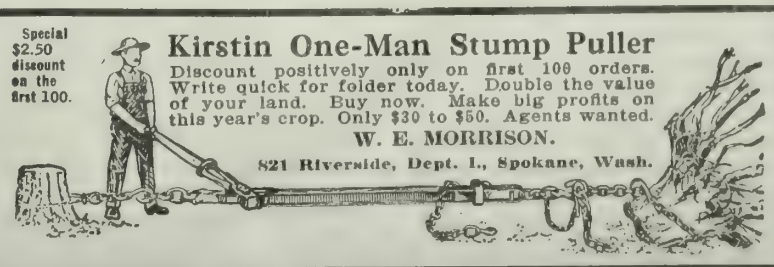
Special $2.50 discount on the first 100.

Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

821 Riverside, Dept. I., Spokane, Wash.



GIANT WINTER RHUBARB

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

Suggestions on the Rural Credit Problem.

[Presented to the Conference on Rural Credit Legislation by Norman Lombard, Manager, Agricultural Credit Corporation of California.]

When we speak of the Agricultural or Rural Credit problem, we refer, I take it, to the natural desire of the farmer to secure cheap and abundant money upon the most favorable terms and conditions—of course a very laudable desire, but one in which the farmer is not alone.

This Conference, I take it, is designed to suggest legislation which will assist toward the desired result. We should first realize that cheap money and abundant money will come at the same time and from the same causes, and it must be realized that this money must come in the final analysis from the private investor. Our problem in this respect, therefore, resolves itself into a question as to how we shall induce the private investor to more largely purchase farm securities.

There are three things which every investor considers fundamental, and perhaps subconsciously, in choosing his investments, and these are:

First: The feeling that he is surely going to get his money back out of his investment, generally referred to as "safety, or security."

Second: The marketability which his investment possesses, that is, the opportunity that exists for realizing on his investment at any time prior to its maturity.

Third: The interest which his investment yields him.

In other words, we will secure more money for the farmer just in proportion as we increase the security, or sense of security, increase the marketability, and increase the interest yield. If it is desirable to secure more money for the farmers without increasing the interest yield to the investor, then we must even more increase the security and the marketability.

I believe that the way to do this is to provide some sort of state regulation and supervision of companies which are offering their farm securities to the public, as this will be the best possible means of inspiring general confidence. The private investor located say in Montpelier, Vermont, who contemplates purchasing one of the farm mortgages offered for sale by this company, or by any other mortgage company at such a distance from him, must needs possess very great confidence to risk the apparent dangers, especially when it is considered that he cannot see the farm upon which he is lending or know anything about the man who is borrowing, and in fact, can know very little by first hand knowledge of the investment he contemplates. No doubt he would feel a much greater sense of security if the company with which he was dealing was under some form of State regulation or supervision. I believe that the law passed at the last session of the legislature, which is now Section 453-aa of the Civil Code, provides the necesary State supervision, and it is therefore my recommendation that this law be allowed to demonstrate its efficacy before any radical legislation is undertaken.

I note that there is some suggestion of amending this law so as to require a company operating under it to have at least $250,000 capital. This is a step in the wrong direction, in my opinion, as the effort of the State should be to encourage the organization of such companies, and this can be done only by making the capital requirement small. After all, the important thing is not that the company should be large, but that there should be a definite limited ratio between its capital and the amount of its outstanding obligations. While there might be a little more detail connected with supervising a number of small companies, yet I believe this would be more than offset by the greater good which would come from having a number of companies operating in open competition.

I do not believe that a guarantee by the State is either necessary or desirable. The problem has been solved in other districts without recourse to such revolutionary expedient, and can be solved here. Furthermore, I do not believe that such a proposition would secure the vote which would be necessary in order to amend the Constitution and put it into effect. And if put into effect, I believe that the result would be very harmful to the State's credit in the money markets of the world. The result would also be an impairment to the State's borrowing power, or a marked increase in the rate of interest the state would have to pay on bonds issued for other propositions, such as roads, and general improvements.

To secure marketability for farm securities it is of course desirable to have uniformity, and nothing would be so desirable in this respect as to have bond issues secured by underlying mortgages which could be changed to meet the desires of the borrowers. But unfortunately the investing public does not like this kind of bond. The "collateral trust and debenture bond" are both in bad repute, and the 'collateral trust bond" issued against real estate mortgages is especially frowned upon, and has been frowned upon ever since the disastrous failure of companies engaged in that line of business twenty years ago. The investor in farm mortgages today, be he an individual buying only a few hundred dollars worth, or a large life insurance company investing in millions, wants to own a separate mortgage upon a specific piece of property, so that he will be in a position to enforce payment, in the event of default, without deferring to the wishes or being subject to the control of any other party, and this of course would not be true if he held an undivided interest in a large number of underlying mortgages. It is granted that it is unfortunate that the American public has been educated to this position, but I do not believe that they can be educated out of it by legislation. There are a number of companies in this country issuing bonds against groups of underlying mortgages, but their businesses are not flourishing, and they are all realizing the truth of Andrew Carnegie's axiom, that "pioneering does not pay." Possibly the investigations and reports of the committee which went to Europe last year have done more to educate the American investing public along this line than any other agency; but the work has not yet progressed far enough in my opinion to justify any expectation that such bonds can be sold to the American public in any large volume at reasonable expense.

As to securing long time loans for farmers, and the benefits of amortization, these will come fast enough when the farming public demands them, but so far as my experience shows, the only cry for these improvements has come from rural editors and from well-meaning propagandists who apparently think that the farmers ought to desire them whether they do or not. The average California farmer prefers a short loan to a long one, and the shorter the better. It is difficult enough to get them to appreciate the advantages of a ten-year loan, even though the loan can be paid off at any time prior to maturity. So that I believe any effort to loan money to California farmers for a period of thirty years would not meet with much success. Unfortunately the California farmer is about as much of a real estate man as he is a farmer, and when he borrows money he has always in mind the possibility or even probability that he will shortly sell out at a profit and want to pay his loan off. This very condition of instability is not altogether reassuring to the investor, and would be most alarming if the period of the loan were thirty years instead of five or ten years, as per present custom.

It is therefore my recommendation to the Conference that they consider how they can improve the legislation providing for State supervision and regulation of mortgage companies, how they can make the organization of such companies easy and popular and their operation most efficient and beneficial to the farmer, and at the same time to the stockholders in the mortgage company. If it is desirable to make possible the issuing of collateral trust bonds against mortgages, the necessary constitutional amendment must be considered; and as to the matter of amortization of loans of a generation's length, I suggest that no action be taken until there is a real demand, which will probably not come for a good many years in this State, due to our peculiar sociological and economic conditions.

There is not enough of the community spirit among our rural districts.

LAND

With Pay Day Every Day

That's the kind of land for the farmer of moderate means. In a few years you will be independently rich, then plant part of your land to olives, figs, peaches, etc.. But to make money, QUICKLY AND SURELY, there's nothing better than cows, hogs and chickens, raised on alfalfa at

Fairmead

the worth-while fruit and alfalfa section of the San Joaquin Valley, where land prices are still low.

Where an acre of alfalfa will support a cow the year round;

Where good cows are bringing in around 30c each per day;

Where 20 cows mean $6.00 per day, CASH;

Where you can raise hogs at 4c per pound and sell them for 7c to 10c CASH.

Fill out and send today for free booklet.

Co-operative Land Company

595 Market St., San Francisco.

Please send me free booklet.

"How to secure a farm at Fairmead on easy terms."

Name.....

Address.....

Adhesion

Dip a glass rod into a beaker of Zerolene. See how Zerolene clings to the rod. This is *adhesion*—the quality that enables Zerolene to cling to the bearing surfaces under all conditions, protecting the parts from rub and wear and grind. Zerolene lengthens the life of your car. It keeps down repair bills.

ZEROLENE

the Standard Oil for Motor Cars

Standard Oil Company (CALIFORNIA) San Francisco

MANURE

Carload Lots
HORSE, COW or SHEEP.
Fresh or Well Rotted.
Call or Write
PACIFIC MANURE & FERTILIZING CO.
420 Davis St., San Francisco.

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. Mailed Free.

C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO

Morse's Seeds, both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

Potatoes Gone Wrong.

To the Editor: I am sending you by parcel post, under separate cover, a few potatoes for the purpose of obtaining your opinion as to the cause of their defect. They were grown on sub-irrigated land. The yield was about one hundred and fifty bushels to the acre. They are good size and perfect flavor, but many have the defect of skin as shown by the sample sent. I am told by some it is due to too much moisture. The year before last I produced a crop on the same ground and they were not defective.—Grower, Sonora.

[It is not merely moisture; your potatoes were attacked in the ground by potato scab and during or after harvesting received the eggs of the tuber moth. The flat blotches are the scab, the excavations and tunneling near the surface are the work of the potato worm. Use this piece of ground for hay or grain and put your potatoes on new ground, after soaking the seed in formalin (1 pint to 30 gallons of water) for an hour and a half, just before planting. To escape the moth never allow the tubers to be exposed after digging. The moth will attack them in the sack; therefore sacks should be well covered with straw or litter or placed at once in dark storage.—Editor.]

DISEASED POTATOES.

To the Editor: I am a subscriber to your valuable paper and would like to ask a few questions in regard to potatoes. My land is new, broke out of old stock pasture, and very rich. Some of my potatoes are scabby and others hollow-hearted. What is the cause, and what can I do to prevent it?—T. F. G., Chowchilla.

[Answered by Wm. Garden, Stockton.]

[As to the scab on the potatoes, the seed without doubt had been affected with scab and the soil was very favorable for its development, as very rich soils are more addicted to the production of scabby potatoes than land not rich in humus. The cause of hollow-heart in potatoes is due to the richness of the soil and the plants given too much room to develop. To prevent hollow-heart in potatoes where the soil is very rich, they should be planted closer together.]

PRAISE FOR TEPARY BEANS AND FETERITA.

[The communication in our March 6 issue from W. E. Beidler of Stanislaus county, in which he set forth his belief regarding Tepary beans and Feterita corn, has prompted two of our subscribers to send in the following communications, which may give our readers a clearer viewpoint of the two above-mentioned crops.—Editors.]

To the Editor: I have just finished reading W. E. Beidler's communication regarding Feterita corn and from our experience the past year do not believe that his experience can be taken as a criterion of what this crop is capable of doing for the farmers of California. We planted five acres to this crop last year, after we had previously taken a crop of barley hay off from the ground, and the yield of Feterita was 32 sacks, weighing 135 pounds each, to the acre. We have compared it with Egyptian corn under the same conditions and found it yielded almost twice as much grain and a liberal amount of forage for stock. Besides the above amount which was first crop, we harvested a good lot of the second crop, although that, of course, did not have such large heads nor were they so well filled. The fodder makes good silage, as was shown by Mr. Ed. Clark and Mr. Ernest Teter who put two wagon loads of our fodder in their silos last year and report very favorable results. As to the value of Feterita as a chicken feed, Mr. L. F. Higgins fed his chickens on it last year and states that he never had better feed, as it is not as fattening as Egyptian corn, and when he fed the two grains together he found that the chickens would not touch the Egyptian corn as long as there was any Feterita in sight. From my own experience in feeding hogs, I know that it cannot be excelled for this purpose and I expect to raise it in preference to all other grains from now on.—John Daggs, Modesto.

To the Editor: I would like to ask Mr. W. E. Beidler to give us a little fuller explanation about the Tepary bean, what his objections are to it, and why they are not a good bean to grow here. It is true that they are not very well known to the commercial world, but a market is being made for them now and there is nothing better for table use. They will yield from 800 to 2,000 pounds to the acre. On less than half an acre I grew 850 pounds, planting the crop June 15 and harvesting it September 15. This was planted on light sandy loam, the ground having been first irrigated, after which practically nothing was done to them. If there is anything against them we would like to hear it.—J. C. Paine, Fowler.

UNIVERSITY EPITOMES.

Soil Requirements.

[By Prof. C. B. Lipman, Univ. of Calif.]

Deep soil, meaning several feet free from coarse gravel, hardpan, or standing water, is essential for the production of the best crops in California.

Air, as well as moisture, each to the extent of about one-fourth of the volume of soil, are essential to successful plant growth.

Plant food in available "soil water-soluble" form is essential to successful plant growth.

Maintenance of a plentiful supply of organic matter is essential to successful crop production.

A neutral or slightly alkaline reaction of the soil is essential to the successful growth of most crops. Liming maintains such reaction.

Soil bacteria are essential factors in successful crop production because they help to make plant food available.

The use of barnyard manure in the case of "white alkali" and of gypsum in the case of "black alkali" prevents the toxicity of these salts to a great degree.

Fertilizers may serve to add to the store of available plant food in and physical changes in the interest the soil, or may stimulate bacterial of soil fertility, or both.

Do not use concentrated lime-sulphur on peach trees after the buds have opened. It will seriously damage the leaves and cause more harm than it will do good.

Wider shoes on track laying types should be used when soft soil is plowed, to avoid packing the land.

MANLESS LAND
for the
LANDLESS MAN
2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA, NEVADA and UTAH

Opportunities for The Man of Modest Means As Well as the Capitalist

EVERY SECTION HOLDS OUT A WELCOME

Write for Copies Our "Opportunities" and "Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

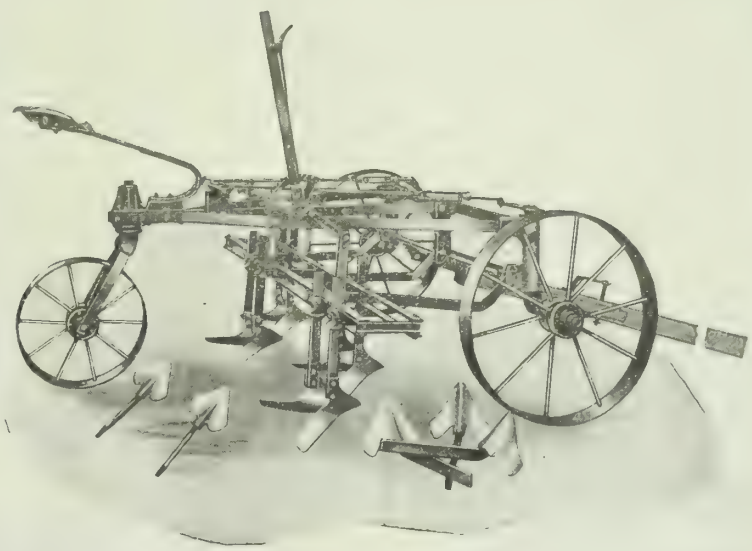
TREES
Slaughtered

25,000 Surplus fine trees cut low in prices. Prunes, Peaches, Bartletts, Apples, Cherries, Figs, Olives, Walnuts. Prices reduced very low. Stock in fine condition. Want to close out yard quickly. Wire reservations, write or phone for low prices on your wants.

TABLE GROVE NURSERIES
Healdsburg, Calif.
Res. Phone 12F3. Office Phone 33

Killefer Beet and Bean Hoe Cultivator

Killefer Quality — Killefer Efficiency



Our 1915 model is made of the best material and is the strongest Beet and Bean Cultivator for sale on the Pacific Coast.

STRONG STATEMENTS?

Yes, they ARE strong and we will back them up in every particular.

The frame is made from one continuous piece of steel, trussed to the main castings, which support the front wheels. With no joints in the entire width of the frame, it is impossible to break or spring in the center and the wheels are always in line and under control.

The lower frame or tooth bar is from high carbon steel with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows, and is adjustable to conform to the weight of the driver. The foot control of the front wheel is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns.

An important item for the beet grower is that the sweeps, hoe steels, chisel points and all repair parts are carried in stock. You do not have to wait for them to be sent from the Eastern Manufacturer.

The Killefer Manufacturing Company

2221 SANTA FE AVENUE, LOS ANGELES, CAL.

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS.
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground — Shield Brand — High Grade

Phosphate Rock

The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

Mechanical Power on the Farm.

MACHINE CONTROLS GRAPE HOPPERS.

[Written for PACIFIC RURAL PRESS.]

"Vine hoppers are causing a tremendous lot of damage we grape growers don't know anything about," says C. B. Driver of Dinuba. "Every year I have a fine crop of the fanciest Thompson raisins in this section—the packers come to me to fill their fancy orders. That's because I keep the hoppers off the vines, and allow the grapes to get their share of sap and sugar. The hoppers eat off the under sides of so many leaves, poisoning them at the same time, that the vines are seriously handicapped.

"Now, some folks think they can't afford the expense of hopper killing. I say they can't afford not to do it. They pay good money to prune, sulphur, cultivate, and water the vines until the grapes are pretty good sized. Now if they let the hoppers reduce the sweetness and weight of raisins, and weaken the vines, they have lost far more than the expense of hopper killing. The worst damage is done from the time Thompsons are ready for shipping till they are ready for curing. The leaves are the lungs of the vine, and their removal is disastrous."

Mr. Driver has a machine devised to control the pest in the summer time. He has sunk several thousand dollars and produced a machine that gets every hopper that has wings. The trouble with the machine is that it is too heavy for economy and requires too much power. However, even at that, he uses it always, and feels that it pays. The machine is patented, but not manufactured commercially and is still in process of improvement. The one that was tested and has proved its efficiency on several neighboring vineyards, as well as Mr. Driver's, is about as follows:

It is mounted on broad tire wagon wheels and consists of a 45 h.p. four-cylinder auto engine forward on the wagon, which revolves a shaft extending back about six feet. At the end of the shaft is a three-bladed fan about four or five feet in diameter. A box about five feet square and six feet horizontal length encloses the shaft. This box has screens of heavy two-inch mesh about four feet square, in each side, forward from the revolving fan. Behind the fan is a funnel-shaped fine screen which opens into a hopper on which a sack is hung.

When the machine is hauled through a vineyard by four mules or a tractor, it scares the winged hoppers and they jump. The fan is drawing air through the mesh sides of the box so hard that the suction would almost hold a light board against it. Mr. Hopper can't resist the breezy attraction and he passes in and through the fan by the millions. That doesn't hurt him, but as the air passes out through the funnel-shaped fine screen behind the fan, he can't get through and must perforce join his kindred in the sack. It doesn't take long to get a sackful, which is then buried or otherwise disposed of.

To make the machine more effective, a curtain is spread over a steel frame which extends 5½ feet from each side of the box and then bends downward two feet to encompass the vines. The curtain extends on to the ground and another curtain closing each end of the frame drags on top of the vineyard row.

Cost of Operation.—Two rows are thus cleaned of the flying hoppers at one trip through. It costs about $1.50 per acre to go over a vineyard once. Commercially, as tested out the past three or four years, four or five times over the vineyard are needed per season. This is because there are always young generations clinging under the leaves so tightly that the suction does not remove them. There is a new generation every three weeks.

"The professors say we ought to begin when the vines begin to grow, to catch the ancestors of the multitudes that come later. But we are busy irrigating and cultivating then and can't do it. We wait till there is a little danger of damage, and then clean out all on the wing.

"Ten dollars an acre keeps the hoppers down to very small damage. The machine as made at present costs about $2,000; but Mr. Driver hopes to reduce this with improvements now in mind, and of course if made commercially in a factory the cost would be further reduced.

"Instead of sucking the insects," says Prof. C. W. Woodworth, "a blast could be arranged to blow a strong current of air in a vertical sheet through the vines into a receiving hopper on the other side and force even the clinging insects to let go. It would clean them out better, in my opinion, and would require less than a third of the cost for power and the weight to be pulled through the vineyard."

At any rate, while grapevine hoppers do not travel far, this would appear to be a good opportunity for a bunch of farmers to club together, get a machine, and rid themselves of a serious pest.

A TRACTOR-DRILLED WELL.

[Written for PACIFIC RURAL PRESS]

Tractor power on a well drill is the device used in Orange county by J. A. Fitzpatrick, and when he moves to drill another well, the whole outfit, including a 64-foot derrick, is loaded up and hauled by the same tractor. Mr. Fitzpatrick has recently completed the boring of a well and fitting it with a Layne and Bowler casing, a 24-inch three bowl centrifugal pump, and an Edison 50 h.p. motor, for J. J. Swartzbaugh near Anaheim. While the well, pump, motor, buildings, and all cost well toward $4,700, the owner figures that its 300-inch capacity has added $25,000 to the value of the place.

The pit is 104 feet deep and is fitted with a quarter-inch steel casing 24 inches in diameter. An interlocking device connects this casing with the one below it which is 9⅝ inches inside diameter and 155 feet long.

In drilling the well, the drum of "hoist" on the 30 h.p. Flour City tractor pulls a rope which runs through a treble pulley at the top of the derrick and a double pulley at the lower end. A belt from a wheel on the side of the tractor runs a force pump which keeps water flowing through the drill stem all the time.

Dobe mud is pumped into the well as it is bored, to help support any loose soil encountered and to counteract quicksand; for no casing is placed until enough water bearing strata have been pierced so that Mr. Fitzpatrick figures that the well will yield the contract amount and then a little over. This holds true even in boring as much as 2,000 feet for oil.

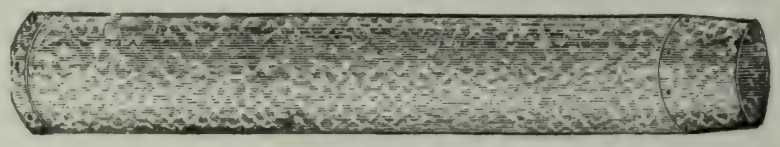
Costs.—In Mr. Swartzbaugh's well there were 30 feet of bad rock and boulders near the bottom of the pit. This cost the owner $150 extra. When rock is encountered, a small hole is bored through and dynamite sunk through the mud by means of sinkers. This breaks it all to pieces. The pit cost $9 a foot and all below the pit cost $5.50 per foot. Just a little below the pit about ten feet of gravel was reached and a patent wire-wound screen casing was fitted over this when the casing was finally put in, so water would filter in. Below the gravel was found about 20 feet of clay and solid rock; then about 40 feet of the screen casing in water bearing sand and gravel; then 50 or 60 feet of yellow clay, and another 20 feet of screen through a stratum where most of the well's capacity comes from.

About 10 feet of pipe extend below this to catch sediment that might otherwise fill the screen. Use of the screen avoids the necessity of sinking casing and then punching holes in it. It took about four months to drill the well and Mr. Fitzpatrick is already at work on a bigger job.

It is figured that the casing won't rust for at least 30 years, and if it does at that time, a similar one of smaller diameter may be inserted.

A wooden weir was made for a rough test of the well after it was completed, and the pump run at about 850 revolutions per minute

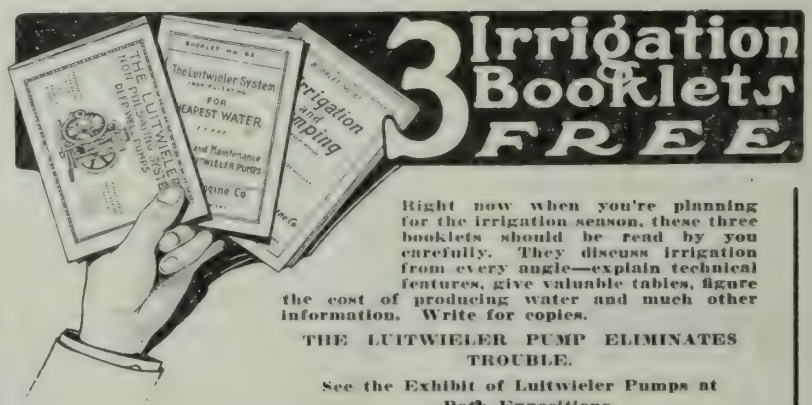
BIGGER
THAN THE WORK IT WILL BE PUT TO
AMERICAN
SURFACE IRRIGATION PIPE



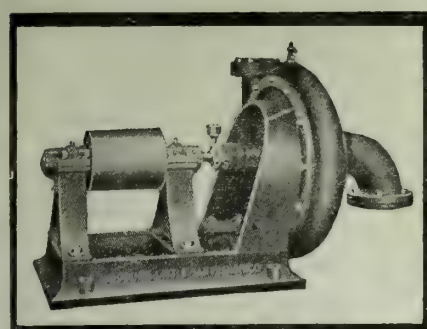
PROVES
its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.
American Steel Pipe & Tank Company
354-56 Pacific Electric Building, Los Angeles, Cal.
Branch 1228 "H" Street, Fresno.

Both Lock-Seamed and Soldered
Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

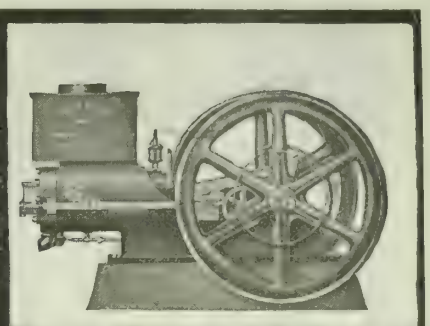
LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints This feature found only on
Madewell Surface Pipe
You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.
Robinson Hardware Co.
Box V, Gilroy, California.



Right now when you're planning for the irrigation season, these three booklets should be read by you carefully. They discuss irrigation from every angle—explain technical features, give valuable tables, figure the cost of producing water and much other information. Write for copies.
THE LUITWIELER PUMP ELIMINATES TROUBLE.
See the Exhibit of Luitwieler Pumps at Both Expositions.
Luitwieler Pumping Engine Co.
711-713 N. Main St. Los Angeles, Cal.
San Francisco Agts.: Simonds Machinery Co., 117 New Montgomery St.



WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.



(its normal speed is 1,000), and it pumped over 200 inches, lowering the water from its natural level of 60 feet below the surface, to 96 feet. The pump was still under water, and it has about 30 feet of suction pipe below the bottom of the pit.

WELL-DIGGING BY HAND.

To the Editor: I read with much interest the queries of G. T. B. in your isuse of Feb. 6, and your reply thereto. It was a good, sane reply and calculated to keep an inexperienced man out of serious, if not fatal, trouble. Technical information may be gathered from books, but the practical application thereof frequently requires practice and experience to complete satisfactory results. To sink a hole such as is wanted by G. T. B., regardless of nature of ground and of uniform size, is no great trick provided you know how and are equipped with proper tools and material. To case up such a well with brick or concrete, removing all temporary wood work, is also a matter of routine if proper provisions for so doing have been made. We would suggest to G. T. B. that 3½ feet diameter is rather narrow for elbow room, and possible temporary pump installation, if he wants to get best and economical results. I agree with you that this work must be handled right or it invites disaster.—**A. J. Ahrens**, Hayward.

ORCHARD TRACTOR ON TRIAL.

[Written for PACIFIC RURAL PRESS]

An orchard tractor at work may be seen all this summer at the Citrus Experiment Station at Riverside, where important problems of citrus growers are finding very suggestive indications of solution. On the morning of Mar. 5, a Yuba Ball Tread Tractor which had never been hitched to a load, walked briskly out to the fertilizer experiment orchard and was hitched by a loose chain to a five-gang moldboard Little Dutchman which had never before been in the ground.

There was a gentle slope through the fertilizer plots, but no cover crop. With one man at the wheel, another on the gang platform, and W. M. Mertz of the University working the rear adjustments for depth, the little engine brushed along close to the eight year trees with no particular effort, plowing about 10 inches deep in the red soil, and throwing it about 30 inches farther under the trees than the side of the tractor, doing as neat a job as could be desired.

Near the lower end of the orchard is a rank cover crop of melilotus indica, newly found by the Experiment Station to be one of the very best citrus cover crops. It stood nearly hip deep to an ordinary man, yet there was no trouble getting through it.

A sharp decline near the end of the furrow was easy pulling, but on the return up-hill trip, the plows had to be raised to less depth, after the little animal had backed up a few times to jerk the plows ahead a few feet at once.

"That's pulling some," said the operator, "when I lift the front wheel off the ground."

But there was trouble with the plow in making the turn. The outside wheel is supposed to be held on its axle by a cotter pin, but no cotter had been put in. It came near dropping things into the dirt, but several bystanders picked up the frame and put the wheel back on. This illustrates the need of tightening every connection on a new machine, and giving it a thorough overhauling before starting to work. On a plow, this need is not so serious as on a tractor.

SIX-YEAR CAR GOOD AS NEW.

[Written for PACIFIC RURAL PRESS]

"I've had my old Studebaker automobile six years, and I've had less trouble the last two than the first two. The machine is in really better condition now than when I got it," says M. Nisson of Santa Ana. "I've used it practically every day in the six years, and still gasolene is my greatest expense."

"That speaks well for the car, but better for the driver," said the writer.

"Yes, I don't abuse it. I seldom drive over 15 miles an hour, and never over 20. Fast, reckless driving is what strains cars and jerks them to pieces, especially when you are off paved roads.

"Tire punctures are not the fault of the machine or driver — maybe carbureter troubles are. Most of my engine trouble is due to clogging or flooding, usually caused by impure gasolene, and the simple remedy is to clean up.

EMERGENCY PUMPING PLANT.

[Written for PACIFIC RURAL PRESS]

Not a very permanently desirable pumping plant, but one that is serving with entire satisfaction until it can be housed, is a four-horse power John Deere gas engine hitched to a small Krogh No. 2 centrifugal pump to water a peach orchard near Dinuba.

The engine is set on two railway ties sunk into the ground, and when not used, is protected from weather by an oilcloth tied over it. The well consists of a pit seven feet deep, at the bottom of which the centrifugal connects to a pipe reaching still farther down. The belt is taken to the house in winter but is easily slipped on at any time. The belt wheel on the engine is about 16 inches in diameter and the one on the pump about five inches. A trench is sloped from the pump to the engine to accommodate the belt.

There is a four-inch discharge pipe of galvanized iron and a six-foot trough to carry the water away. This trough has extra high sides for the upper 18 inches to prevent spilling.

A pipe of ⅜-inch inside diameter extends from near the pump, up the outlet pipe, horizontally to the water reservoir about the engine cylinder which is drained by a hose. The force of the pump keeps a stream of cold water passing through this little pipe and over the cylinder all the time. This outfit does the work as well as any of its size, but of course needs protection from the weather.

If the idler and driver wheels of Caterpillar type tractors are not in line, measure out from the eye-beam of the frame to the circumference of each at two opposite points and adjust them to an equal distance.

If the track wheels of the track laying type of tractors wear on one side or the other, center them with a washer on the worn side.

The Holt Mfg. Co. recently received an order for "a pulley with sixteen warts on it."

"When in doubt, lubricate," says Prof. F. L. Peterson. A gas engine running light should not show much vibration. When it shakes itself to pieces, there is always a large repair bill.

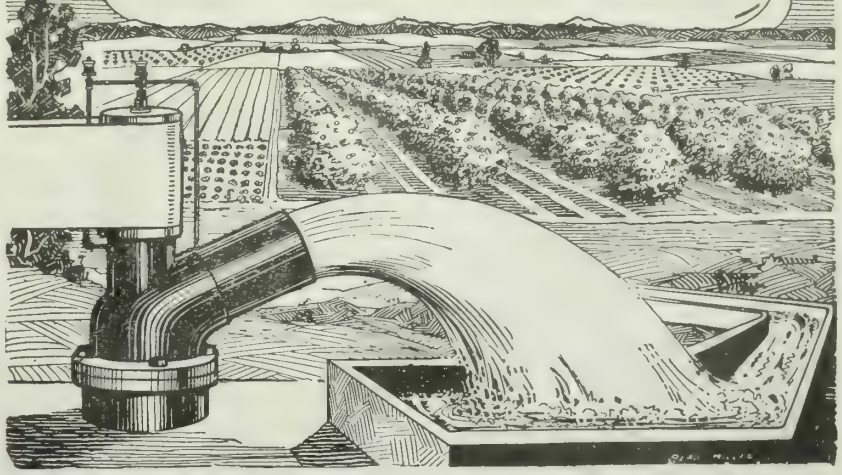
It is wise to have extra parts of all the essential pieces of machinery, which are liable to wear or break and have to be sent into the factory for repairs. The interest on the money invested will be many times repaid by the use of the machine, when without the replacing parts at hand, it and its crew would be laid up till the repairs could come from the factory.

The
REPUTATION
OF THE
Layne & Bowler Pump

—is not based on extravagant claims but upon the hundreds of actual installations we are able to refer you. Every rancher should send for our Booklet No. 25, which gives full details about this pump and other valuable information.

It's free.

The Layne & Bowler Corporation
900-910 Santa Fe Avenue, Los Angeles.



IRRIGATION APPLIANCES

The 20th Century Method of Irrigation

As superior to old methods as the modern auto is to the ox cart.

Saves Water Land and Labor.

Don't experiment —the best is the cheapest in the long run.

Illustrated Catalog and full particulars on request.

KELLAR-THOMASON CO.

"Originators of the Valve System of Irrigating."

1234 EAST 28th ST. LOS ANGELES.

(Ask your Dealer or Contractor.)

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE and SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Wheeler Nursery
163 South Market St., San Jose, Cal.

Trees for sale and samples of nuts also at
HALLAWELL SEED CO., 258 Market St., San Francisco.
CALIFORNIA SEED CO., 151 Market St., San Francisco.
SUNSET NURSERY CO., 92 41st St., Oakland.
VALLANCE BROS., 31 Glen Ave., Oakland.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,
58 Sutter St., San Francisco

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

John H. Kirsch of Anaheim is receiving handsome returns from his four-acre lemon orchard from which he has just picked 1000 boxes.

Orange picking in southern California has slackened considerably on account of low prices. When the eastern market is cleaned up, the growers hope better prices will prevail.

The University of California expects to appoint workers for new departments of soil physics and plant pathology at the Riverside Experiment Station as soon as the right men are found. Negotiations are already under way to obtain men of national reputation.

The Gillette Lemon Co. of Tulare county will have 240 acres to lemons by May 1 which will give that county the largest lemon grove in the world. At the present time, San Bernardino county boasts of the largest acreage in the world to lemons—105 acres in the townsite of Cucamonga.

The Limoneira Ranch of Santa Paula are planting about 125 acres this spring, almost all to Lisbon lemons, on the lower parts of the land where it is colder than on the hills. Their old orchard consists of about six-sevenths Lisbons and one-seventh Eurekas, while about three-quarters of the younger orchard is set out to Eurekas.

Last week the Tulare County Protective Association met and adopted resolutions favoring the passage of a legislative bill to fix the standard of maturity for the shipment of oranges. The resolutions recommend that the standards be the same as the federal regulations for this year, which are understood to be on the basis of one part citric acid to eight parts soluble solids.

It is reported that 125 cars of oranges and two cars of lemons left Riverside last week as compared with 170 cars shipped the same week last year; Redlands sent out 239 cars against 224 cars for the same week last year. On the whole the movement of citrus fruits is not heavy, but as the Florida crop is nearly all disposed of, improvement is expected.

Avocados are popular at Montecito, where H. E. Stetson, old-time orange grower of Nordhoff, has just imported from the West India Gardens at Altadena a carload of large-balled, thick-skinned varieties with which he expects to plant six acres. Mrs. Caroline D. Norton and Dr. Conrad of the same locality each obtained 100 more trees. Most of them are of the "Taft" variety.

DECIDUOUS FRUITS.

Fred Evers of Biggs has just planted ten acres to prunes.

A. L. Kyle, general manager of the Central California Canneries, states that from present indications the 1915 peach crop will be as large as last year.

Ventura county reports heavy shipments of trees into that county. During the past month, about 36,000 trees were received, a large number of which were apricots.

Horticultural Commissioner Brock of Ventura county recently made a trip to inspect 1500 apple trees intended for an orchard in the mountain sections of that county where the finest apples can be grown.

A bulletin from the California Cured Fruit Exchange states that the prices on dried peaches are so low that the growers not only secure no profit, but make each sale at a loss to themselves. On prunes, the prices remain unchanged, and apricots are in demand.

NUTS AND OLIVES.

The Sacramento Olive Co. has put in an oil making department in connection with their pickling works at Roseville.

It is reported that extensive almond planting is being done at Pennington. One orchard has sixty acres to almonds and prunes, another about ninety acres to almonds, and still another has forty acres.

Walnut problems not covered by University investigations already, are to be under the supervision of Dr. L. D. Batchelor, who reached the University Citrus Experiment Station at Riverside March 4 from the Utah Experiment Station.

GRAPES AND SMALL FRUITS.

Arthur Roberts of Ripon will harvest ten acres of berries this season—seven of strawberries, two of loganberries, and one of blackberries.

Tulare ranchers and merchants met on March 19 for the purpose of promoting the raisin industry in that vicinity. The meeting was addressed by Wylie Giffen, president of the California Associated Raisin Co. which has a few members in the Tulare section.

GRAIN AND FIELD CROPS.

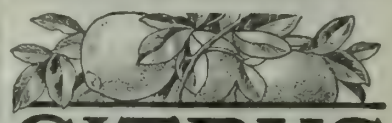
On account of the large stock of rice on hand, the Biggs Rice & Land Co. have installed new machinery in order to increase the output of the mill that the crop may be handled with all possible speed.

According to present indications, the rice acreage in Yuba county will be larger this season than for any previous season. Profiting by their experience of last season, growers intend to plant early this season.

J. W. Friel, field superintendent for the Spreckels Sugar Co., reports that he has 1311 acres of sugar beets under cultivation in San Joaquin county and about 100 more promised.

C. H. Dam of Wheatland is preparing to plant rice on his land as soon as the ground dries sufficiently to be worked. He intends to plant rice this year as an experiment, and should it prove successful, a much larger acreage will be planted next season.

The San Joaquin Sugar Company



CITRUS TREES

Grown by TEAGUE —in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries
Established 1900 Over 1500 Acres
San Dimas, Cal. U.S.A.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.,
624 California St., San Francisco, Cal.

ALFALFA SEED

Every field where Seed we offer for sale was grown in 1914, was thoroughly inspected by us for Dodder, Noxious Weeds, etc., before it was harvested. Everything we offer has been Government-tested, to make our assurance doubly sure, both as to germination and foul weeds.

We are actually offering California's best product.

Now, Mr. Purchaser, it's entirely up to you. If you are looking for cheap, unreliable stuff, you will have to look elsewhere; but if you want good seed at an honest price, we can serve you.

Samples, prices, etc., on application.

V. A. PETERSON ALFALFA SEED CO.,
ARBUCKLE, COLUSA CO., CALIF.

The only exclusive Alfalfa Seed Dealers in the West.

Do You Raise Fruit?

MOCOCO SUPERPHOSPHATE

If you do, remember that Nitrogen promotes wood growth, while PHOSPHORUS AND POTASH ARE ABSOLUTELY NECESSARY FOR FRUIT DEVELOPMENT.

California soils are rich in Potash, but deficient in Phosphorus. Try Mococo Superphosphate on your fruit trees. It will do wonders. For sale by

The Mountain Copper Co., Ltd.
332 PINE STREET, SAN FRANCISCO.

of Visalia has offered to supply the farmers of Merced county with the seeds and tools necessary to plant three hundred acres to beets. The company wants a larger production of beets in that valley so that their factory output can be increased.

Forty acres of land in Merced county has been rented by an experienced rice grower, who is preparing the land for the planting of rice. This is in the nature of an experiment, and if it succeeds it is expected that a large acreage will be planted in that county next year.

Five cars of rhubarb stalks have been shipped in the three weeks ending March 13 by J. B. Wagner of Pasadena. Three cars more are ready on his ten acres; and this besides the fall picking. A few hills of long, big crimson stalks have been left in the fields just to show what has been taken off.

A carload of 13,000 slabs of Mediterranean Anacantha spineless cactus was shipped March 5 to a Texas cattle feeder by J. B. Wagner of Pasadena for planting on the range under fence protection. About 100,000 slabs have been ordered by the same buyer for later delivery when better planting weather will have come.

MISCELLANEOUS.

The Ventura County Fair Association has named August 27, 28, and 29 as the dates for the 1915 county fair.

Efforts are being made by the people of Sultana to secure a cannery, though at the present time the outlook is considered unfavorable.

Libby, McNeill & Libby have purchased three and a half acres in Selma upon which they expect to build additions to their cannery at that place. With these new improvements, they expect to double their capacity.

The Associated Raisin Company has purchased three more raisin packing companies; namely, the Giffen-Hobbs Co., the Malaga Packing Co., and the Fowler Fruit Co., and it is understood that a deal is now pending for the purchase of the Bonner Packing Company.

It is reported that the new Turlock Merchants and Growers' Corporation is meeting with success all along the line. Farmers are being rapidly signed up, and as soon as this work is completed, the merchants and business men of Turlock will be solicited to subscribe for stock.

After much discussion, the Woodland Cured Fruit Association has decided to remain a member of the State organization. It was thought at first that they would withdraw, on account of dissatisfaction on the part of some of the members, but it was finally decided that the results of their affiliation were of such a nature as to warrant a continuation of the relationship.

FUMIGATION VS. SPRAYING.

[Written for PACIFIC RURAL PRESS.]

The cottony cushion scale as observed at the university dies independently of the vedalia. An acacia tree on the campus had a splendid case of cottony cushion scale, having some on practically every leaf. It was watched closely and no vedalia were found there at all. Before the scales had molted the second time, they were all gone.

Older cottony cushion scales, as well as many other scales, may be washed off from the trees by water under heavy pressure if applied directly to them, but the young scales cling too tightly. It is better not to trust in the water treatment, which is less dependable than spraying with oil emulsions; and these are less dependable than fumigation.

The cottony cushion scale hatches through a period of at least three weeks and the spray would have to be applied two or three times. Kerosene would be safer than distillate for reasons mentioned in another article, but the trouble with spraying any trees, with the leaves on, especially, is that you cannot get it done thoroughly on a commercial scale. It is usually a failure on account of the "personal equation." Prof. C. W. Woodworth of the University says that every time he has known of commercial citrus spraying, return to fumigation has been made sooner or later.

Something is wrong with our marketing system when a small crop brings more money than a bountiful one.

Success in farming depends largely upon proper marketing methods, cheap money and co-operation.

Exterminate Squirrels

GOPHERS, PRAIRIE DOGS, BORERS, ANTS, ROOT APHIS, ETC.

USE

Carbon Bisulphide

It is absolutely effective, and leaves no injurious effect if inhaled while handling.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA STREET, San Francisco, California

PROFESSIONAL DIRECTORY.

SYMMES, MEANS AND CHANDLER

AGRICULTURAL ENGINEERS

Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.

58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER

CONSULTING ENGINEERS AND AGRICULTURISTS

Hearst Building, San Francisco.

Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.

Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG

AGRICULTURAL ENGINEERS AND CHEMISTS.

Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.

SOIL SURVEYS. CERTIFICATION OF LAND.

California Fruit Building, Sacramento, California.

SOIL LABORATORY

Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.

CURTIS & TOMPKINS

Agricultural and Industrial Chemists.

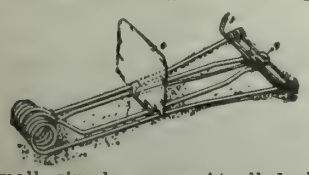
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.

444 Market St., San Francisco

CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.

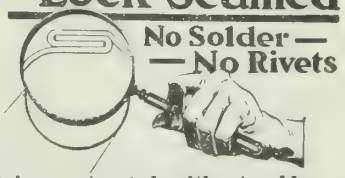
Irrigation Plans FREE

Our engineering department will give you its advice and help you prepare your irrigation plans free of charge. Our experts will visit your land, investigate your problems thoroughly, and tell you just what system is proper for your peculiar conditions; just how it can be cheaply and substantially constructed and furnish complete estimates.

This service is a wonderful help to all who lack technical experience in irrigation problems, whether you have a truck farm, a chicken ranch, a large or a small orchard, a small acreage, or an alfalfa ranch. It will save you all the vexation, uncertainty and often actual loss of money that the inexperienced cannot avoid. And it costs NOTHING. Don't hesitate. Write us NOW.

AMES-IRVIN IRRIGATION PIPE

Lock Seamed



is constructed without solder or rivets. Nothing but the sheet of metal itself is used. Each sheet is edged, locked together, and then set down under 3500 pounds pressure. Special machinery does the work.

When finished the seam is simple, solid, and strong. There are no rivet holes in the steel and no solder to break—it can't leak.

Ames-Irvin lock-seamed irrigation pipe won the first prize against all competitors at the Sacramento State Fair in 1913, and at the Fresno and San Jose country fairs in 1912.

AMES-IRVIN FLANGED PIPE

is in every way as dependable as our surface irrigation pipe. You should ask our prices before you buy. The very best obtainable anywhere.

AMES-IRVIN UNDERGROUND GALVANIZED PIPE

also without solder or rivets, and lock-seamed. No other construction can equal it in strength and dependability.

Send for Booklet

It tells about irrigation pipe and its construction. After reading it your judgment will tell you which to buy. Get it —today.

Ames-Irvin Company

8th & Irwin Sts. San Francisco

California Farms Orchards Dairies

For Sale Rent or Exchange

LAND FOR SALE.

FARM OWNERS—ask for special rates in this department.

TULARE COUNTY DAIRY FARMS—One, 200 acres; one, 320 acres; all leveled; mostly improved to alfalfa; good buildings and fences; electric pumping plants; deep, rich soil, price $130 per acre, easy terms. Also improved 40 and 80 acre tracts at bargain prices in this community, where land rents for $20 per acre cash. Located near R. R. station and store; free mail delivery and good schools. For particulars write, W. T. Kneen, Paige, Cal.

26¼ ACRES in Santa Clara Valley, near Saratoga, mostly in young prunes and apricots; some bearing prunes; one acre in citrus. Pumping plant, plenty of water. Fine building site, view and climate unsurpassed. New barn, poultry houses and cabin. ¾ mile from steam and electric cars; 1½ hours to San Francisco. Full particulars from Owner, care Pacific Rural Press.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

FOR SALE—Three mountain ranches in Calaveras county. Apply A. M. Davis, Esmeralda, Cal.

CALIFORNIA LAND—Money-making little farms. High class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F.

80 ACRES IMPROVED, San Joaquin County. 25 acres alfalfa; 2 acres orchard; all level; under irrigation; 5 cows, 5 calves, 3 horses, all implements, grain, etc.; modern house, other buildings. Only $150 per acre, including everything. See Mr. Williams, 595 Market St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms, P. O. Box 97, Salinas, Cal.

HERE IS A FARM AT RIGHT PRICE—320 acres Kings county, soil 20 feet deep, all level sediment loam, ready for the plow, fenced, good buildings, 5½ miles from R. R. $35 per acre on terms. D. E. Besecker, 101 Post St., San Francisco.

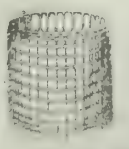
FRUIT RANCH or land for sale in Bartlett Pear belt in Nevada county. Beautiful locality for summer resort to one who is interested. Address owner, W. H. Cunningham, Grass Valley, Cal.

A BARGAIN—10½ acres orchard in bearing, 4 years old. Fine location 1½ miles from Hughson on Santa Fe. Six miles from Turlock. Ten miles from Modesto. Good terms. Address Turlock Nursery, Turlock, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

FOR SALE BY OWNER—Forty acres improved A1 soil. Abundance of water, sunshine, alfalfa, fruit, cows and hogs. Terms. Address Box 42, Princeton, Cal.



Redwood Tanks

I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

OLIVE TREES

Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.

THEODORE PAYNE,

345 S. MAIN ST., LOS ANGELES, CAL.

Concrete Floor Construction.

Owing to the fact that concrete floors have no cracks in which lice, ticks, or similar vermin can breed, and, moreover, can be easily cleaned and disinfected, poultrymen, sheep, and hog breeders are finding concrete more satisfactory material for their buildings than lumber when properly built and cared for.

Planning and Laying Out Floor.—The first step in building the floor is to remove all manure and other foreign matter and then to grade the surface of the ground. If needed, lay all water pipes and the drains necessary for keeping the ground dry, for carrying off waste water, and for conducting the liquids to the manure pit. Such earth filling as may be necessary must be dampened and thoroughly tamped. This work should be done as long as possible before building the floor. Keep the concrete from direct contact with the earth by covering the entire surface of the leveled-off ground with six to eight inches of coarse crushed rock or screened gravel.

For grading the surface of the floors use a carpenter's spirit level (or a water level) and a chalk line. A four-inch thickness of concrete is sufficient. Slope the floor one-eighth inch per foot in such direction that the rain or scrub water will cause the least inconvenience. For poultry houses this will usually be toward the door; for sheep sheds and hog houses, away from the animal's bed and in the direction of the gutters.

Mixing and Laying the Concrete.—The usual proportions of concrete for such floors are 1 cubic foot of Portland cement to 2½ cubic feet of sand to 5 cubic feet of crushed rock or screened gravel, or 1 part of cement to 5 parts of bank-run gravel. These materials are measured on the basis that 1 bag of cement (loose) equals 1 cubic foot. Mix them thoroughly on a tight wooden platform (never on the ground) and use enough water to make the concrete "quaky."

Lay the floor in a manner similar to sidewalk construction. If the sand and rock are first-class in quality, no finishing mortar is required. Such a mortar is generally mixed 1 part cement to 2 parts sand and is applied (1 inch in thickness) to the 3-inch concrete base before the latter has begun to set. To provide good footing for animals, the floor should be finished merely with a wooden float. A steel-trowel finish is entirely too smooth and, if made, should be roughened with a stable broom. Should removable wooden or gas pipe pen-divisions be used, make mortises for them in the floor at the proper points by inserting short lengths of gas pipe or drain tile, or by tamping the concrete around tapering greased wooden cores, which must be withdrawn as soon as the concrete has stiffened.

With the proportions given above, 4 bags of cement (1 barrel), ⅜ cubic yard of sand and ¾ cubic yard of crushed rock will lay a section of floor 8 feet square by 4 inches thick. The cost for the materials alone will be about $2.50. As to labor, ordinary farm help can do the work very well.

Proper Care of Animals and Floor.—Regardless of the material used for the floor, a certain amount of covering must be provided for floors of houses for poultry, sheep and hogs. Floors of poultry houses should be covered with a layer of sand or litter. The floor of the sleeping quarters of a hog house should be provided with a removable slatted wooden platform, which must be well supplied with bedding of straw or litter. Likewise the floor of sheep sheds should be kept bedded, especially during the lambing season.

An Easily Cleaned Hog House Having Properly Laid Concrete Floor.

Concrete floors are the cheapest as they never have to be repaired or replaced. Moreover, they can be flushed out with a hose or thoroughly disinfected with oil or other substances without injury to the concrete. They are effective in aiding the prevention of cholera and foot-rot. On account of their sanitary qualities they greatly increase the profits of poultry, sheep and hog raising.

ROOT CROPS AS STOCK FOODS.

To the Editor: Please tell me the food value of mangel wurtzel and sugar beets as a stock food. What do they generally yield to the acre on good loamy soil? Are either injurious if fed to brood sows?—Subscriber, Fallon, Nev.

[Answered by Prof. F. W. Woll, University Farm, Davis, Cal.]

[Both mangels and sugar beets make valuable stock foods. The former roots contain only a little more than one-half the quantities of nutrients found in sugar beets, and it requires about 12½ lbs. of mangels and 7 lbs. of sugar beets to equal a pound of grain (barley, rye, wheat, etc.) in feeding value. At $32.00 per ton for grain, a ton of mangels would, therefore, be worth about $2.60, and a ton of sugar beets $4.60. On good loamy soils and under good cultivation mangels will yield 20 to 30 tons, or more, per acre, and sugar beets 12 to 15 tons, so that the total amounts of nutrients obtained from an acre of mangels or sugar beets do not, as a rule, differ greatly. Both crops make excellent feeds for brood sows and other hogs, as in fact for other farm animals. They are generally run through a root cutter, or sliced before being fed out.]

COCOANUT MEAL FOR SWINE.

To the Editor: Could you please tell me, through the medium of your paper, what value has cocoanut cake or meal as a feed for brood sows and growing pigs. How can I make a balanced ration with it in conjunction with barley and cooked potatoes?—N. B. H., Petaluma.

[Answered by Prof. F. W. Woll, University Farm, Davis, Cal.]

[Cocoanut meal is mostly used for feeding cows in this country, but it also makes a good swine feed when mixed with grain, or mill feeds, although these animals do not relish it quite as well as do other farm stock. It is of a medium protein content and high in fat, containing on the average about 20 per cent protein and 8 to 10 per cent fat, with a fiber content below 10 per cent. It has the drawback that it turns rancid readily and is not palatable to stock when in this condition. It is preferably fed in mixtures with other concentrates. If either skim milk, alfalfa meal, or alfalfa pasture is available, a mixture of barley and cocoanut meal, equal parts by weight, or in the proportion of 2:1 will give satisfactory results, fed with potatoes, to brood sows and growing pigs. If neither skim milk nor alfalfa is available, some other high-protein feed must be added in order to balance the ration, and tankage is best adapted for this purpose. This may be included in the ration to the extent of 10 per cent of the grain feed; if mixed with the barley and cocoanut meal in the proportion given, this will make a very palatable ration for sows and growing pigs.]

THE silo has its use on a farm of any size. It brings system and certainty into the farmer's affairs, and is profitable from any point of view. A field of corn goes about twice as far in silage as in the old method of feeding.

WOOL-FAT FOR WATER-PROOFING.

To the Editor: Will you please inform me where one could get wool fat? I saw an article in the Saturday Evening Post about a French scientist who has discovered a process for waterproofing clothing with wool fat, softened with alcohol or carbon bisulphid to a liquid and mixed with gasoline or benzine in proportions of 10 to 20 parts of the above to one of wool fat. The garment is dipped in the solution and hung up to dry, as in dying.

You might see fit to publish the above formula as it might be of interest to other ranchers.—T. G. Hester, Morgan Hill.

[Answered by F. A. Ellenwood Sec'y California Wool Growers Ass'n.]

Wool fat must be had from wool-scourers and I would refer you to the Western Wool Warehouse Company of San Francisco for the information you desire, for if they do not save the fat, they can direct you to the proper company that does save this product.

The abused cow is always the ugly cow. Likewise the ugly cow has nearly always been made that way by abuse.

Grandsons of Tilly Alcartra

At Prices Within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to Improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornbyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

SALVADOR STOCK FARM

Shire Stallions and Mares

STALLIONS and MARES, both imported and home bred, for sale. I have some very good horses for sale at moderate prices. Satisfaction guaranteed. Call or write.

Henry Wheatley

NAPA, CALIFORNIA.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

WARBLES AND ANTHRAX.

To the Editor: I have a young heifer whose back is full of swellings containing grubs of the botfly. There is not a single one on the cows. According to an old zoological work, which I have in my library, the bot-fly "lays eggs in the skin of young cattle, producing a swelling which suppurates and forms a purulent humor, on which the larvae feed." This explanation seems plausible, and contains a reason why the young heifer was attacked by the flies, and not the older cattle. But in "The Farmer's Veterinarian" by C. W. Burkett I read that "It is now believed that eggs are deposited near the feet and that the grub is taken into the mouth and becomes partially developed in the digestive tract. It then burrows through the tissue until it reaches the region of the back." If this is the case, it seems to imply that the hide on the older animals is too thick for the larvae to penetrate. Is this supposition correct, or what is the cause otherwise for the "immunity" of the older cattle? I try to squeeze out the grubs, but it hurts the heifer. A neighbor of mine lost a cow suddenly a few days ago. He cut the carcass open to see what was the matter, and found the spleen terribly swollen, twice its natural size, the lungs swelled almost to bursting, the intestines covered with some loose matter that he could scrape off with his knife, as if the surface of the intestines were rotting or getting dissolved in some peculiar way. Every organ was affected in some way, too large or inflamed or peculiarly colored. The cow gave milk until a few days before she died and was in good condition, to judge from her appearance. Now another of his cows is sick. What ails them? Can it be anthrax? There is no swamp on his farm. He feeds his cattle only hay and some molasses feed or shorts.—E. S., East Sound, Wash.

[Your heifer is troubled by the grubs of the Hypoderma Lincata, or Ox Warble Fly. This fly lays its eggs on the heels, shoulders, and belly of cattle, where they hatch in twelve days. The larvae iritates the skin, causing itching, whfch spots the animal licks, picking up the larvae on the tongue and swallowing same. The larvae then burrow through the walls of the oesophagus and up into the muscles of the back under the skin, where they hibernate, develop, and pass out in June, July and August. The grub falls to the ground, and in thirty and forty days becomes a mature fly. Crude pine tar, smeared over the heels, belly and shoulders every twelve days, will kill the larvae and expel the flies. Grubs already lodged in the back should be squeezed out or killed by the injection of a few drops of turpentine into the abscess. Young animals are more susceptible than older ones for the reason that their skin is more sensitive to the itching caused by the larvae and is, therefore, more often licked.

Your neighbor's cow died of anthrax. Although your description of post-morten appearances is not absolutely characteristic, still it is typical enough to warrant this diagnosis. Have him vaccinate the rest of his herd immediately. However, do not vaccinate any of his sick animals, or those showing symptoms, such as high fever, as vaccination will not save them. Separate all sick from healthy animals, and disinfect barns. It is not necessary to have swampy ground to have land infected with anthrax.]

PNEUMONIA IN CALVES.

To the Editor: I have lost several calves the past few weeks and can not find the cause. Animals scour a little at first, but this subsides with dieting, although the bowels remain loose, and if nothing but milk is fed scouring continues. I have been giving about a quart of milk with two eggs beaten in it. Some have a thick discharge from nostrils, but this stops before they die; others do not have this symptom. They eat until they die and look well outside of being droopy. Post-mortem shows the lungs with dark spots, some quite large. They do not penetrate the lung, but just show on the outside. A few have shown small sore places under the tongue near the front teeth; no other sores in the mouth. Stomach is generally full but soft; no inflammation here or in the intestines. Calves run on pasture; are six to nine weeks old. I always give Epsom salts, a small dose, before dieting. Any information you can give me on this subject will be gratefully received.—E. E. W., Phoenix, Ariz.

[Your calves have contagious pleuro-penumonia, or lung plague. There is no treatment which will cure this trouble. Separate all sick from healthy animals. Thoroughly disinfect daily barns and buildings, using two per cent solution of cresol. Be sure also to wash out and disinfect all feed troughs or racks from which they feed before and after feeding. Give all the calves one dose of the following, once a day: Guiacol, 2 oz.; aromatic spirits of ammonia, 1 pint; spirits of camphor, 8 oz., and fluid extract of ginger, 6 oz.; dose, 2 oz.]

DIARRHOEA IN CALVES.

To the Editor: I would like to ask you to advise me about a calf disease prevalent here. The calves die within 24 to 48 hours from the time they are born. The cows are healthy. It seems to be a sort of a white or yellow diarrhoea, thin watery passages of a light yellow and white color. A neighbor has called a veterinarian, but the veterinarian was not able to say what to do. The cows are fed alfalfa hay.—A. F. S., Chino, Cal.

[Your calves have white diarrhoea. This disease enters the body by two channels, the navel and the mouth, but principally the latter. Paint navels immediately after birth with tincture of iodine. If calves are allowed to suck, take first milk from udder by hand, wash and dry udder and teats with a two per cent solution of cresol before calves are allowed to suck. Clean up stables and premises and disinfect them with same solution. Let as much sunlight get to your floors as is possible. The above will have a strong tendency to prevent disease. Also, do not allow calves a full ration, cut down their amount of feed one-half. To infected calves, give the following: fluid extract of ginger, 2 oz.; tincture opium, 2 oz.; formaldehyde, 64 minimums, and water enough to make a quart. Give calves two ounces of this mixture in one pint of water twice the first day, withholding all feed. If necessary, give two ounces medicine in one pint, milk twice the second day.]

COW WITH LUMPY JAW.

To the Editor: I have a cow with lumpy jaw. What can I do for her?—J. H. S., Live Oak.

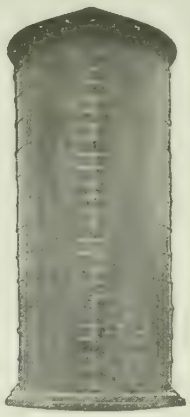
[Give your cow two drachms of potassium iodide twice a day. Paint the swelling with iodine once daily, rubbing it in thoroughly with a tooth brush. If animal shows signs of iodism, such as watering of the eyes, profuse saliva, rough coat and diarrhoea, discontinue the potassium idodide for five or six days and begin again. Keep up this treatment until swelling becomes considerably reduced.]

The proper temperature for the cows' drinking water is that at which the cows will drink the most.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

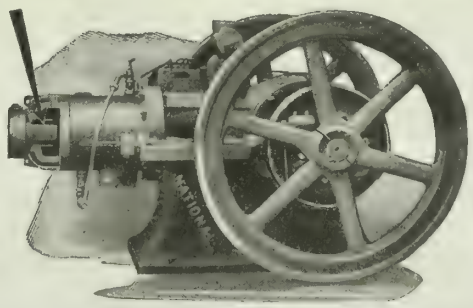
ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

The National Oil Engine

Runs On 2½c Fuel



Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

National Steam Pump Company

Upper Sandusky, Ohio.

Address California Distributor, J. C. WIGHT,
4927 Budlong Ave., Los Angeles, Cal.

BARGAINS IN PUMPS AND ENGINES

We have a stock for immediate delivery, both the Douglass and Myers hand and power pumps. Also a number of the well-known

OLDS' GASOLINE ENGINES,

in sizes from 1½ H. P. to 10 H. P. inclusive. All brand new—No second-hand stock. Let us mail you our Bargain List P.

General Machinery and Supply Co.

Formerly

COMPRESSED AIR & GENERAL MACHINERY COMPANY.

39 Stevenson Street, San Francisco, Cal.

With the Live Stock Men.

DAIRYING.

A consignment sale of thoroughbred Holstein-Friesian cattle and and thoroughbred hogs will be held in Hanford on October 5, 6, and 7.

One of the largest sales of dairy stock ever held on the Pacific Coast will take place on April 15 and 16, when 700 head of stock belonging to the firm of Hubbard & Carmichael, Newman, Cal., will be auctioned.

Among the Holstein herds of the State which are rapidly gaining headway on account of authenticated testing is the Cream Cup herd of Modesto. M. M. Holdridge, the owner of this herd, informs us that the cow, Tula De Kol Peiterji Netherland, now heads the State record for seven-day test with 33.82 pounds of butter and that Fidessa Bloom is second with 33.54 pounds of butter. A number of cows in this herd have been tested in the Eight Months from Finishing division, among them being Norena Cream Cup who made over 15 pounds of butter in seven days eight and a half months after freshening. Ancelogem of Sleepy Hollow produced 2960.6 pounds of milk in thirty days, an average of 66 pounds of milk per day, her best day being 104.1 pounds of milk.

HORSES AND SWINE.

Mrs. Anita Baldwin of Santa Anita has brought a valuable consignment of imported Percheron stallions and mares from Chicago to be shown at the Percheron horse exhibition at the Exposition on October 1, after which they will be sent to her ranch at Santa Anita. The mares were purchased from the Dunham-McLaughlin Company of Wayne, Ill., and Oakland.

The Kings County Hog Raisers' Association was formally organized last week with a membership of thirty-six. The chief purpose of the association at this time will be to combat hog cholera which has been quite prevalent in that county since 1906. The following officers were elected: M. Bassett, president; Dr. J. A. Crawshaw, vice-president; Fred D. Ross, secretary-treasurer; Geo. T. Farmer, J. W. Guiberson, and T. J. Gilkerson, members of an executive committee.

Robt. R. Renshaw of Merced county writes that he is busily engaged in fitting up a 250-acre ranch which will be used in connection with his own ranch for a model swine breeding establishment. He states that he has recently increased his herd of purebred Berkshires by purchases of several high-class Berkshire sows in the East and a fine Berkshire boar last fall through Mr. L. E. Frost, editor of the Berkshire World. He also states that from now on his herd will be strictly cholera immune.

CATTLE AND SHEEP.

N. H. Locke Co., Lockeford, report the sale of Foxy Laddie of L No. 115743 and ten unregistered Jersey cows to Mr. A. J. Morey of Orland.

Bryan Bros. of Paso Robles purchased recently twelve steers from J. L. Matthews of King City. They averaged in weight 1300 pounds and sold at $88 each.

Of the sixty-five head of Shorthorn and Hereford bulls recently brought into the State by W. M. Carruthers, three Shorthorns went to J. B. Wallace, Shasta county; Cowell Lime & Cement Co. took one; Rindge Co. took eight Shorthorns; Howard Tilton of Gilroy took five Herefords; J. P. Agoure of Los Angeles took fifteen Herefords; J. W. Goodwin of the Estrella Ranch took twenty-two Herefords; Whitehall Estate took a special Hereford bull brought for them to head their herd. Mr. Dunlap, the manager, says that he is the finest specimen ever brought to the West. He is a grandson of imported Majestic, and his mother has been a consistent winner in the central west. Mr. Carruthers was lucky in getting this shipment through, as the State is now quarantined from Ogden east, including Washington and Oregon, except by special permit in the latter two states. Texas is still in the clean list because of having complied with California regulations.

MISCELLANEOUS.

The 1915 annual convention of the California Cattlemen's Protective Association will be held at the Palace Hotel, San Francisco, on Tuesday, March 23.

The Portland Union Stock Yards' receipts for the week ending March 11, 1915, were as follows: 1709 cattle, 2380 hogs, and 1681 sheep. Top steers sold at $7.75; top hogs at $7.25; and lambs at $8.50.

A meeting of western livestock sanitary officials has been called by State Veterinarian Dr. Chas. Keane to be held on March 23 in conjunction with the American National Live Stock Association. The purpose of the meeting will be to form plans for protection against the foot and mouth plague.

OLD OR NEW MANURE.

To the Editor: Kindly let me know through the columns of your paper which is the best fertilizer, old or new manure?—Subscriber, Goshen.

[It depends upon what you mean by old manure. If it has been properly decomposed with the right amount of moisture, it is the best kind of a fertilizer. If it has been fire-fanged it may be almost worthless, and if it has been leached out by too much rain it may be very inferior. In either of these cases new manure is worth more if it is spread directly on the soil and plowed in.—Editors.]

COMMON MONEY AND RURAL CREDITS.

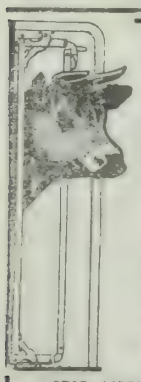
Realizing that a common money is equivalent to a corner on all products combined and detrimental to the welfare of the country at large and that this condition would be relieved by the adoption of Rural Credits by the State of California;

Resolved that it is the sense of the Madera County Farm Bureau that a bill be passed by the present legislature authorizing Rural Credits.—D. B. Thompson, Geo. Marchbank, T. C. Mayhew, Geo. Clark, Committee.

Be sure you are not keeping two head of stock where you have grain and roughage to winter only one. It is better to keep one animal well than to half keep two.

The business farmer likes the type of stock that brings the quickest and most sure returns. That's the reason the dairy cow is so popular with men of this kind.

Sanitation is essential to the prevention of disease.



STAR
Barn Equipment
Stalls, Stanchions and Litter Carriers

Star Barn Equipment is absolutely in a class by itself because of patented time and labor-saving features not found elsewhere.

Star Stalls and Stanchions are built in UNITS — stalls grow with herds. Keeps animals lined up to gutter by new and vastly more practical method—instantly adjustable to all cow-sizes—more comfort for cows—less work for men.

STAR LITTER AND FEED CARRIERS are speediest, easiest raising and lowering and most durable labor savers on market. Proved by hundreds of tests. Roller Bearing throughout. Swinging Room clears barnyard of all obstructions.

FREE Our instructive catalog explaining all. Let us send it.

Write your name here.

Name .....

Address .....

No. of cows.....

Clip out and send today

Pacific Dairy Machinery Co.
Dairy Outfitters.
56 and 58 Clay St., San Francisco

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials. 10-dose pkge. Blackleg Pills $1.00. 50-dose pkge. Blackleg Pills 4.00. Use any injector, but Cutter's best. The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct. THE CUTTER LABORATORY, Berkeley, California.

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Durocs Cholera Immuned
and
GUERNSEY CATTLE.
Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

CHAMPION PERCHERON STALLION

Justel Weight 2240 Lbs.

FIRST PRIZE WINNER at the leading State Fairs of America in 1914.

If You Want This Kind Inquire of Us.

Thos. D. McLaughlin Importing Co.
Oakland, California

Office: 3888 San Pablo Ave.
Stables: 47th near San Pablo.

Developing Range Water.

Large areas of California cannot be profitably used for stock ranges ordinarily on account of a lack of sufficient water supplies, and for that reason the following taken from Bulletin 592 of the U. S. Dept. of Agr. should be of interest at this time:

No stock ranges can be said to be properly utilized if there is an uneven distribution of water. On some areas the water supply is not sufficient for the number of stock the forage will support. On others the water supply is sufficient, but it is not permanent; making it necessary to remove the animals before the season is over. Still other areas are made practically worthless for stock purposes by the absence of water except at rare intervals during winter.

Range cattle need from 8 to 10 gallons of water a day, and sheep from one-half to two gallons, unless there is heavy dew and an abundance of succulent feed. No matter how good the forage on a given area may be, animals must have all the water they need or they will not thrive. Cattle, moreover, should not be required to travel on an average more than two miles to reach water, if they are to be in marketable condition in the fall.

The flow from ordinary springs, and even from seeps, can be increased by digging them out and curbing the sides with cement, the water being carried in pipes to conveniently situated troughs. Swampy spots can often be made to furnish a water supply by cutting an open channel from some spring in the middle of them, perhaps cutting other channels across the main one, and drawing the spring and surface water to some storage point outside. Streams flowing through deep canyons can be made accessible to stock by constructing trails over which the animals can reach them, or by raising the water to the surface of the canyon by mechanical means.

When a natural water supply is some distance from the range, small dirt flood-water reservoirs can be constructed almost anywhere to supplement the natural supply. If a low place with a heavy adobe or clay soil is selected in the middle of some open park with sloping hills about it, comparatively little work with plow and scraper will construct a reservoir which, when trampled and puddled by use, will hold enough water for many head of stock for some time. Furrows running diagonally across the slopes will collect the rainfall or melting snow waters and carry them directly to the reservoir for storage. Artificial reservoirs permit the stock to be scattered out over a larger area than ordinarily, and remove the need for them to concentate at permanent watering-places.

Where the natural water supply is more than 50 feet below the surface of the ground the best way to reach it is by drilling or boring a well and raising the water by means of a windmill or pump. A deep well of from 150 to 300 feet, complete with windmill, truck, troughs, etc., represents an investment of about $1,000, and should easily supply between 350 and 500 cattle daily. No well is complete without a reservoir with a capacity large enough to carry the stock dependent upon it over a long calm spell. The cost of a reservoir holding approximately 200,000 gallons of water should not exceed $100.

The best kind of trough for holding water derived from wells and springs is the ordinary metal one used by stockmen. It is light in weight, will last a long time, and costs little. However, where the materials are readily available and the cost of cement is not prohibitive, concrete is recommended as better than any other trough material.

SEPARATOR INVENTOR VISITS FAIR.

P. M. Sharples, inventor of the Sharples Cream Separator and president of the Sharples Separator Company, has been spending a few weeks in San Francisco attending the Exposition and getting better acquainted with California dairy conditions.

In an interview with the writer, he stated that in his opinion there is a great future for dairying in California, but warns us to take immediate steps toward the improvement in our butter standards, as it is his opinion that after the European war, our markets will be seriously hampered by Australian butter, which he claims is of such a high quality that our home product will be seriously handicapped in finding a market.

Mr. Sharples is a firm believer in the future of the milking machine, and states that in his opinion every dairyman should have such equipment with which to protect himself against labor troubles, if for no other reason. His opinion is that the present day milking machine is not fool-proof any more than the automobile, and it requires attention the same as any other kind of machine, but with such attention he thinks that any dairyman can more efficiently handle his business.

Mr. Sharples states that the foot and mouth disease is doing a great deal of harm to eastern herds, and gave as an instance the wiping out of a fine herd of cattle on the farm adjoining his own, due to the fact that separated milk from a creamery had been purchased and fed to the young stock, from where the disease germs rapidly spread to the entire herd.

Mr. Sharples is getting along in years, and California should feel honored by his visit, he having done a great deal for the dairy industry in this, as well as other, states, though perhaps in an indirect manner.

PLANTING MANGEL WURZELS.

To the Editor: I wish to plant about two acres in mangel wurzels for feeding my milk cows. Can you tell me the best kind?—K. V. D., Etna Mills.

[The common long red mangel or the half-sugar mangel will give very satisfactory yields.—Editors.]

COW POX.

To the Editor: Can you give me a prescription for cow pox?—Dairyman, Mt. View.

[Give a physic of glauber and epsom salts mixed 4 ounces of each to a heifer and double the dose to a cow. Apply externally, once daily, after washing, the following prescription: Zinc ointment, 4 ounces; iodoform, ½ ounce; glycerine, 2 ounces; carbolic acid, 2 drachms. Mix thoroughly and apply to sores.—Editors.]

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE—5-year-old Percheron Stallion. Black. Weight 2025 lbs. Guaranteed Breeder. We are selling out. Newark Farms, Newark, Cal.

FOR SALE—Several choice Shetland ponies. Zach Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

SIXTEEN COWS FOR SALE—Mostly Holstein grades. All young, tuberculin tested. Cows are best selected stock and milking heavy. Bred to registered Holstein Bull of exceptional merit. Address W. N. Totman, Emmaton, Cal.

FOR SALE—Reg. Holstein-Freisian bull calves, sired by a grandson of King of the Pontiacs. Write for prices and pedigrees. E. A. Clausen, 1739 Devisadero St., San Francisco, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

SWINE.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

EASY MONEY RAISING HOGS—Fatten on cactus fruit. Contains 16¼ per cent sugar. Three times the number may be fattened on one acre of cactus fruit than corn. Write N. Wilcox, Orland, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Laws, Inyo county, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

BERKSHIRES REGISTERED—Young stock for sale from the following strains: Kennett, Longfellow and Masterpiece. G. Casey, Box 7, King Road, San Jose.

REGISTERED BERKSHIRE SWINE—all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

THOROUGHBRED POLAND CHINA PIGS—Large heavy boned type. Farrowed Oct. 1st. Sire Orange Valley, 77157. H. L. Morgue, Durham, Cal.

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

CHESTER WHITE SWINE—Both sexes. Write for prices, crated and shipped anywhere. L. F. Killingbeck, Orland, Cal.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 69, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

POLAND CHINAS—A few boars ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

COL. JACK—Thoroughly trained in sales work on registered cattle and hogs. A fast worker in the ring; an able judge, and well fitted to be your auctioneer. Has an extensive acquaintanceship on the Pacific Coast; gets face value on your animal; works on the usual terms; cries any farm sale, and can be found at 513 Exchange Building, Los Angeles, Cal.

ATTENTION, DAIRYMEN Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

WANTED—50 or 55 head good grade Holsteins to establish dairy. Address, A. W. Beesemyer, R. 1, Box 12, Kerman, Cal.

Experiences in Growing Silage Crops.

(Continued from page 353.)

Cob Ensilage. In both cases I planted the corn quite thickly, two grains every 16 inches and rows 36 inches apart, so the yield of grain was not high.

"In 1913 the yield varied from 10 to 20 tons per acre in different parts of the field, averaging perhaps 13 or 14 tons per acre. Due to lack of irrigation in 1914, the yield was reduced to eight or ten tons per acre. My corn usually seems to need irrigation when eight to ten inches high, and again when two or three feet high and I irrigate at those times if I can get the water.

"I have siloed Feterita, eastern seed unacclimated, and while the growth was not so satisfactory as Indian corn, the silage was quite as satisfactory from a feeding standpoint.

Prof. Rouble of the San Luis Obispo Polytechnic School at San Luis Obispo states that for silage purposes he has found Morse's Leaming the most satisfactory for that location, no irrigation being practiced, and the yield varying from eight to ten tons per acre.

T. B. Purvine, of Sonoma county, who has raised silage corn for a number of years on unirrigated land, states that he has used home grown Yellow Dent seed with most satisfactory results. He plants three and a half feet each way, and secures about six tons of silage to the acre.

H. T. Harrold of Glenn county had satisfactory results with Morse's Leaming last year on river bottom land. The field was planted about the middle of July, irrigated once, and cultivated once, and yielded about 10 tons of silage to the acre. Besides the corn crop, a crop of barley hay was harvested earlier in the season from the same land.

While not used for silage purposes, the Yellow Dent corn grown on the Stanford University's ranch in Tehama county is illustrative of the possibilities of Indian corn in that part of the Sacramento valley, as their seed which is carefully selected is sold to the largest seed house in the State, who in turn market it as their most likely silage corn.

Planting on this ranch usually starts in March or April, according to the season, the seed being drilled in a few inches apart and in rows about three feet apart. The yield of grain secured on this ranch has run as high as 40 bushels per acre in the past, which means a heavy yield of silage, were it so disposed of.

One of the largest and oldest silo owners in southern California is H. S. King of Compton who pins his faith to Iowa Yellow Dent. Mr. King has raised and selected his seed for a number of years, with the result that he now has a strain which produces abundant foliage and ears in his location.

Alfalfa, which will perhaps always maintain the lead of individual silo crops, has not been included in the list of crops to plant, owing to the commoness of it in most all parts of the State, but it is the first and last cuttings of this crop which make the silo doubly desirable in California, as without it the silo would not be nearly so inviting from a financial standpoint as it is at this time.

POLO PONIES AND HOGS.

To the Editor: Will you kindly let me know the most practical and latest book on the breeding of fine racing horses, polo ponies, Arabian horses, etc.? What breed is used mostly for polo ponies? What do you think of raising horses for such uses as a money-making proposition, and do you suppose there is any demand? If you have the addresses of breeders of polo ponies, Arabian horses, or racing stock, please let me know who they are. In your magazine there are advertisements of hogs in which some state their stock is cholera immune. What is meant by "cholera immune"?—J. K., Visalia.

[One of the latest and most complete books on horse breeding is "Management and Breeding of Horses," by Harper, published by the Orange-Judd Co. of New York City.

The increasing popularity of polo is attracting much attention to ponies suitable for playing this game. The polo pony is really not a pony, but a small horse. He does not necessarily belong to any distinct breed, and is generally a cross. For this purpose any horse possessing the necessary speed, activity, endurance, and intelligence will do. He must be able to carry 160 to 200 pounds weight, make incessant turns, twists, and stops at full speed, and make short spurts at the rapid gallop. The maximum height allowed by the American Polo Association is 14.2 hands. Small thoroughbreds, western ponies, and cross breeds are popular. Breeding polo ponies, however, is somewhat of an experiment and presents many difficulties, the chief one being the limit of height and training, and we are not well enough versed with demand or supply to advise you of the present outlook from a breeding standpoint. Perhaps some of our readers can enlighten us.

When advertisers state that their hogs are cholera immune, they mean that their herds have been inoculated with cholera serum, and are considered immune from cholera. This, however, does not apply to their offspring, which will in turn have to be vaccinated the same as their parents before becoming immune.—Editors.]

SEX CONTROL OF ANIMALS.

To the Editor: On page 277 of the Press I notice the following sentence: "How you are going to get all heifer calves? * * * we do not know." Now I am trying to learn, and have read from what I supposed to be good authority that if a female gives birth to a male and becomes pregnant at the next "monthly period" it will be a female, and that this holds good for every odd number, as first, third, fifth, seventh, etc. The even periods will give a male. If the birth is female, the opposite holds good, the odd periods then giving a male, while the even periods will give a female. Have statistics been kept by breeders to ascertain the truth or falsity of the above statement?—D. M. A., Sutter.

[We do not know of any breeders who have kept statistics that would either prove or disprove the theory which you set forth, but perhaps the following quotation taken from "Breeding Farm Animals" by Harper will set you right in the matter:

"The commercial value of farm animals often depends to a considerable measure on their sex. If a means could be devised, therefore, for controlling the sex of offspring, it would be of much value to the breeder. Endless attempts to do this have been made, but none of the theories have withstood the test of careful experiment. As there is but one alternative in the case, any theory, no matter how absurd, is certain to come true half of the time.

"The theories advanced for sex determination may be divided into two groups: First, those which depend on controllable external factors, such as food, climate, chemical agents, will power, and the like; second, those which depend on internal factors centering about the germ cells, and which, of course, are beyond the control of the breeder.

"Data gathered from various sources seem to indicate that the two sexes are produced in practically equal numbers. The relative number of males per 100 females is given for horses as 99, for cattle 94, for sheep 102, for swine 104, and for poultry 95. In Europe a study involving 60,000,000 human births showed an average of 106 males to every 100 females.

"A few of the more common external theories that have gained popular credence, but which, so far as present knowledge goes, contain no basis in truth, will be reviewed before considering the internal factors. The approximate equality of the sexes in all sorts of natural environments indicates the improbability of sex control by external condi-

Defy Spring Floods and Winter Frosts

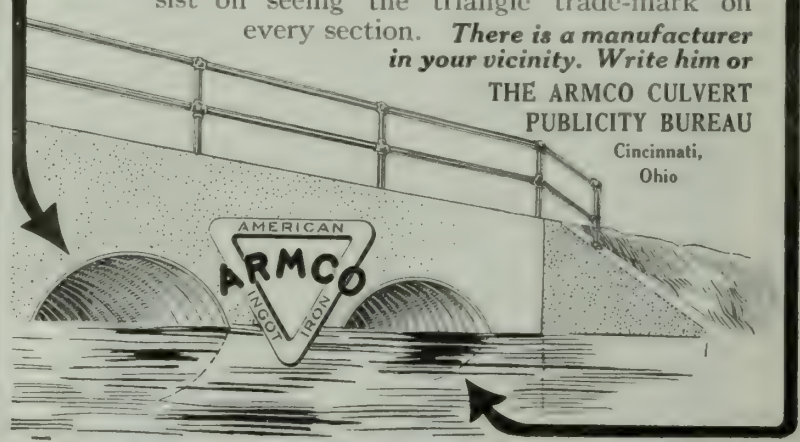
FROM the time when the melting snows and spring rains flood every valley until winter fills the streams with ice, our highways are in daily need of the protection that comes only from

ARMCO AMERICAN INGOT IRON CULVERTS

These culverts are not torn from their places by the rushing waters and do not rust or deteriorate like culverts of common steel or impure iron. They are not affected by zero weather like culverts of tile or concrete. The *toughness* conferred by the corrugations and the overlapping joints enables them to stand and to give perfect service under conditions which are speedily fatal to other forms of construction.

To make certain of securing the genuine insist on seeing the triangle trade-mark on every section. ***There is a manufacturer in your vicinity. Write him or***

THE ARMCO CULVERT PUBLICITY BUREAU
Cincinnati, Ohio



"Jackson MADE"

Write for Catalog No. 47M

A "Jackson Made" pump raises more water at less cost per gallon than any other pump and by its freedom from costly repairs actually pays back its first cost in a very few months. This is no figure of speech—it is demonstrated every day by our pumps actually at work.

No matter what your pumping needs may be—there is a "Jackson Made" pump ready to work for you at a lower cost than any other make.

Our expert engineers are gladly placed at your disposal for free consultation.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

tions.

"It is stated that the sex is determined by the degree of maturity of the egg cell at the time of service. If the service takes place early in the period of estrum or heat, the offspring will be a male; if later, a female will result. Some persons say the reverse.

"This theory is disproved by the results of ordinary farm practice. When males and females run together, the service always takes place during the early stages of the period of estrum in the female, which should make the offspring practically all of one sex, yet the proportion of males and females produced is approximately equal.

"It is said that the ova are alternately male and female, and that the sex of the offspring can be controlled by the choice of the proper estrum for service. Thus, if the last young was a male, then mating at the first estrum as well as third, fifth and so on, would produce females, whereas the second, fourth, sixth, and so on periods would result in males.

"This theory is disproved by the the results of farm practice, especially in horse breeding, where males follow males and females follow females without the alternating period of estrum, it being the custom to breed mares on the ninth day after foaling."

[These are only a few of the many theories which have been advanced in the past, and while many have never been disproved, none, so far as we know, have ever been recognized as absolutely reliable by authorities on this subject, which accounts for our statement in a previous issue.—Editors.]

Would it not add to the health of yourself and family if you would select some of the choicest, smoothest and healthiest hogs from your herd and feed them those rations which are clean, pure and wholesome, then kill these animals for your winter's meat supply?

The Exports of Horses.

[Written for PACIFIC RURAL PRESS.]

Readers who have followed the European demand for horses since the beginning of the war, will be interested in data supplied us by Wayne Dinsmore, Secretary Percheron Society of America, in which he quotes the Bureau of Foreign Commerce of the United States.

This data shows that the total export of horses from the United States to other countries for the last five months in 1913 amounted to $1,286,369, as compared with $15,439,604 for the last five months in 1914, or a gain of more than $14,000,000.

From September 1 to January 1, the values of these exports increased at the rate of $1,000,000 to $4,000,000 monthly; December exports showing a valuation of $7,390,845.

This comparison of figures shows the heavy drain which is at present being placed upon the horse industry in this country, and indicates that before many months, a general horse scarcity will be felt all over the country.

He further shows that importation of foreign draft horses for breeding purposes has fallen from one and a half million dollars annually to a point where nothing is being spent for that class of animals, and he states that these importations are not only wholly shut off at present, but probably will be for years to come.

There are approximately 12,000 to 13,000 purebred draft horses produced annually and recorded in the United States, making the supply of purebred draft stallions that we produce approximately 6,000 head. This is a small number in proportion to the 23,000,000 horses owned in the United States, and it seems inevitable that prices must rise on good, purebred draft sires of any breed.

Good California-bred stallions are available in sufficient quantities at this time to insure all buyers purebred stock for the coming year and at prices which can not be expected to continue in face of the above mentioned conditions.

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Large Shipment of

Water Pipe

Received by Los Angeles Pipe Firm.

300,000 Feet Ready for Immediate Shipment.

The Adams Pipe Works of Los Angeles, which recently changed management, announces they have just received one of the largest shipments of Water Pipe received by any one firm in a single week. All sizes are included and all pipe absolutely guaranteed. Special prices on various sizes as follows: Riveted Dipped Pipe: 10-inch, 30c; 4-inch, 12c. Sandard Pipe: 8-inch, 45c; 6-inch, 35c; 5-inch, 30c; 4-inch, 25c; 3-inch, 15c; 2½-inch, 12½c; 2-inch, 7½c; 1½-inch, 6c; 1¼-inch, 5c; 1-inch, 4c; ½-inch, 2c. Tubing: 2-inch, 8½c. O. D. Casing: 10-inch, 70c; 8-inch, 45c; 4¾-inch, 22c; 4-inch, 17c; 3½-inch, 13½c; 3¼-inch, 13c; 3-inch, 12c.

Mail orders and quotations given prompt attention. Adams Pipe Works, 2025 Bay St., Los Angeles, Cal. Broadway 1264. F-1917. Night and Sunday phone, Vermont 1294.

TAMWORTHS

The Big Red Bacon and Block Hog. Send for prices and circulars.

COTTLE & HOBSON CO., Amsterdam, Cal.

WATER HORSES AFTER SUPPER.

[By Dr. I. B. Dalziel, San Francisco.]

The conditions I observe in hundreds of stables are that the horses come into the stable at 5:00 or 5:30 in the evening wet with perspiration and tired. They are hungry and anxious to get to their stalls to eat. The result is when they are sent to the trough to drink they take a few hurried swallows of water and pass on to their stalls, where hay is waiting. After eating their dry feed their system reasserts its demand for water and they are compelled to endure the agony of thirst throughout the night. In the morning they are fed again before they leave their stalls, and cannot enjoy their food on account of their great thirst. When they are finally allowed water they gulp down such a great quantity of it that their digestive organs become bloated, their food is not properly assimilated, and they cannot work at their best.

Few of us have experienced the terrible agony of thirst, but we have heard of the fearful suffering endured by travelers in the desert when deprived of water, and we know that without it man can live but a few hours. So horrible is this form of suffering that man has taken ample precaution against it by providing himself with an abundant supply of water wherever he makes his abode.

Water is just as important to the horse as to man. Perhaps more so, for the horse has a smaller stomach in comparison to his size than any other animal. He is fed principally hay and grain—food with a very low percentage of moisture—and his anatomy is so constructed that he perspires freely and over a large area of his body. By reason of the work which is required of the horse, the average animal is constantly in a sweaty condition, even if the moisture is not visible on his coat. The amount of moisture consumed and thrown off in a day by a horse when working would seem incredible to the average person.

Unquestionably the horse is a noble animal and man's best friend, for whom he works faithfully, untiringly—in exchange for—what?

What he should get is plenty of pure water, good feed, a dry, comfortable stable, and his coat nicely cleaned daily. If so treated, his owner will be well paid, for he will do his work with much more ease and greater willingness and do more of it, with the result that the driver, as well as the horse, will be better contented and better off in every way.

The writer believes that very few work horses receive the amount of water which they require. Water is just as important to a horse as feed. The oftener a horse is watered, the better it is for him. If he is given water often, he will never drink to excess. A horse not working, and standing in the stable, should be given water at least three times a day; when working, the rule should be: small quanities and often.

The writer contends if a horse is properly watered, he will carry 100 to 150 pounds additional weight with the same amount of feed. He will be in better condition to perform his work, will live longer and be less likely to have indigestion and stomach trouble.

When a horse is working, I would say to water him, first in the morning before feeding. Then offer him water one or two hours after feeding, and again before his noon meal. Allow him an opportunity to drink occasionally during the afternoon and give him a small quantity of water when he reaches the stable at night, after which give him his feed of hay and grain. Two or three hours after he has finished his evening meal, give the animal all the water he cares to drink.

The last watering at night and the first in the morning, I consider the most important of all, and yet it it is the time that the least number of horses are watered.

Good authorities state that animal tissue is composed of 75 per cent water, and water therefore is one of the most important elements necessary in the upkeep of the body. Anyone who will stop to think of the great amount of evaporation constantly going on in the body of a healthy horse will readily see the necessity of giving him plenty of water.

Short Horn Bulls

20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,

H. L. MURPHY, PERKINS, CALIF.

Oak Grove BERKSHIRES

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.

The Registered Hackney Stallion

Lord Lovelace No. 1665

will make the season of 1915 at the Woodland Hackney Stud near Woodland.

Mares will be properly cared for at reasonable rates, but at risk of owner only.

The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.

A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.

Service with return privilege, $25.00.

For further particulars call or address

R. E. DRESSER, Manager Woodland Hackney Stud, Yolo, California,

or EDGAR J. DEPUE, Owner, 818 Merchants' Exchange, San Francisco.

FOR SALE

The Registered Holstein Bull

Lord Asa, No. 117335.

Because we have his heifers and require another sire.

He was sired by

SIR COLANTHA JULIANA.

Dam, QUEEN OF HOPLAND.

He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.

R. E. DRESSER, Mgr.

WOODLAND HACKNEY STUD, Yolo, California,

or EDGAR J. DE PUE, Owner.

818 Merchants' Exchange, San Francisco

Swineland

TAMWORTH'S DUROC JERSEYS.

We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.

Write or call and see us.

SWINELAND FARM.

W. O. PEARSON, Prop. WOODLAND, CAL.

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

THE poultrymen of California have cause to toss their hats in the air and shout because at last they have made a dent in the iron-clad attitude of indifference that has heretofore been maintained toward their industry by the State.

On March 10, humble but earnest poultry farmers from various parts of California were granted a respectful hearing—a kindly welcome more nearly describes their reception—at a special joint session of the Senate and Assembly committees on Agriculture and and Manufactures, held in the Assembly Chamber at Sacramento, to consider the "Chinese Egg Bill," introduced by Assemblyman Knox Boude, with the result that the attitude of the committees indicate that they will recommend the passage of these bills.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by Geo. H. Croley, President Federated Poultry Ass'n of California.]

To those who are not familiar with the past efforts in this direction, the occasion for the above statement may seem small reason for such emphatic rejoicing, but to the pioneer poultry-breeders who are still engaged in the business this event resembles a trickle of cool, sparkling water when viewed by a famishing prospector lost on a parched desert.

For thirty-five years or more these old-timers of poultry culture have been seeking some official recognition of their industry and asking for a small measure of assistance from the State—such aid as is generally supplied by many other States to foster poultry culture and is liberally provided other rural industries by this State. Until the convening of the present session, California farmers have not been granted even a satisfactory opportunity to present their claims to the Legislature.

To be sure, this is the first time the poultrymen of all sections of California have been represented through federated effort, and naturally have never before presented such a united front. In the present efforts in behalf of the poultry farmers the Federated Poultry Association has been greatly assisted by the press. The publishers of the Petaluma Poultry Journal, California Cultivator, Pacific Rural Press, Sacramento Bee, and many other periodicals have been liberal with their space and have provided publicity in various other ways. Among the associations to whom the Federaton is greatly indebted for help are: Poultrymen's Co-operative Association of Los Angeles, Arlington Poultry Association, Poultry Breeders' Association of Southern California, Hayward Poultry Producers' Association, Santa Cruz Poultry Association, the various associations comprising the Sonoma County Poultry Producers' Federation, San Francisco Poultry, Pigeon and Pet Stock Association, Livermore Valley Poultrymen's Union, Poultry Division of Morgan Hill Farmers' Union, Lanare Co-operative Poultry Association, San Mateo County Poultry Association, San Joaquin Valley Poultry Association; also to C. A. Wilkins, Secretary of California State Poultry Association; Henry W. Kruckeberg, Secretary of the American Poultry Association of California, and many other associations, individuals, firms, banks, etc.

For the benefit of those who are not fully acquainted with the situation, we now briefly repeat the information previously published as follows: The Federated Poultry Association of California, as representative of all poultry interests of the State, obtained an amendment to a proposed law now before the State Legislature and advocated its passage as amended because this seemed to be the only logical means of obtaining for the poultrymen of California the State aid which they have for years been seeking and now most sorely need.

This proposed law, known as the Agricultural Bill, was introduced as Senate Bill No 188 by Senator Prescott F. Cogswell of El Monte, Los Angeles county, and in the Assembly the companion measure, Assembly Bill No. 164, was introduced by Assemblyman William A. Avey of Riverside. The chief argument offered in behalf of this measure is, in substance, that it establishes a system for more economically conducting the numerous present agricultural commissions, bureaus, etc.; also, as now amended by the committees of both houses, to include a Division of Poultry under the direction of the Bureau of Animal Industry, by uniting them into one body in charge of a general officer to be known as Secretary of Agriculture; it provides that this unified body be known as the Department of Agriculture; that this department be divided into three bureaus—animal industry, horticulture, and economics, each of these three bureaus to be in charge of an officer known as director of said bureau; further, that the bureaus be divided into divisions; that of animal industry to be segregated (as amended at the request of the poultrymen) into a division of livestock, including bees; a division of dairying, and a division of poultry; the head of each division to be known as chief of said division, which is practically only a new name for the officer—the commissioner—now at the head of each present agricultural bureau maintained by the State Government, such as the State Horticultural Commission and the State Dairy Bureau.

On the passage of this Agricultural Bill creating a Secretary of Agriculture depends the fate of two other measures now being considered by the Legislature—the Rural Credit Bill and the Land Settlement Act, which creates such a complex situation that there is a possibility of failure of the bill, we have been depending on, to pass. Owing to this peculiar situation, it has been considered wise to prepare for such a contingency, and to this end, as indicated by the paragraph at the bottom of this page, Assemblyman Boude has been requested to prepare an emergency bill providing for the establishment of an independent bureau or commission to care for the interests of the poultry industry. With only a very modest appropriation, a poultry commissioner can, with the co-operation of the poultry associations, accomplish much good and prepare the way for more substantial consideration when the results of the initial efforts are displayed to the public and the Legislature at its next session.

IN ANTICIPATION of a possible failure of the Agricultural Bill to become a law, let every one in favor of a bill to create, for use in such an emergency, the office of State Poultry Commissioner, write to the Senator or Assemblyman representing his or her district, or to Assemblyman Knox Boude, at Sacramento, who has been requested to prepare such a measure. A wink in the dark is wasted; in order to enable the members of the present Legislature, who are evidently the poultrymen's friends, to know why such a bill is required, every interested citizen should help them with a letter.

A BOOST AND A CRITICISM.

To the Editor: Find enclosed check for ad. for January, I am very much pleased with the returns from same. Have had better results from this than from any other advertising I have done, at a much larger cost.

But I am not pleased with the statement of Mrs. Swaysgood, published by you, stating that all parti-colored breeds require double mating. This is not true and it hurts us with the very people that your paper reaches. In fairness to your advertisers, you should correct that statement. I have bred Anconas for years, and for the last two years have taken more first prizes than all my competitors combined and have not double mated, for they do not require it. There are many other parti-colored breeds and varieties that do not require double mating, but I will let the breeders of them speak for themselves.—I. W. Potts, Berkeley.

In properly matured pullets all surplus energy beyond that needed to meet the requirements of the body is available for the production of eggs.

BABY CHICKS
Standard Bred.
The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.
THOMAS HATCHERY, Petaluma, Cal., Route C.

Get the Best
for your chicks
Coulson's Poultry Foods
Special Chick Food
Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

VERMIN PROOF POULTRY HOUSES
All Kinds and Sizes.
Delivered in sections. Can be put up and taken down in a few minutes. Cheaper than you can build the ordinary hen house.
Write for descriptive catalog.
ROGERS MFG. CO.
Williams, Calif.

BABY CHICKS
S. C. White Leghorns.
Large or small orders filled immediately. Capacity 25,000. Hatching eggs from selected stock.
CARL STANGE,
1408 Silver Ave., San Francisco.

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St.,.. San Francisco

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

California Poultry Practice. $1 postpaid. Pacific Rural Press.

California Poultry Practice
by Susan Swaysgood.
This handsomely illustrated, cloth bound
160 Pages of Text Book
should be in your homes if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.
Sent Postpaid for $1.00
Pacific Rural Press
525 Market St., San Francisco.

Eggs Wanted
Egg Producers! Egg Shippers!
STOP! LOOK! LISTEN!
Highest prices paid for clean fresh eggs.
Address
E. F. ZUERN
Wholesale Produce
Butter-Cheese-Eggs-Poultry
354 Fourth St., Oakland, Cal.

FREE BOOK
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
F. F. SMITH & CO.,
1006 J Street. Sacramento.

Poultry for Profit.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

Turkey Feed Too Bulky.—I have a trouble among my turkeys, the crop is full of food that does not pass out and is very sour. They stand with their wings drooped and refuse to eat, and in about twelve days they die. Have lost seven since September. Please tell me the remedy for it.—Mrs. J. W. T.

The first remedy is to change your feed. You did not say what you are feeding, but the supposition is that the feed has been too bulky and the turks have lacked exercise. Now unless you empty the crop, very little can be done. When you find one with its wings drooped, catch it, then get about a pint of warm water and pour a little at a time down the gullet. Work the water among the food in the crop with your hand, doing it gently so as not to hurt; then hold the bird head down and make it vomit the feed and water. Keep this up until you have the crop empty, then wash it out with baking soda and water, holding the bird so that this water also runs out of the mouth. It is not a nice job, but it must be done if you want to save the birds. After the crop is clean, give the bird a tablet of Nux Vomica and sulphur compound, 1-100 of a grain strength each, morning and night until it digests its feed properly. Better look to the feed of the rest. It must be wrong or they would not get this way.

Limberneck.—This morning when I went to feed my chickens, I found a big Buff Orpington hen sitting on the roost with her head hanging down. No matter where you put her, she would stay that way, and refused to eat or drink. Could you tell me what is the cause of this and the remedy? She was feeling fine and laid yesterday.—B. F. G.

The trouble in limberneck; is the result of the hen eating some poisonous meat or refuse of some sort. Some old rotten carcass, even that of a mouse, or of dead poultry, will cause this. Once a hen is attacked with it, it resolves itself into whether she is strong enough to throw it off, this is presuming she is not given aid promptly, or whether the poison is stronger than the hen and puts her out of business. A good, big dose of olive oil is the very best remedy, if the trouble is discovered in time. Put the hen in a shady place, and leave her until the oil has a chance to carry off the poison or neutralize it. If the hens are strong, and have not eaten much of the decayed stuff, they will, in most cases, get better without treatment. The best thing is to clean up after the winter rains and when warm days come it is a good thing to look well over the premises and find all refuse that is likely to harbor maggots. For no matter how well fed fowls are, they will eat more or less of this stuff if they find it. So every poultryman should take this as a hint for him to put his house in order, for one ounce of prevention weighs more than a pound in the cure of limberneck. A hen that has had a bad attack of limberneck is of very little further use as a money making proposition; her days of usefulness have been curtailed and she is never quite as good as before.

California Poultry Practice. $1 postpaid. Pacific Rural Press.

CHEAPEST POULTRY HOUSES BEST.

[Written for PACIFIC RURAL PRESS.]

"Trouble with poultry raisers is that they have too much money invested in poultry houses," says A. E. Good of Pomona. "We have the most roupy hens in the one house that is built tight on three sides. In all the dozen or fifteen other pens, you will see the hens out even when it is raining, but not so in this one. They get tender to the weather on account of their warm quarters. They pack together, get overheated, and later catch cold. Our best shelters, good for a dozen hens, winter and summer, cost $2.50 for material and less to build them. They are made by placing a 1x3 inch frame on a 2x4 inch base, with a shed roof only three feet high. It covers 4x6 feet of ground space. The roof is the essential part. It must be tight. It is made of roof paper costing $1.50 to $2.25 per roll, supported by a chicken wire-netting. It extends over the sides to shed rain from the burlap or cheap canvas, which makes the south and west sides, because the wind comes from that direction here. In summer I put 4x4 blocks under the sills to raise this house from the ground. That prevents mites breeding, for they won't breed in a dry place. The breezes which blow under in summer keep things cool, but don't touch the hens, for they are on their their roosts. Cheap houses avoid interest on investment and add profits by way of health and convenience.

INTERESTING FACTS ABOUT CALIFORNIA SCHOOLS.

An eight-page circular has just been issued from the office of the Superintendent of Public Instruction, under the caption, "Information About California School System." It is cleverly designed for answering the thousands of people who continually ask from all over the world about this, that and the other point regarding the California schools.

It tells about the functions of the various school officers of the county and State, and gives a directory of examination, teachers, textbooks, institutes, salaries. It touches the different classes of schools, colleges, the same. It describes certification, normal institutions, and universities of the State. It gives lists of what may be had and what not in the way of official publications.

Altogether, it is a tidy and handy little thing, well worth keeping for reference. You can get a copy by writing to Superintendent Hyatt, at Sacramento.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

CHICKS AND EGGS from prize winners. Buff Orpingtons and Barred Plymouth Rocks. Excellent layers. Prices reasonable. K. L. Kirby, Oakdale Poultry Farm, Watsonville.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

EGGS—HEAVY WINTER LAYERS—Free range single comb, 2-year-old White Leghorns. For first 25 settings, $1 for 15, or $5 per 100 for introduction. After $1.50 for 15, $7.50 per 100. Satisfaction guaranteed or money refunded. Leffler Poultry Farm, R. 1, Box 39A, Ripon, San Joaquin Co., Cal.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for catalog. Whitten Ranch, R. 5, Box 616, Los Angeles.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

ROSEDALE POULTRY FARM—S. C. Rhode Island Red specialist. Five prize males heading my pens. Headquarters for breeding stock, hatching eggs and baby chix. Write for mating list. Order early. Mrs. J. F. Rose, R. 3, Ceres, Cal. Phone F 87X3.

HATCHING EGGS—Any quantity any time. Rhode Island Reds, White Leghorns, $4 per 100; $35 per 1000. All from good layers. Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

EGGS FOR HATCHING A SPECIALTY.—2-year-old S. C. White Leghorn Hoganized hens mated to Hoganized one-year-old cocks. Price for March and April, $5 per 100; $45 per 1000. Pine Tree Poultry Farm, Los Gatos.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First prize winners at leading California shows. Eggs for hatching. Year-old cockerels bred from my best layers at $3, $5, $7.50 each. Wm. Larm, 3854 39th Ave., Oakland, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

ENGLISH WHITE LEGHORN COCKERELS—Bred from hens imported direct from the Barron farm, England. Price, $5. Eggs for hatching, $3 for 15. English Leghorn Hatchery, R. F. D. 13, Cupertino, Cal.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

BABY CHICKS—All varieties; pullets and hatching eggs from our Santa Clara Valley Farm; birds, incubators, brooders and poultry supplies. Globe Hatchery & Feed Co., 1378 Market St., San Francisco, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE HOLLAND TURKEYS—Few fine Toms for sale. Eggs in season. Wyckoff strain White Leghorn hatching eggs. Correspondence solicited. Alice Merriam, Grand Ave., Pomona, Cal.

WHITE PLYMOUTH ROCKS and White Leghorn. Pure-bred stock. Exhibition and winter layers. Big hatch due March 25th. Write us. Pleasant View Farm, Box 291, Pleasanton, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

SELECTED Single-comb White Leghorn eggs for hatching that will improve your flock. All hens, 220 egg type. $1.50 for 15 eggs; $8 per 100. Jay Maxwell, Madera, Cal.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

FOR SALE—200 White Leghorn yearling hens and a few males. Also chicks any age—White Leghorns or White Rocks. Shipped on approval. All pure-bred stock. Pleasant View Farm, Box 291, Pleasanton, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

BUFF ORPINGTONS. Bourbon Red Turkeys. Buff Orpington Ducks. Blue ribbons in all varieties. Breeding males. Eggs. Baby stock. Mating list. Ferris Poultry Ranch, R. 2, 144D, Pomona, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 296, Los Gatos, Cal.

PRIZE-WINNING Royal White Rocks. Hatching Eggs $2.50 setting. Cockerels, $5 up. All hens have fine egg records. Edith N. Winslow, 2825 21st St., Sacramento.

PIGEONS—Carnaux, $1.50 mated and banded pair. Homers, $1 pair. Runt crosses, $1 pair. Satisfaction guaranteed. Archie Goodrich, 1319 26th St., Bakersfield, Cal.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

FOR SALE—Last of March and April delivery. White and Brown Leghorn baby chicks from selected thoroughbred stock. Rose Hill Poultry Farm, Turlock, Cal.

BLACK MINORCAS—Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BARRED ROCK EGGS for hatching from utility or highest class exhibition stock. A few choice cockerels and pullets for sale. G. E. Tobin, St. Helena, Cal.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

HAYWARD HATCHERY—Booking orders for Fall and Spring day-old chicks. S. C. White Leghorn specialty. Free price list. Box 688, Hayward, California.

BUTTERCUPS—the new farmer's fowl; lay many large, white eggs. $2.50 for 15 eggs. For particulars write M. S. Woodhams, San Mateo, Cal.

ANCONAS—Eggs, $1 per setting up. Baby chicks, $15 per 100. Breeding stock. Book your orders early. L. W. Potts, 1721 Berkeley Way, Berkeley.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

BUFF LEGHORNS—Prize-winning, trap-nested, 250 egg strain. Eggs and chicks. Price list free. Amos Bowler, Route 5, Petaluma, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

BEST RHODE ISLAND REDS on the coast. Eggs and chicks. No more geese or eggs this season. M. F. Giddings, 245 Tokay St., Lodi, Cal.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland. Cameron Bros., 689 Vine St., Sacramento, Cal.

CLOVER LEAF FARM White Leghorns. Few as good—none better. Choice cockerels, $3 each. Eggs and chicks. O. B. Morris, Lodi.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. E. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

BUY THE BEST Eggs and chicks from Standard-bred S. C. Rhode Island Reds and Anconas. Inwood Poultry Farm, Folsom, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

PRIZE HOUDANS—Prize-colored Muscovy Ducks. Prices reasonable. Mrs. Emma F. Reid, R. 4, Box 54, San Jose, Cal.

PHEASANTS — Ringneck and Golden. Ready for breeding pen. Eggs in season. T. D. Morris, Agua Caliente, Calif.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BUFF ORPINGTON Eggs, $1.50. Runner Ducks, $1. Chix, 15c; dux, 20c. Glendale, Fleming Ave., San Jose, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

A FEW thoroughbred English White Leghorn Cocks. David Rueck, R. 4, Box 53F, San Jose, Cal.

ANCONA EGGS from prize-winning stock, $1 per setting of 15. R. L. Graybill, Live Oak, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal

The Home Circle.

THE SLEEPY SONG.

As soon as the fire burns red and low
And the house upstairs is still,
She sings me a queer little sleepy song
And the house upstairs is still.

The good little sheep run quick and soft,
Their colors are gray and white;
They follow their leader nose to tail,
For they must be home by night.

And one slips over and one comes next,
And one runs after behind.
The gray one's nose at the white one's tail,
The top of the hill they find.

And when they get to the top of the hill
They quickly slip away.
But one runs over and one comes next,
Their colors are white and gray.

And over they go, and over they go,
And over the top of the hill
The good little sheep run quick and soft,
And the house upstairs is still.

And one slips over and one comes next,
The good little, gray little sheep!
I watch how the fire burns red and low,
And she says that I fall asleep.
—Josephine Dodge Daskam.

THE POCKET THAT DISAPPEARED.

Sarabell lived in the long ago, when little maids wore gowns with very long, full skirts, and still longer pantalettes which hung lacily down below them. Sarabell had long brown ringlets. She was named after her two grandmothers. Grandma Sara lived in the east chimney corner of the big, sunshiny kitchen, and Grandma Bell lived in the west chminey corner. At any rate, that's the way it seemed to Sarabell, for she always found them there when she came down to breakfast, and left them there when she went to bed directly after tea.

Grandma Bell was a little old lady, always busy knitting stockings and mittens for Sarabell's father and big brothers, and for Sarabell woolly jackets—"hug-me-tights," she called them—and mittens with openwork backs, made of lovely white worsted, and fine stockings for Sunday wear. Grandma Bell's glasses were sometimes on her nose, sometimes on top of her head. She could knit just as well with them either way. Sarabell often wondered about it.

Grandma Sara was stout and jolly, and always busy over a big mending basket. Her glasses were always firmly on her nose, and she beamed at Sarabell over their tops.

Both grandmas adored Sarabell, who stood a good chance of being spoiled. But her mother was wise, and, though she loved Sarabell dearly, she could see her faults. One of these was greediness, and her particular greediness was for sweet things. She always ate all that were allowed her, and begged for more. One time, Miss Susan, who loved little girls, invited Sarabell to tea. The little girl ate all the goodies she possibly could, and then brought home some cakes in a napkin. Her mother was shocked, and even the grandmas, who almost always smiled at her, looked sorry.

Sarabell took her little "cricket" and called on the grandmas in turn.

"You see, Grandma Sara," she confided, cuddling close to the old lady's chair, "the party was given for just only me, so I had to be polite and try everything. I tasted the bread and butter, I drank a teeny bit of the tea, and I did eat and eat the sweet little cakes, but I couldn't eat them all, so I told Miss Susan I'd feel more like it to-morrow, and she gave them to me to bring home."

Grandma Sara chuckled. "Oh, Sarabell! I'm afraid you won't get your pocket."

Sarabell was very anxious for a pocket in the skirt of the new gown her mother was making her. It had been promised to her if she could mend her greedy ways.

Sarabell picked up her cricket and visited Grandma Bell.

"I didn't really feel greedy, Grandma Bell—I just didn't want to hurt Miss Susan's feelings, you know, and the cakes were so cunning and good! Don't you b'lieve mother will understand, and give me my pocket?" The brown eyes filled with disappointed tears.

"Mother always understands," consoled Grandma Bell. And sure enough! On Sunday, when Sarabell was buttoned into her new muslin dress, sprigged all over with rose buds, there, cunningly set in a seam at the side, was a fascinating pocket! She slipped her hand in and found a new handkerchief with a pink rosebud embroidered in one corner. Reaching in again, 'way down, this time, she felt something hard, and out came her little fist with a bright new penny in it.

"I can't be greedy any more now, can I, mother?" asked Sarabell. And she really thought she couldn't. But the next Sunday the seed cookies were so good that she couldn't eat quite enough at supper-time, so she slipped two plump brown ones into her new pocket—and forgot all about them! When she went to bed she hung her new dress on a chair

When all was quiet in the hous out from behind an old trunk, bac under the eaves, crept a mouse. Suddenly sitting upright, she went sniff! sniff! Then she softly scampered toward the bed, and again she went sniff! sniff! On the chair by the bed hung the dress, and from it came a most delicious smell. Up climbed Mrs. Mouse, nosed about a moment and disappeared into the wide-open pocket.

Down went the new dress to the floor. Mrs. Mouse was dreadfully frightened at her fall, but as she was not hurt, and nothing else happened, she thought she might as well sample the thing near her nose that smelled so good. The thing tasted better, even, than it smelled, and she made a delightful meal. When she finished, she nibbled a hole in the new pocket, slipped through it and scurried back to the old trunk.

The next morning Sarabell went down to the warm kitchen to dress in front of the big fireplace. Both grandmas helped with her buttons.

BURN OIL
SAVE MONEY
STAR OIL GAS BURNER
For cook stove or furnace. Heat as intense as city gas. Burns cheap engine distillate. No smoke, dirt or odor. Absolutely guaranteed. Agents wanted. Make money selling to friends and neighbors.
Star Oil Gas Burner Co.
Pasadena, Cal.

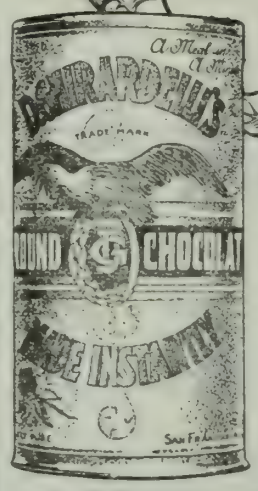
Four rounded tablespoonfuls Ghirardelli's Ground Chocolate; two cupfuls sugar; one cupful milk; butter the size of a small hen's egg; one teaspoonful vanilla; two drops lemon extract. Boil sugar, butter and milk until thick and add chocolate; cook until thread spins when tried; then add extract and take from fire, stirring until nearly cold or becomes sugary. Turn on a well buttered dish and cut in squares.

Ghirardelli's Chocolate Fudge

This recipe makes the best fudge you ever ate—This is but one of the dainty goodies that can be made with

Ghirardelli's
Ground Chocolate

Ghirardelli's Ground Chocolate is as old as the West. Its purity, strength and healthfulness is retained in hermetically sealed tins.



Ghirardelli's Ground Chocolate makes a beverage that is beyond compare. There is nothing so good—nothing so economical.

Order from your grocer to-day.

D. GHIRARDELLI CO.
San Francisco Since 1852 California

Chops and Cuts

For every hatchet use you will find one carrying the —STILETTO— trade-mark—which insures you a better article for your hatchet money.

There are no better edged tools made than —STILETTO— tools. They ring true, are guaranteed and give service that makes them the most economical tools to buy.

—STILETTO— goods sold everywhere—if you can't get them, write us.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

"Why-ee!" shrieked Sarabell, suddenly. Both old ladies jumped, and her mother came running from the pantry. "My pocket! Why, it's all wored out!" and she ran her fingers through the hole Mrs. Mouse had made, and turned her pocket up for all to see.

"I smell a rat," replied her mother, mysteriously, and her eyes twinkled.

Grandma Bell looked surprised. "Dear me! Dear me!" said she.

Grandma Sara chuckled.

Sarabell looked from one to the other, expectantly.

"I think a little mouse must have found something good in your pocket last night," explained her mother.

Sarabell hung her head.

"The next time," continued her mother, "I'm afraid she'll take pocket and all."

And that's exactly what she did. The night Sarabell took the largest piece of cake on the plate at supper, and, as she couldn't eat it all, tucked it into the newly mended pocket, Mrs. Mouse came again. And what happened always seemed very wonderful to Sarabell. For Mrs. Mouse not only ate the cake and pocket and all—but she sewed up the seam!—Clara A. Weeks, in the Continent.

DO WE SING ENOUGH?

A humorist, on being asked this question, replied: "Some people do; they may not sing a great deal, but it is certainly too much for the nerves of their neighbors!"

Seriously, however,—it may be said that we do not sing enough, and this is the point where we notice a distinction or difference of class. Poorer people and (speaking generally) those who have not been highly educated, sing much, and enjoy it. Others do not sing enough.

Singing strengthens us bodily; it is rather the province of the doctor to discourse on that result of singing, but it is sufficient to say that some of the ills from which we suffer would be less likely to afflict us if we made more use of the vocal capacity we possess.

Mentally, singing does us good; it makes us feel brighter, we can get through our work better (just as soldiers march better with than without the band), and even in our sad moments it makes us happier, because it allows us to give expression to our feelings. In this last case it affords the satisfaction we always feel when we can confide our troubles to some one else. Even if we merely hum a tune to ourselves we reap benefit; it is preferable to remaining silent. To hear a song in the house is like a tonic.

We want more of those singing societies which are to be found in Europe. The first step is to interest people in singing and encourage them to do it, and to do this should be the concern of the wealthier portion of our population. Never mind if they do not sing very well to begin with; that will come later. If we can sing more we shall all be the happier and heathier for it.

"You don't want to make any mistake about Philadelphia's being a slow town," said Dobbleigh. "No, sirree. I discounted a thirty-day note over there once, and thirty days pass just as quickly over there as they do here!"—Lippincott's.

"Mother," she began, "what does trans-Atlantic mean?" "Across the ocean," replied her mother. Then, "Does 'trans' always mean across?" "Yes, it does, always," and the mother added sternly, "If you ask me another question tonight I shall send you to bed!" The second silence lasted quite three seconds. It was broken at last by a plaintive, small voice which commented, "Then I suppose transparent means a cross parent!"

An old farmer, who had been a night in London, was describing the splendor of the hotel. "Everything was perfect," said he, "except that they kept the light burning all night, —a thing I ain't used to." "Well," said one, "why didn't you blow it out?" "Blow it out!" said the farmer. "How could I? The thing was inside a bottle!"

Her Price List.—Kind lady (to applicant): "I am sure you would learn to love my children." Nurse: "What wages do you pay?" Kind Lady: "$20 a month." Nurse: "I am afraid, ma'am, I could only be gentle with them at that price."—Tit-Bits.

Mistress—"I don't want you to have so much company. You have more callers in a day than I have in a week!"

Domestic—"Well, mum, perhaps if you'd try to be a little more agreeable you'd have as many friends as I have."—Philadelphia Inquirer.

The STEPHENSON PATENT COOLER
NO ICE REQUIRED.
Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.
L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

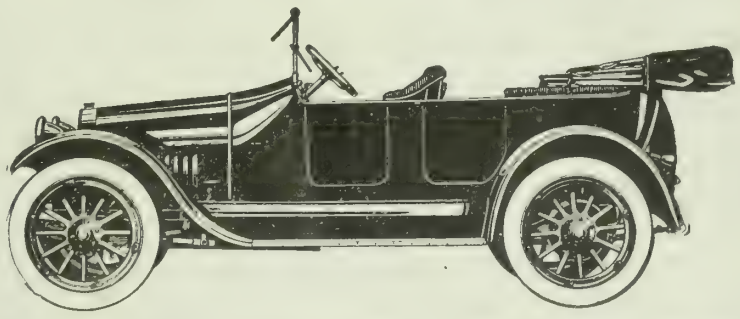
Rawleigh's WANTED A MAN
To retail Rawleigh Products, town and country. Some good old vacant territories. Largest and best line. One of the oldest and largest companies in the world. Six Factories and Branches. All Products supplied from new Pacific Coast Branch. Quick Service. Low Freight. We want only industrious men capable of earning $100 and up per month and expenses. Must have means for starting expenses and furnish Contract signed by 2 responsible men. Address W. T. Rawleigh Company, Oakland, Cal., giving age, occupation and references.

"The Farmers' Friend"

In Handy Buckets
Also Small Cans
Ask your Dealer

LADIES, you surely will ADMIRE this DAINTY little HAND-PAINTED and DECORATED SACHET PACKET. Just the thing for your dresser and lingerie. Take advantage of this special offer and enclose ten cents—stamps or coin—and get this little dainty by return mail. Cost you three times as much anywhere. Will also send you our valuable booklet FREE. It is something that you will really appreciate. WRITE QUICK—this offer will not hold always.
NORTON SALES CO., 5401 Carlton St., Oakland, Calif.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY
211 Crocker Bldg., S. F.
Circular containing 100 mechanical movements mailed free.

Mitchell
Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350

Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.
Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco.

SALT LAKE ROUTE
THE WAY TO THE EAST
BEFORE YOU GO EAST THIS SPRING
Please see a Salt Lake Route Ticket Agent and let him tell you about the excellent service to all points East of and including Salt Lake City.
Three daily trains have through standard and tourist sleepers to many points, and we are certain you will be well satisfied if you make the journey over the
SALT LAKE ROUTE
Any agent can give you full information. San Francisco Office is at 643 Market St. Phone Douglas 3614.

CALIFORNIA ORANGE DAY MARCH 20. EAT ORANGES.

It's SAFE SWIFT SURE To Travel On The
OAKLAND, ANTIOCH & EASTERN RAILWAY
Electric Service To and From Water Gate of
Exposition Grounds and Sacramento
CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.
Reduced Round Trip Rates From All Points Every Day During the Exposition
TICKET OFFICES:
Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

The Markets.

Unless otherwise noted prices are f. o. b. San Francisco.

San Francisco, Mar. 17, 1915.

WHEAT.

The selling movement has been renewed on outside markets, with less demand, and there is an easy feeling everywhere. Northern bluestem and red varieties are lower here, and other lines, though without quotable decline, are weak.

Cal. Club, ctl	$2.40@2.45
Forty-fold	2.50@2.55
Northern Bluestem	2.45@2.50
Northern Club	2.40@2.45
Northern Red	2.45@2.50

BARLEY.

The local market is dull, with little shipping demand, and only hand-to-mouth buying of feed. Sellers have shown willingness to make concessions, and both grades are a little lower than last week.

Brewing and Shipping	$1.40@1.45
Choice feed, per ctl	1.37½@1.40

OATS.

No change is noted in quotations, the demand being closely restricted, while offerings are ample for all requirements.

Red Feed	$1.55@1.60
Seed	1.80@1.90

CORN.

The easing of other grains has caused rather less interest in corn, though there is still a fair demand for most varieties. Good California yellow moves readily, but most offerings are off grade, and a good deal of other inferior stock is offered.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.85@1.90
Milo Maize	1.75@1.80

BEANS.

Inquiries show a further dropping off this week, and the shipping movement is very light, as current needs have been provided for rather generally throughout the country. While supplies are not large for this time of year, there is still quite a lot of most varieties on hand, and the slow movement has resulted in an easier feeling, with a slight reduction of prices from last week's level.

(On wharf.)

Bayos, Cal., per ctl	$5.10@5.25
Blackeyes	5.50@5.60
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	5.10@5.25
Large Whites	4.90@5.00
Pink	4.00@4.25
Limas	5.50@5.65
Red Kidneys	5.25@5.50
Mexican Reds	4.75@5.00

SEEDS.

Alfalfa remains quite strong with supplies cleaning up, but the season is about over and a little more demand is expected. Other lines are quiet and unchanged.

Alfalfa	17 @18c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Local offerings continue to increase, and a large part of the arrivals are said to be coming on consignment, being forced on the market at more or less concessionary prices. Arrivals have been especially large from the Hollister district, where some large lots have recently been bought for this market. The fact that these large offerings can be disposed of at all would seem to indicate some improvement in the local demand, though dealers report a very dull and unsatisfactory market. There seems to be little business in the country at present, though there is considerable effort to sell both grain hay and alfalfa.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@. 900
Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

The market is quiet in most lines, as the abundance of green feed tends to curtail consuming requirements, and the easiness of prices prevents purchases beyond actual needs. Bran shows another slight decline, and cracked corn is $1 per ton lower.

Alfalfa meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	28.00@29.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	34.00@35.00
Rolled Barley	31.00@32.00
Rolled Oats	35.00@36.00

VEGETABLES.

The general situation shows little change, the steady increase of supplies in some lines being offset by the improvement of quality in others. Asparagus is now arriving in rather large quantities, and ordinary stock sells as low as 6c; and green peas, which have been doing fairly well, have also dropped sharply in the last day or so. Local bell peppers are lower, with Florida and Mexican selling at the top figure. Southern tomatoes are doing better, while light offerings from Alameda county and Mexican stock sell at $5 and over per crate or lug. Southern eggplant shows a wider range. Rhubarb is considerably lower, as there is plenty arriving from various sections; while lettuce is a little higher.

Artichokes, doz., No. 1	50 @60 c
No. 2	40 @45 c
Asparagus, lb	6 @12 c
Peas, lb	4 @ 9 c
Peppers, bell, lb, large	15 @20 c
Tomatoes, crate	1.50@2.00
Celery, crate	2.25@3.00
Sprouts, lb	3 @ 5 c
Rhubarb, crate	1.00@1.75
Lettuce, crate	1.50@2.00
Cucumbers, doz	90 @1.10
Eggplant, Southern, lb	15 @30 c

POTATOES AND ONIONS.

Oregon potatoes have stiffened up a little, Salinas and river stock standing as before. Few new potatoes are offered as yet. Good onions are getting rather scarce, and prices show an upward tendency, while local garlic is very scarce and high.

Potatoes, Oregon, ctl	$150.@1.65
Salinas, ctl	1.40@.150
River Burbanks, ctl	1.10@1.25
New Potatoes, lb	4 @5 c
Sweet Potatoes, ctl	2.25@2.50
Onions, yellow, sack	70 @1.00
Garlic, per lb	17 @20 c

POULTRY.

While prices have not quotably improved, the market shows a much better tone, with some improvement in demand, and lighter offerings than for some time past. All arrivals have cleaned up readily for the last few days, especially of young stock.

Live Turkeys, lb	17 @19 c
do, dressed	18 @21 c
Broilers, small	25 @27 c
Fryers	19 @20 c
Hens, extra, per lb	18 @19 c
Small Hens, per lb	17 @18 c
Young Roosters, per lb	17 @18 c
Squabs, per doz	$2.00@3.00
Geese, per pair	3.00@3.50
Ducks, doz	6.00@9.00
Belgian Hares, live, lb	8 @10 c

BUTTER.

Local business is quite active at present, but arrivals have been very heavy, and with no shipping demand from other markets it is impossible to keep stocks from piling up. Prices accordingly show a gradual decline.

	Thu.	Fri.	Sat.	Mon.	Tu	Wed.
Extras	24½	24	23½	23½	22½	22
Prime	23½	23½	23	23	22	21½
Firsts	23½	23½	22½	22½	21½	21

EGGS.

Extras remain on about the same level as last week, which is practically the same as a year ago. Arrivals are heavy, but so far they have been fairly well absorbed. Pullets are slightly higher, as the retail demand has turned rather strongly to that grade.

	Thu.	Fri.	Sat.	Mon.	Tu	Wed.
Extra	20½	20½	21	21	20½	20½
Sel. Pul.	18½	18½	18½	18½	18½	18½

Removal Notice!

After April 7, 1915, our offices will be in the Insurance Building, California and Battery Streets, San Francisco, California.

California Almond Growers Exchange.

CHEESE.

Offerings in all grades have been considerably above current requirements, and the accumulation of a surplus has brought a rather sharp easing of prices on flats and Y.A.'s. Monterey cheese is higher than last week, but is still very low.

Fancy California Flats, per lb	10c
New Young America, fancy	12½c
Monterey Cheese	12@13c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu
Butter	24	24	24	24	22	22
Eggs	19½	19½	19½	19	20	21
Cal. Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

California apples are little more than nominal at present, as there is hardly any demand, though stocks are heavy. A few crates of strawberries appeared a few days ago, but the berries were green and brought rather poor prices for the first of the season.

Strawberries, crate	$2.00
Apples, Newtown Pippins	40@80c
Belleflowers	25@50c
Baldwin	50@75c

DRIED FRUITS.

Some interest is taken in reports from the east of transactions in future prunes at 4c, but prune deals at this time of year are little more than a gamble, and cannot be regarded as setting a standard of prices. The spot market is rather quiet, probably owing to the cleaning up of odds and ends by small packers, the underlying condition being quite firm. The export trade in general is still quiet, but more business is expected before long. Some local business has been done in peaches, but there is no shipping demand worth mentioning, and a good many holders seem anxious to sell. In other lines the local market is firmly maintained, with limited offerings, though the eastern demand in all dried fruits is very slow at present. The New York Journal of Commerce says:

There is understood to be a considerable quantity of stock en route or to come later via the Panama Canal, and as some holders of spot goods are beginning to find their holdings somewhat burdensome they are making concessions in order to move them quicker into consuming channels. Consequently spot prices are an eighth to a quarter of a cent lower than a week ago on even the more popular sizes of California prunes, and a similar reduction in quotations has been made by some holders of spot peaches, the reported export inquiry for goods of that kind to be shipped from New York not seeming to have materialized. East Side consumers are buying more Oregon Italian prunes in a small way and the market consequently has a firm tone. There is little stock in this variety offered for shipment from the Coast. Apricots are not wanted to any extent by local buyers, but stocks are not being urged and prices are held well up to the quotations.

California seeded and loose raisins are seasonably dull, and while in some quarters prices might be shaded a little to effect a quicker turnover of stock the general tone of the market is steady, in sympathy with advices from the Coast.

Evap. Apples, 1914	5½@6 c
Apricots, 1914	6 @9 c
Figs: White, 1914	3 @3½c
Black	2½@2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	5½@6½c
Peaches, new	3 @4 c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction markets early this week showed from 10 to 20 cents per box advance on both oranges and lemons. At New York auction Monday, Mch. 15th, 23 cars of navel oranges were sold at prices averaging from $1.50 to $2.50 per box. Lemons averaged from $2.10 to $2.35 per box. On the same date at Boston, prices were a trifle lower, averaging from $1.50 to $2.35 for navels.

Shipments from southern California are going east at the rate of nearly 200 cars daily, and the quality of fruit is of the best. Up to Mch. 15th, there had been shipped from that section for the season 10,721 cars of oranges and 1369 cars of lemons.

All citrus goods are finding quite a heavy demand in the San Francisco market this week, and fancy offerings in some cases bring a little better prices, though the demand is mainly for a medium-priced line of fruit. The best oranges are held at $2.10, but do not move very readily; while large grapefruit from the Highland district, which is now arriving freely, brings as much as $3.75 per box in some cases.

Oranges, navel, box	$1.00@2.10
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx.	1.50@2.00
Fancy	2.50@3.75
Lemons, box	1.50@2.50

NUTS.

Values stand nominally as before, with comparatively little business, most California offerings having been disposed of. Almonds find little demand, but there is considerable inquiry for good walnuts.

Almonds, 1914 crop:	
IXL	16½c
Ne Plus Ultra	15½c
Drakes	14 c
Texas Prolific	14 c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½@14 c
Manchurian	7 @ 9 c

HONEY.

A few sales are reported of late, but they were not of sufficient volume to make any impression on the local offerings, and are said to have been at very low prices. Most of the stock is still held at about the old quotations, but concessions would no doubt be made on any large sales, as holders are anxious to sell.

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	6½@ 7 c
Light Amber	5 @ 5½c
Dark	3½c

LIVE STOCK.

Sheep continue very firm, with light offerings, and both wethers and ewes are considerably higher, while yearling lambs show no further change. Suckling lambs are beginning to come in, and bring from 8 to 9c per lb. Beef cattle are still coming in freely, but prices hold up fairly well.

Steers, No. 1	7 @7¼c
No. 2	6¾@ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½@ 5¾c
Bulls and stags	4 @ 6 c
Calves: Light	9 @ 9½c
Medium	8½@ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7 c
100 to 225	7½c
Prime Wethers	7 @7½c
Ewes	6 @6½c
Yearling Lambs	7¾@8 c
Suckling lambs	8 @9 c

DRESSED MEATS.

Steers	10¾ @ 11½c
Veal, large	13½ @ 14 c
Small	15 @ 15½c
Prime Wethers	13 @ 14 c
Ewes	11½ @ 12 c
Yearling Lambs	14 @ 15 c
Suckling lambs	18 c
Hogs	12 @ 12½c

WOOL.

No definite prices have yet been established for the spring clip in California. Dealers say that business has been held up by growers' holding back for more than the wool is worth at present, and that the renewed import movement has eased the situation greatly.

HOPS.

Spot business is now rather quiet, owing to the absence of large offerings, though the demand remains fairly strong. Some new-crop contracts are still being made, and such business is reported in Mendocino at ½c advance over the recent prices.

1914 crop, lb	11@13c
1915 crop	12@12½c

Publisher's Dep't.

A new book of interest to breeders of farm animals has just been issued by the J. B. Lippincott Company of Philadelphia. The book is entitled "Productive Feeding of Farm Animals" and is written by F. W. Woll, Ph.D., Professor of Animal Nutrition, University of California. The author is splendidly qualified for writing the book, through his years of study and demonstration in Wisconsin before coming to California, and the work since done at the U. C. Farm at Davis and over the State. California breeders will find lots of local interest in the work besides more widespread information. The book is handsomely illustrated and bound in cloth, contains over 350 pages and many illustrations; contains chapters on principles of feeding farm animals, description of feeding stuffs and concentrates, productive feeding of farm animals of all varieties, besides a valuable appendix made up of feeding charts and tables. This work has long been neeued in the west and we believe will become the standard work in its line.

Two hundred and forty-nine new paid subscribers were added to our lists during the past week, practically all being California farmers. Mr. Knox led the other field men by securing 68, and Mr. Pearson came second with a list of 48.

Orders for books keep coming to us from all over the world. Of course our "California Fruits" leads the others, being better known outside the State. "California Garden Flowers" will, we think, soon be the greatest seller, as it seems to have been made to fill the demand for a book detailing the work in California gardens.

Our old friend, H. W. Crooks of Los Angeles, called at this office early in the week to talk over plans he has in mind to improve the "Fruit World," of which he recently became the business manager. Mr. Crooks expects to improve that journal and make it a worthy market representative of the fruit interests of the southwest. He has a good field and we believe the ability to build up a strong paper.

THE easiest way to increase an income without greatly increasing cost is by raising the margin of profit by producing products of high quality, marketing them at the right time, at the right market, and in a neat and attractive manner. Co-operation in marketing is another way of adding to your profit.

CHOPPED ALFALFA FOR SHEEP.

To the Editor: Please answer the following questions in your paper: What kind of sheep would you advise raising where one is raising lambs for the meat market only? At what age should the lambs be sold to bring the best prices, and can you figure on an average of one lamb to the ewe? Is chopped alfalfa hay considered a good feed, where it is fed the year round with very little pasture; also how much chopped hay will a sheep consume in one year?—G. S.

[The first part of your question was covered in the answer to "Orange-Grower's" query in last week's issue of the Press on page 340.

The lamb market is usually higher around Easter, and for that reason, most mutton growers aim to market their lambs at that time. To do this, the ewes should lamb around December 1, making the lambs about four months old.

We do not know anyone who has fed chopped alfalfa hay, but do not believe that it would take the place of pasture entirely. Corn silage would be most apt to do this, owing to the fact that it is succulent, and with chopped alfalfa hay to furnish roughage, the two would probably be satisfactory. We do not know how much chopped hay a sheep will consume, as experience along this line in California has been very limited, owing to the range conditions under which most of our sheep have been grown. If properly cared for, the percentage of lambs should be one lamb to the ewe or more, on the small or moderate sized farm. Under range conditions, 85 to 90 per cent is usually considered good. Care and shelter at lambing time are compelling influences in the percentage of lambs raised.—Editors.]

LIVE STOCK CONVENTION.

The Eighteenth Annual Convention of the American Live Stock Association will be held in Hall A, Exposition Memorial Auditorium, San Francisco, on March 24, 25, and 26. The program in part is as follows:

First Day.

Wednesday, March 24, 10 a. m.

Annual Address of President.

"Financing Our Cattle Paper," Julian M. Bassett, Kansas City, Mo.

Address, Louis W. Hill, Pres. Great Northern Railway.

Second Day.

Thursday, March 25, 10 a. m.

"How the Forest Service Has Helped the Stockmen," A. F. Potter, Associate Forester, Washington D. C.

"Grazing in Arid States," Hon. Wm. Kent, Washington, D. C.

"The Relations of the Carriers to the Live Stock Industry," F. S. Brooks, Gen'l Live Stock Agent, Santa Fe System, Kansas City, Mo.

Address, S. H. Cowan, Att'y, Amer. Nat'l Live Stock Ass'n., Fort Worth, Texas.

General Discussions — "Railway Service and Railway Rates."

Address, Prof. Gordon H. True, University of California.

"Live Stock Conditions in South America," Luis Vernet Basualdo, Sec'y General and Live Stock Comm. of Argentina.

"Relations of Cattle Raisers' Association of Texas to American National Live Stock Association," J. D. Jackson, Pres. Cattle Raisers' Ass'n of Texas.

Third Day.

Friday, March 26, 10 a. m.

"The Foot and Mouth Epidemic," Dr. R. H. Treacy, Bureau of Animal Industry, Washington, D. C.

"The Live Stock Industry in Russia," Dr. C. C. Young, Russia.

A little 20 h. p. track-laying type of tractor made in California, has hollow cylinder bushings for the driver cog to work on. The ends of these bushings are made alike so that when the top and front sides of the bushing are worn, it can be turned end for end and upside down so that its working life is doubled.

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING pays big. Price list bees, instruction books, etc., free. Spencer Apiaries Co., Box 12, Nordhoff, Cal.

WANTED.

EXPERIENCED, practical ranch manager wants management of ranch for owner. Raised on California farm. Graduate University of California College of Agriculture. Much practical work throughout State. Age 26. Married. Dairy cattle, hogs, alfalfa and grain farming preferred. State proposition and I will see you. Box 45, Pacific Rural Press.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

WANTED—Position as superintendent. Advertiser has had many years of practical experience in orchards, vineyards, dairy and alfalfa farming, with all kinds of labor. References. P. O. Box 241, Modesto, Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

RHUBARB PLANTS—Now ready and going fast. Never has there been a better season for planting Latest developments have perfected eastern marketing and Rhubarb has stepped into the first rank in commercial importance. Correspondence solicited with intending planters. Starting right is more than half of success. Get my new book, "Winter Rhubarb, Culture and Marketing." Will send a copy free to all who purchase plants. Selected Plants—all No. 1 size. Burbank's Crimson Winter, 75c per doz.; Wagner's Giant, $1.50 per doz. Quantity prices on application. Reginald Bland, San Luis Rey, San Diego Co., Cal.

GENUINE BURBANK Spineless Cactus. Large mature slabs, $15 per 100. On cash orders placed in March to be shipped in April or May 20 per cent discount. Address DARROW-WINCHESTER CO., 1605 Telegraph Ave., Oakland, Cal. Satisfaction guaranteed.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

CLING PEACHES in quantity, 3 to 4 feet at 15c. Also Lovell and Elberta, 4 to 6 feet at 10c; 3 to 4 feet at 8c. We have a full line of fruit and ornamental trees. Price list free. Turlock Nursery, Turlock, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

ALFALFA HAY FOR SALE—Several hundred tons of clean, leafy alfalfa must be sold at once. This hay was not wet by early or late rains, is properly cured and free from weeds. For particulars, write V. L. Wiser, Manager Sunset Ranch, Gridley, California.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

FOR SALE—One thousand fine stocky San Jose Mayette Walnut trees on California black root. Four to eight feet. Scions direct from Wilts orchard at San Jose. Price very reasonable. Address Chas. Story, Rivera, Cal.

GRAFTED FRANQUETTE WALNUTS—Our nuts bring $100 more per ton than the best Santa Barbara seedlings, and our Royal root grows 50 per cent faster than the average California root. It took us ten years to develop this combination. It is at your immediate disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D. 7, San Jose, Cal.

RHUBARB PLANTS—Now ready. Burbank's Crimson Winter, 75c per dozen. Wagner's Improved Giant Crimson Winter, $1.50 per dozen. Quantity prices on application. "Do it now!" Reginald Bland, San Luis Rey, San Diego County, Cal.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

SOUDAN GRASS SEED—Grown in Southern California. Absolutely free from Johnson Grass. 45c per pound; $40 per 100 lbs. F. O. B. Santa Ana. C. E. Lewis, R. 5, Box 52A, Santa Ana, Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color. 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

SOUDAN GRASS—Send for circular, free sample seed and lowest possible prices. Will take produce. Address C. Ullery, Lubbock, Texas.

SOUDAN GRASS SEED—The wonderful new forage Reliable seed. Reasonable prices. Responsible grower. T. W. Buell, Krum, Texas.

BURBANK SPINELESS CACTUS—$100 per 1000; $15 per 100, 20c small lots. E. E. Guilbert, R. 4, Turlock, Cal.

NURSERY STOCK—Navel Oranges, Valencia late trees. Seedless grapefruit. Reasonable prices. K. Matsuoka, Sanger, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

HIMALAYA BERRY VINES—One year old. $1.25 per dozen. $10 per 100 F. O. B. Sunnyvale. A. Cooley.

RHUBARB—Crimson Winter, $3 per 100. Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

WALNUTS—Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

BELGIAN HARES.

FIR CRAGS RABBITRY—Fine breeding stock. Box 263, Sonoma, Cal

MISCELLANEOUS.

BUILDING MATERIAL—New and Second hand. Specials to make room: 50 restaurant booths; leaded glass complete with portieres; 3 large oak cabinets, 1 mahogany bookcase—the above are bulky and we will sacrifice for quick sale; 67 mantels, mirrors complete, $5.00; 1,000 square feet prism glass, 25 cents per foot; 50 medicine chests, $2.00 each; second-hand doors, windows, fittings, pipe fixtures, basins, tubs, toilets, all at reduced prices; 50 porcelain bath tubs, $11.50 each, new; new perfect nails, $2.20 base, slightly rusty, $1.75; deadening felt, 3c per pound; 1,000 feet building paper, 85c; ready roofing, $1.25, best on market; roofing felt, vermin-proof, for chicken houses, 2 cents per pound; 500 feet chicken netting, $1.75 per roll; barb wire, 100-pound rolls, $2.75; hog wire, 25 cents. Plumbing, $32.50, Special combination. New low tank, post hinge seat toilet, perfect, basin corner or straight back, 5 foot roll rim tub. Lumber, $7.00 M; new and second hand, 3,000,000 feet to select from, all prices; anything in the building line we have; prices always the lowest, considering grade and your assurance of satisfactory stock; we guarantee all sales, back of which is our reputation for maintaining the largest and most complete yards, full count and general satisfaction. Call or send list of what you want. Symon Bros., Wreckers, 11th and Market Sts., San Francisco, Cal.

PARTIES ON RANCHES who are producers of selected choice fruits, vegetables, table poultry, etc., who might be interested in marketing their products direct to consumer on a profitable basis, should address F. L. Darrow, 1605 Telegraph Ave., Oakland, Cal.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

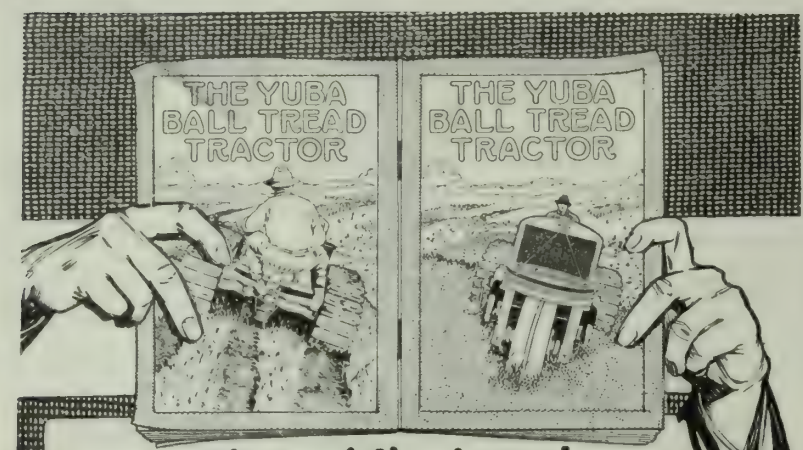
CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

ALL FARMERS—Something every farmer needs daily. You cannot get along without it. Particulars free. Write today. Western Supply Co., 320 Market, San Francisco.

FOR SALE—One model No. 7 Simplex Turbine Separator and all equipments. All in first-class condition. Write Pitcher, Pedrini & Kimball, Occidental, Cal.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.



scientific buying

Big, carefully managed corporations that spend hundreds of thousands of dollars annually for mechanical equipment never purchase a single type of machine without first thoroughly investigating every make on the market.

We believe the farmer should manage his farm as carefully as any big corporation—that he should invest in, rather than buy, farm equipment.

THE YUBA BALL TREAD TRACTOR

The automobile has supplanted the horse and buggy as a means of getting to town. The tractor is rapidly taking the place of the horse in heavy draft work on the farm and along the road.

Selling off the horses and buying a tractor to replace them is a big step. It should be made carefully.

We have boiled down every bit of information regarding The Yuba Ball Tread Tractor, its uses and construction, into twenty-four pages of pictures and plain English. It will help you in gathering data regarding tractors.

For convenience use the coupon.

- - - - - - - - - - - - Cut Here - - - - - - - - - - - -

THE YUBA CONSTRUCTION CO.
433 California St., San Francisco
Dept. C 16

Gentlemen: Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor."

Name..... *P. O. Box*.....

Town..... *State*.....

Size of Farm.....*Acres.* *(Check main crop raised.)*

Fruit ..... *Rice* .....
Grapes..... *Alfalfa* .....
Grain ..... *Hops* .....
Hay ....

"One Thousand Questions in California Agriculture Answered"

By E. J. WICKSON, A.M.,
Professor of Horticulture, University of California; Editor of PACIFIC RURAL PRESS; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

This, the latest work of the author, consists of 1000 of the most important questions on every subject that have perplexed the farmer during the last few years, and which have been submitted to the editor of the Pacific Rural Press.. In this book, the problem appears with its solution by Prof. Wickson immediately following.

The answers to these questions are of vital importance to every farmer, no matter in what branch of farming he is engaged, and the comprehensive index enables the reader to find the subject which interests him without delay.

The departments of the book consist of the most important problems that have confronted our readers in Fruit Growing, Vegetable Growing, Grain and Forage Crops, Soils, Fertilizing and Irrigation, Live Stock and Dairy, Diseases of Animals, Feeding Farm Animals, Poultry-keeping and Pests and Diseases of Plants.

"ONE THOUSAND QUESTIONS IN CALIFORNIA AGRICULTURE ANSWERED"

is undoubtedly the best reference book, written by the highest authority on the matters treated, that has ever been published, and should be in the hands of every California farmer.

Contains 256 pages. Handsomely bound in cloth.

PACIFIC RURAL PRESS, Publishers
Price, $1.50, Postpaid.
525 Market Street, San Francisco, Cal.

Clear Your Land in Spare Time

This Krupp steel wonder weighs only 171 pounds

You don't need horses or crew of men—no powder, no digging, if you have a "K" HAND-POWER STUMP PULLER

Will work on any kind of land, no matter how hilly or how wet. Has sufficient power to break any inch steel cable. You alone can do all the work and move the machine without help. Has two speeds—high speed for light work and power speed for heavy work. Has no chains on it to bind or break. One man developes 26,000 pounds on straight pull—96,000 pounds with two blocks. Complete outfit, including 200 feet of flexible English steel cable. No extras to buy. Used by U. S. Gov't in Alaska, and by many States and Counties. **Write today for my Big New FREE Book on land clearing and get Special offer that saves you agents commission.**

WALTER J. FITZPATRICK
BOX 32, 1926 SECOND AVENUE, SEATTLE, WASHINGTON

SURFACE IRRIGATION

PIPE *"BUILT TO LAST"*

Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—ABSOLUTE PROOF AGAINST LEAKAGE.
Write for illustrated price list. Phones: Home F1088, Sunset Main 3141.
Manufactured by

CALIFORNIA STEEL CEILING COMPANY
Eighth St. and Santa Fe Ave., Los Angeles, Cal.
Also Manufacturers of Galvanized Iron Tanks.

Cut your grease bill in two. You use only *half* as much

MICA AXLE GREASE

as you do other kinds. It's the ground mica that does it. Resists heat and wear—the grease lasts twice as long. No scored spindles. Dealers everywhere.

Standard Oil Company (California)
San Francisco

Vol. LXXXIX—No. 13 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, March 27, 1915 LOS ANGELES

State Library 2-1-16

Uses of Yardstick in Orchards.

[Written for PACIFIC RURAL PRESS.]

"We came from the East determined to find the best place west of the Rockies, to settle on a farm, and live the rest of our lives in content and happiness. We stopped at several places in California and Oregon, but were never satisfied until we came to this part of Sonoma county. Isn't it beautiful to look out over these sloping hills and valleys all covered with berries, fruit and homey homes! And is anything more delightful than helping things grow, and seeing them respond to your touch! Plants do not have moods; if they are not acting right, you may know that you have not given them what they need." Thus spoke Miss Vida R. French, graduate of agricultural colleges in New York and Wisconsin, crippled by an overturning stage in Yellowstone Park, but ably managing 77 acres where she lives with her mother and father, the latter a San Francisco pastor, who retires to the beautiful orchard home for his study.

"Berries between apple trees is not a good plan because the extra cost of handling takes all the profit."

"It is far better to hoe around trees in order to avoid injuring with plow or cultivator."

Uses Yard Stick in Cultivation.—"When we first came to the place, we hired the cultivation done. I told the men to plow the apple orchard ten inches deep, and when they said they were, I took a yard stick out and measured it. They shamefacedly admitted they had been mistaken, and I insisted that they plow the full depth. Not, however, ten inches deep near the trees, but grading up to about six inches for the first two or three furrows, using a single horse for the round next to the trees. We plow the dirt away from the trees one year and toward them the next, but we do not plow twice in the same spring any more as we used to, and as many of our neighbors do yet. This is because we now grow cover crops of bur clover, rye, vetch, field peas, etc. We turn them under during March and even as late as early April, and can scarcely plow again right away on account of pulling the vegetation out.

Plow Instead of Irrigating.—"We used to have gang plows, but found that they would not go deep enough, six or seven inches seeming to be their limit. We have a team of our own now, besides hiring others. Our hired teams plow a little less than an acre a day of eight hours with two horses and it is very hard to get them to plow over six inches deep. We work our own horses no harder than we ought to, yet we get an acre a day to the full depth—more plowing if the soil is not too dry or hard. We insist on the deep plowing in order to create a reservoir to hold the winter rains, because we have no irrigation."

(Continued on page 393)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertisements must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., March 23, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.18	38.07	36.89	70°	40°
Red Bluff...	0	28.28	20.40	82	46
Sacramento.	0	12.76	16.21	82	50
S. Francisco	0	20.80	18.86	81	52
San Jose....	0	17.54	14.01	84	42
Fresno.....	0	8.70	7.88	84	48
Indep'nd'nce	0	2.84	7.72	76	..
S. L. Obispo.	0	23.00	17.08	86	44
Los Angeles.	0	14.75	13.30	86	52
San Diego...	0	12.75	8.49	84	52

The Week.

The Panama-Pacific is making good, all right. Two and a third millions of people pushed their tummies against the turn-stiles during the first thirty days, and the official figures are beginning to read like a European war report. And what fun and enlightenment in our reports as against the European shadows, which seem to be continually deepening and lengthening. Californians are surely getting the Exposition habit and the throngs of distance-killing visitors are multiplying. Our lady friends tell us that it is hard to get a hearing in their accustomed shops, because there are so many strangers buying hats, gowns and shoes for Exposition joys. Everybody seems to be resolved to buy after arrival to be sure, to get just the right thing. San Francisco's leadership as a fashion-setter for the Pacific Coast, at least, never seemed so well assured. And some of the continent-crossers are saying that our shops are even better than those of London and Paris! Think of that, you discontented natives: will it not cheer you up to have the enchantments of distance coming our way?

Orange Day, on March 20th, made its mark. Many Southern Californians loyally upheld their citrus leadership and aided notably in the observance of the day. Spectacular incidents were not wanting. The wonderful electric engineering even dyed the sky an orange hue at nightfall, and though we must admit that it more closely resembled the russety gold of the Floridan than the clear gold of the Californian, it was recognized as orange and was hailed with enthusiasm as its broad bands shot skyward from the apex of the "tower of jewels." And Orange Day was also Flower Day, because of the display of the city florists' society in the Palace of Horticulture. And then, do not forget Ripe Olive Day on March 31st. The coincidence of fruits and flowers may be expected all through the summer and autumn. Not only will the outside world learn our glories in these lines: there are many Californians who know but imperfectly what California can do, and the Exposition will engender admiration abroad and contentment at home. Philosophers have said that these two things do not go together with people, but we are sure they will work wonders for the advancement of a State.

The Times Are Improving.

Perhaps the gladness of the Exposition can gild the outlook for even such forlorn people as the financiers. If so California will do a good thing for the whole country, just when such a thing is most needed. We had not credited California buoyancy, optimism and confidence with such wide national service, but perhaps such a claim is justified—especially when distant affairs are really good, and it only needs the glow of the Exposition to reveal them. Take, for instance, the opinion of George McC. Reynolds, president of the Continental and Commercial National Bank of Chicago, a director in a score of other financial corporations, a member of the National Monetary Commission to Europe in 1908 and named for the portfolio of Secretary of the Treasury by President Taft. Such a man must have his financial conscience with him when he travels, and when he was in San Francisco the other day he said:

"There has been a great improvement in the business and financial situation in the country. We have passed through the first shock and panic of the European war. The financial situation between America and Europe has been adjusted pretty satisfactorily. Conditions are such at present that we ought to progress steadily to a better financial and business status. The banks are accumulating much surplus capital and they want an outlet for it. There is now sufficient accumulation of capital to start new enterprises when normal conditions are restored."

Judging by the way we see people acting at the Fair, it will surely restore falling hair or dimming eyesight or drooping spirits. It will also restore normal conditions in the heart of a financier, for that does not require him to be very joyful. It only needs to shake the blues out of him and leave him white: it is too much to expect to see him rosy. California has done that for the finances of the country before now, without trying half as hard as it now is through the Exposition. The times surely are getting better.

Meat from Range and Farm.

On another page we have some quotations from the presidential address of H. A. Jastro at the opening of the convention of the American Live Stock Association in this city during the current week. Our live stock reporter also gives other statements about the convention so far as it had proceeded up to the hour of going to press with this issue. Other important affairs will be noted later. In reading the paragraphs from Mr. Jastro's address, one must remember, of course, that he is discussing the questions of meat supply and trade from the range point of view—that is, production under conditions quite different from those which prevail on farms and disposition of the product under conditions rather more exacting. Of course, when he speaks of conditions of supply and outlook for exportation there is a general application to all meat production, for prices will be affected to some extent, but it is very easy to see why range beef-production might languish and at the same time farm production be very satisfactory and profitable—in fact, to put it extremely, it might be very strongly argued that as range production languishes farm production will advance. We do not emphasize that contingency, however, because we do not believe it will arise for some time, if ever, and we do not desire it to arise. There are other facts which would make it very safe and profitable to keep animals on farms as a part of mixed farming, even if large ranging should come to very close figuring. These include the independence of transportation problems, which inheres in animals on foot: the advantage of local markets which are always improving in our centers of population; the cheap feeding which is comprised in part of crop-wastes; the constantly increasing value, either for home use or sale, of the fertilizer by-products of animal feeding of all kinds; the small labor-outlay required by stock in fenced pastures, etc. All these things which are either burdensome or absent in stock-ranging are to be counted as resources in stock-farming, and may cause a market value to net a loss to one and a profit to the other. Therefore, the great uncertainties which lead Mr. Jastro to take not a very rosy view of the outlook for the range do not cloud the prospect for stock on farms, but may mean the brightening of it. For it must only be a question of time when ranging on non-owned lands will give place to stock-farming—even though it may be a considerable interval, for the reasons which will be cited in connection with the next topic below.

Stock-ranging is big business, and it has many difficulties which other forms of big business have freed themselves from. It is up against transportation unfairness, high rates of interest, excessive exactions by middlemen and uncertain tenure or costly conflict over pasturage, and other conditions which it can not at present control, and therefore co-operative strength, such as is manifested by this week's convention in this city, must be put forth. The range interest has our fullest sympathy and interest in its undertakings, for it is making a gallant fight to maintain itself while it is feeding the people and building up the country. It is making a market for the product of prepotency of better animals, which our breeding farms are putting out, and by so doing it is not only improving the edible meats of the country, but is preparing a better foundation stock to be the basis of the stock-on-farms industry, which will constantly advance in this country. For a time longer, then, the open and enclosed pasturage indus-

SOME STYLE ABOUT OUR FLOWER-BOOK.

"California Garden Flowers" commands my admiration; it is so unique in plan, so delightful in literary form and charm, and so altogether winning. I congratulate you for such a success from several different points of view."—Rev. Dr. E. C. Ray, Santa Barbara.

tries will be complementary, and while we would empasize the greater permanence and surety of the farm phases of meat production for those who have land, capital and knowledge to pursue it profitably, there is full appreciation also for those who wisely promote and gallantly defend the great industries of the open ranges.

State Marketing.

Of the several propositions for the intervention of the State between producer and consumer for the benefit of both, that fathered by Assemblyman McPherson of Santa Cruz seems to have the right of way so far in the Legislature. McPherson claims a certain amount of support for it by the governor, and certainly it did well to get out of the agricultural committee of the Assembly with a favorable recommendation. It was amended to meet the suggestions of the State Board of Control, its original appropriation of $150,000 was cut to $25,000 and the proposed commission membership decreased from three to one. Otherwise the bill was reported as originally introduced. It now goes to the committee of ways and means as all bills making appropriations must do. Mr. McPherson explains that his measure contemplates that the State shall enter into competition with the commission men in the hope of decreasing the price paid by the consumer for numerous food commodities. It looks to us as though the bill had been so pared down in working force and funds that it could not do much. But if it only provides an expert energetic man to find out whether the trade is fair and reasonable now or not, and, if not, to give some definite facts upon which later action can be had, it may be worth what it costs and more.

Ranges and Farms.

Range men are not a very chummy lot, except when they assemble in conventions. They enjoy neighbors all right—on a long-distance telephone wire. They like to be monarchs of all they survey, but they do not care about too close surveying. It is only natural, then, that when Uncle Sam proposes to locate settlers on cosy little ranges of 640 acres, because the former homesteads of 160 or 320 acres are not large enough to swing a calf by the tail, we find President Jastro saying this: "On the vast majority of the remaining public domain a homesteader cannot make a living on 640 acres. In fact there are millions of acres of government land in the West on which it would take a most experienced stockman with considerable capital to succeed on five or even ten sections." And we believe that what Mr. Jastro says is true. The almost nervous haste of reformers to stake out settlers on land which is not fit for farming has resulted in great suffering and hardship. Mr. Jastro gives these figures for it: "There are now approximately 300,000,000 acres of unappropriated unreserved public lands outside of the National Forests. Only a small fraction thereof has any agriculture possibilities, and under this bill, The Secretary of the Interior 'shall not designate for entry land of which, owing to its general character or general conditions, in his opinion, 640 acres clearly will not support a family.' In my judgment it is not likely that more than 20,000,000 acres will ever come under the provisions of this bill, if finally passed, and that is less than 7 per cent of the remaining public domain." The range interest declares itself in favor of such a bill—providing settlers are only set on land of which 640 acres will support a family, and that is right. But to go farther and encourage people to take chances on land which cannot possibly do that, under present conditions, is inhuman. Many of the present problems in connection with such land cannot be settled for a generation or more. Let the government hold such land for the present; let it lease it in tracts favoring the range industry; let it police the open range so that all interests can live together without conflict; let it drive away the map-makers, subdividers and speculators until it can make demonstrations that their operations may be conducted without such tragedies as they have been staging. There is no great hurry about it. Regions already demonstrated to be farmable have plenty of land for subdivision if we can only rig up some way to have that done fairly and reasonably. Leading thousands of people into the wilderness to kill them off is no part of a beneficent American development policy. To that extent we sympathize with the unneighborly attitude of the range interests.

Queries and Replies.

Querists must give name and address.

Roses and Cobwebs.

To the Editor: I have climbing vines and rose bushes which are full of cobwebs. Have often brushed them out, but they come back again. Is there a spray that will remedy this?—A Subscriber, Los Molinos.

Shoot them out once in awhile with a strong stream from the garden hose, so that they do not become ragged and dusty, and then try to believe that fresh, clean cobwebs are beautiful.

Spraying in Bloom.

To the Editor: Is it advisable to spray apricots after they have started to bloom?—H. L. G., Mountain View.

It is not desirable to spray on the bloom for two reasons: first, there is a great danger of interfering with pollination or injuring the reproductive parts with both insecticides and fungicides; second, the spray on the petals falls with them and their presence keeps the spray from reaching the bark where it will stay for a time and work as desired. It is better to wait for the fall of the petals and let the spray reach the young fruit, leaves and bark—unless the spraying has been done before the bloom buds open, which is usually the right way, if it is for killing fungus spores or scale insects.

Theoretically one could spray on the bloom, reduce the set of fruit and save much cost of thinning. This has been worked at to some extent in spraying for the peach moth, with lime-sulphur on trees which always set too much fruit, but we are not aware that it has been reduced to a dependable practice. If so, we shall be glad to hear more of it. Ordinarily it might be considered too dangerous for fear of thinning too much, especially as the reduced set of fruit has still to run the gauntlet of frost.

Sunburn Borer in Ornamentals.

To the Editor: I am sending under separate cover a worm that is destroying my rose bushes and other shrubs. Will you kindly advise me what I can do to save my plants?—F. L. M., Fairfield.

The insect is the common flat-headed borer of fruit trees—Chrysobothris femorata. Its specialty is in excavating burrows in sunburned fruit tree trunks and branches, but apparently a sunburned rose stem serves its purpose just as well. The way to avoid the insect in your roses is to keep pruning out old wood and encouraging the growth of vigorous new stems, and this is also the way to get good flowers. The insect is not killing your bushes; he is simply amusing himeslf with sun-burned wood which you ought to have pruned out long ago. As for other shrubs, they must be protected from sunburn of the bark either by whitewashing the exposed stems or by pruning and training the top so that there will be plenty of shade and therefore no stems exposed below. There is nothing to do for the insect except to have no dead or dying wood for him to feed upon.

Pruning Apple Trees.

To the Editor: In pruning some Winesap apple trees a year ago at the beginning of their fourth season, I topped them back to an average length of 24 inches from the previous season's pruning, thinning the branches moderately and leaving some twig growth with the idea of growing some frut on the lower main branches this season. Others pruning the same trees this spring considered they had not been properly pruned for the reason they were too young to fruit and that the trees would gain too much in height and would not have strength, and so have practically cut back all of the season's growth, thinning branches and twigs and leaving a clean framework. Now, what would have been the correct length to cut back last year?—C. M. B., Manzanar.

This is a case in which absent treatment will not work: one must see and study the patient. If the trees were vigorous, having made three orchard seasons of good growth, your pruning was just right, because you should then be preparing for fruit bearing, as you intended to do. If, on the other hand, the trees were tall and slim and not making any good stocky wood, the other way was right because it is a way to give the roots an advantage. If they could not then make a good tree there is something the matter with the soil or the water supply or the climate, and the outlook for such trees is not bright. The second method of pruning which you describe is a proper way to treat a three-year-old tree for heart-failure.

Rose Aphis.

To the Editor: What shall I do with my rose bushes? They seem to be doing fairly well, but are just covered with little green bugs. As the roses are just budding I am afraid they will destroy the buds or later the blossoms.—F. R. G., Patterson.

You do not have to hit an aphis hard to kill it nor does it require anything very hard to hit with. The reduction of the pest depends upon hitting early and keeping on hitting—for a new lot comes on while you are turning around. If you have only a few bushes to treat, nothing is easier to keep always ready and to apply than California insect powder or "buhach." If you have it in a "blower" or "duster" it is very easy to bend down a bloom stem and shoot the colony of aphis full of the powder. If you have so many bushes that this method takes too much time, get an atomizer or plant syringe or garden force pump and spray frequently with ordinary laundry soap suds—shooting, of course, at the places where the aphids chiefly gather, on the new growth.

Sultanas and Thompsons Without Trunks.

[Written for Pacific Rural Press.]

"Every inch of Thompson and Sultana grape vines above ground is fruit bearing wood. Any non-bearing wood allowed to grow robs the bearing and lowers the possibility of maturing the greatest amount of first-class fruit," thus says Frank Henry of Fresno county.

He would save the energy used by the trunk by heading at the crown of the roots. By the ordinary system of pruning these seedless grapes with a long trunk and leaving too many canes of too great length, all of the reserve strength of the vine stored up by the leaf action after the crop was matured, is used up by the last of June and the maturing of the crop is then entirely dependent upon the roots' activity. Saving this reserve food material by not wasting it on surplus trunk and canes, enables the "reserve force" to be used at the time the vine needs it most to mature the best quality of fruit in the largest amount.

Seedless Must Bear More.—There are whole Thompson and Sultana vineyards which do not bear over two and a half pounds per vine, according to Mr. Henry, but by proper pruning, each of the canes ought to mature several bunches of several pounds each. These bunches would be held exposed to the sun in such a way that they would develop the heaviest raisins of the greatest sweetness and the lightest color. They would not sunburn, because, as Mr. Henry says, sunburn is not due to exposure to the sun, but to excess of evaporation, over sap supply, and in his method of pruning only enough canes are allowed to grow, to use what sap may be supplied by the roots, under proper conditions of irrigation and cultivation.

It is decidedly noticeable that in vineyard after vineyard in the raisin section the vines have often been unable to complete their growth, the canes simply died back without maturing at all, leaving ugly ends. This supports Mr. Henry's contention that they do not have sufficient reserve force plus root energy to mature both the crop and the wood growth they start.

Wood Growth Most Exhausting.—It requires much more energy to build canes, which are mostly all solid wood and require a large amount of dry material to build their structure, than it does to produce fruit, which is mostly water, plus ingredients obtained from the air. Moreover, the supplying of the solid materials to the canes requires an almost unbelievable quantity of water to be carried to the leaves and there evaporated in the process of elaborating the root sap. And what is it all for? Simply so that the pruner next winter can have the doubtful pleasure of untwisting and cutting out a lot of vines which have produced little or no fruit and have not even finished their own wood growth. This is mighty expensive if water, labor, and fertilizer are worth anything. It would be better to divert this energy all to fruit and the fruit feeding leaves.

Provide Passage for Plenty of Sap.—Moreover, the trunks of the majority of the seedless vineyards are too small to be mechanically able to convey the sap necessary to support the proper crop, on the total amount of canes that are left. A one inch pipe cannot possibly carry so much water as a two inch pipe; so it is with vines.

Mr. Henry claims that the size of the crown is increased by his close pruning and heading of the crown so that there is plenty of passageway for root sap to the fruit-bearing canes that he leaves.

Train from the Start.—When planting year-old rooted cuttings, cut back to two well-formed buds so that all of the growth of the first year will be new on the main cane, and close to the surface of the ground.

In the spring of the second season, cut out at their junction with the main cane, all the new growth except four canes. Cut off two of these about two feet long, and in the next growing season these will bear a light crop. They will bear as much as if they were left four feet long because the root growth cannot develop all of the buds that would be left on the four foot canes and the lower buds would be dormant. The other two canes that are not taken out entirely at the beginning of the second season ought to be cut off for renewal spurs, leaving two buds on each. These spurs will produce "wood" canes which bear fruit in the following or third growing season.

At the beginning of the third season, the canes which have borne the crop during the second growing season are cut off at their junction with the main vine, and three or four of the "wood" canes which grew from the spurs are cut off perhaps three or four feet long. Three or four of the other shoots which have grown from the crown of the vine are cut off for spurs. There will be plenty of such shoots because the vine is not overtaxed with canes. Not over four fruit-bearing canes from spurs should be left at this beginning of the third season, and three are better so that they may be left longer and tied higher on the trellis which should be put in this year. The trellis is an ordinary one of wire on stakes five feet high with a second wire about half way between the top of the stakes and the ground. The canes are simply spread out and tied to the wires fan-shaped.

At the beginning of the fourth season four or five of the canes which grew from spurs are left for fruit and the same number of other canes which grew from the crown are cut off for spurs. All the rest are cut off at the crown, including the ones that bore the crop during the past season.

In the following or fifth season, five canes should be left for fruit, and in no future season should more than five to be allowed. In leaving fruit spurs for renewal, it is well enough to leave an extra one just to fill up the vine in case of accident to one of the others.

Spread Vines Fan Shaped.—At this training, the canes which are left for fruit are tied up to the trellis in the way that all the future fruit-bearing canes will be trained. That is, one is tied vertically and two others are tied to the wires at an angle of about 60 degrees with the ground, while the remaining two are tied to the wires at an angle of 45 degrees. All of the canes are cut off about one foot above the top wire and all are tied to the second wire just to keep them out of the way of the cultivator and to hold the vines fan shaped in order to expose the fruit to the maximum light and air. This makes a total of about 35 feet of cane growth left each season for fruit, and Mr. Henry says that no more should ever be left.

Hand Pinching of Shoots Pays for Extra Labor.—But this is not all of the training; for in the spring as soon as new shoots from the buds on these fruit canes have grown a few inches and started to show the form of a bunch, the tips of these shoots should be pinched back by hand or with the shears, as described in a recent article in Pacific Rural Press. All of the shoots which do not show the form of a bunch by the time they are eight or nine inches long should be cut off close to the cane because they would simply rob the fruit bearing shoots by producing useless canes.

It is well enough to emphasize the need of this pinching back at this particular time while the wood cells in the grape-bunch stems and in the canes below them are still rather soft and capable of being enlarged by the extra force of the root sap which must be diverted into them, at least temporarily, on account of the loss of the terminal bud. It is on the same principle that if two faucets are running from the same pipe, the shutting off of one diverts extra force to the other. The enlarged cells leading into the bunches of grapes will soon be permanently hardened in shape to carry more sap and will thus make the bunches "sap drawing" bunches instead of allowing the sap to flow past them to be used in making useless wood canes. Pinching back too late doesn't enlarge the wood cells and the stems of the bunches because they have already been hardened enough to resist the extra force of the sap. This individual pinching back will take lots of time and as objected by certain large vineyardist, "cannot be done economically." Their cutting back is largely done with a knife, just shearing over the outside of the vine and taking the ends of the canes, an inch to a foot or two long.

There is no waste of plant energy, but rather a saving, when a few inches or less of the tip is taken off, but when a foot is taken off, or two feet, leaves are removed which the vine has been dependent on to elaborate its sap into plant food, and this is simply a waste of the vine energy and a weakening of the plant.

The fan-shaped training prevents the growth of bunches in the shade which produce the dark raisins which are harder to sell than the light-colored raisins. It also prevents the crowding of bunches and the consequent encouragement of mildew. It also leaves the bunches free so that the grower gets the benefit of all the "clusters." It gives heavy, well-sugared raisins with a finished flavor.

Use Suckers on Old Vines.—On old vines the same system may be worked into by using suckers which, if the vines are not overloaded with canes, will adapt themselves to fruit bearing to an unexpected degree, according to Mr. Henry. Using suckers from the ground, enables the grower to cut out the trunk later at the ground or to cut off the big arms gradually and take several years in the total changing over of the vines.

Mr. Henry is well known in Fresno county due to the publicity given his year on G. Albert Smith's ranch near Sanger where were two acres of old Muscat vines which had been grafted to Sultanas. Some of the grafts had not taken and suckers had grown from the stumps, and so the vineyard was a mixture, it had been more or less neglected until it was in a ragged, run-down condition, partly on account of the fact that the ranch had been rented and partly on account of the system of pruning.

Mr. Henry used the suckers of the year before wherever he could, and be cut off many of the old trunks four or five inches in diameter. Where it did not seem advisable to cut the trunks, he cut arms up to two and three inches in diameter.

The first year a big increase in crops resulted. It amounted to 1950 trays, of which over six tons of raisins were marketed. There were dozens of bunches weighing eight to ten pounds each.

Suckers Not Needed on Young Vines.—While suckers can be used in order to work old vines into the new system, suckers are never needed if the vines are started right and spurs are always left for renewal. The crown must be protected from suckers which may start from under them and tend to prevent their growth and enlargement. These suckers always break off easy if taken in time.

Mr. Henry admits that his system requires much more labor than the old system, especially in the pinching part, though not in the pruning

---

THE COUNTRY BOY'S CREED.

I BELIEVE that the country, which God made, is more beautiful than the city, which man made; that life out of doors and in touch with the earth is the natural life of man. I believe that work is work wherever I find it; but that work with Nature is more inspiring than work with the most intricate machinery. I believe that the dignity of labor depends not on what you do, but on how you do it; that opportunity comes to a boy on the farm as often as to a boy in the city; that life is larger and freer and happier on the farm than in the town; that my success depends not upon my location, but upon myself—not upon my dreams, but upon what I actually do; not upon luck, but upon pluck. I believe in working when you work and playing when you play, and in giving and demanding a square deal in every act of life."—Edwin Osgood Grover.

or training. But he says, "This is all right; the farming of the future is going to be done by the small growers who have their homes on the land, and will make the best class of citizens."

Manure and Pulverizing For Best Prunes.

[Written for Pacific Rural Press.]

"I raise some of the best prunes in the county and I had my ground in the best shape ever last year. I am more of a crank on manure than anything, and I keep the roads hot hauling it from town." These are the principles announced by Tom Miller of Sonoma county.

Probably the most important tool in keeping his ground in shape is a clod crusher. Last spring he put off the plowing too long hoping it would rain, but it did not so he turned up the clods in a fearful manner six or eight inches deep about the first of April. There was no moisture in the ground then—it was full of chunks.

The first thing done after plowing was to run a cultivator through. This took up the clods and rolled the fine dirt down. The clods were then ready for an 800-pound roller pulverizer which was used in alternation with the cultivator all summer.

The first time he went over the ground, the pulverizer cut in two or three inches deep. It took eight hours to run over seven acres. The pulverizer cuts an eight-foot strip and is made of hollow iron wheels about ten inches in diameter with sharp edges formed by abruptly curving the sides concavely together to the edge so that the curved edges are about one-third of the total diameter of the hollow wheel. One row of these wheels sixteen inches in diameter runs in front of another line ten inches in diameter. The rear disks cut the center of the ridges left by the front one. They cut the clods without packing them very much.

Clod crushing is a most necessary part of the conservation of moisture, especially where no irrigation is practiced, as here, but to keep the weeds down, Mr. Miller also uses a hand hoe liberally.

Vines are interplanted with the trees in the quincunx system which makes it still harder to plow close; so that each vine and tree must be hoed out. No blade of grass is allowed to grow through the summer, if Mr. Miller can help it.

Another great clod crusher is the Cunningham pulverizer which is used like the clod roller, but is covered all over with half-diamond points three or four inches long, blunt enough so that clods cannot stick between them, but sharp enough to pierce most any clod it rolls over.

DISKING CLOSE TO TREES.

[Written for Pacific Rural Press.]

A clever system for getting close to peach trees with the disk cultivator is practiced on the C. F. Walker ranch near Del Rey. A 3x10 plank ten feet long is set on disks and pulled by two horses. Under the right end of the plank, which is to be run next to the trees, are three cultivator disks fastened to the under surface of the plank by a swivel arrangement, with an arm which is attached to a lever running back to the driver's seat.

The outside disk comes flush with the end of the plank or a little beyond. The lever is operated to angle the disks so they will cut deeper and so they will throw the dirt either direction. At the other end of the plank are three disks set square with the direction of cultivation simply for the plank to ride on and to prevent its being shoved endwise away from the trees when the cultivator disks are in action.

The tongue is fastened four feet from the cultivating end of the plank, giving the horses plenty of room to walk as near the trees as necessary.

WIRES SUPPORT PEACH LIMBS.

[Written for Pacific Rural Press.]

"Three years ago on our six acres of Muirs, now fourteen years old, we had a terrible crop and had to use an awful lot of props. The branches spread apart rapidly and many limbs broke off. We understood then why it was that four years before, our first year on the place, a heavy load of fruit which had not been thinned enough had been the cause of sunburn of the trees, because it spread the limbs out so far that the sun shone down on the bark through the opened tops.

"When we saw three years ago that there was going to be so much danger of the limbs breaking in spite of the props, because the props swung about in heavy winds and often fell down, we put No. 12 telephone wire from the main limbs about eight feet above the ground across each tree to the corresponding limbs on the other side, using about three wires per tree. This wiring was very satisfactory because it made the tree support itself and there was no danger of the wind knocking out any supports.

"But that did not solve our peach problems entirely, for last year we had the scrubbiest fruit in the neighborhood in spite of more or less thinning, and it was all in the tips of the branches. It seemed necessary to do something, so my husband, H. L. Letcher, slashed cords of wood out of the trees, leaving them most awfully thin and much lower on the ground than before." Thus spoke Mrs. Letcher at her home near Dinuba.

The limbs with the wires around them had grown so that the wires were creased into the bark and were shutting out the sap flow, so these were cut off directly above the wires. Many very big cuts were made, as much as two inches in diameter. It seemed cruel to butcher the trees so, but Mr. Letcher was determined to make them bear fruit within reach, and on the big limbs where there would not be so much strain when the wind blew, or when they got an especially heavy crop. He left all the wood possible along the big limbs clear down to the head of the tree, for that is where he wanted the fruit, and the leaves which grow on these small twigs will help in shading the bark from sunburn; otherwise, it would be necessary to whitewash the trees, which may have to be done anyhow, in some cases.

We thought in connection with this orchard of the system used by B. F. Weston of San Jose, who, instead of stretching single wires clear across the trees, used baling wire and runs each one from the block on the outside of its branch to a point near the center of the tree, making a wheel-like arrangement.

This works tolerably well, but T. R. Fiala of Sebastopol has what seems to be a still better system. He uses stronger wires than baling wire and runs them from a ring or iron washer located somewhere about the center of the tree to eye bolts screwed into the limbs at proper places. These eye bolts will have no effect in shutting out the sap, yet are there for all time to come.

It is quite a common practice in Vaca valley to use galvanized wire across the trees, fastened to the limbs by staples, which must be made secure to stand the strain.

PACIFIC RURAL PRESS tells methods of successful farmers so fully that even beginners may do the same things with the same results, by adapting these methods to your conditions. We do not tell about other successful farmers for your entertainment; but that you may keep your eyes open for pointers in our articles, to adapt to yourself. You can get much good by talking with a neighbor whose problems are similar to yours. We do this service for you in a wider way. Our representatives travel all over the State for just the purpose of presenting our readers with the experiences and methods of successful farmers.

FERTILIZED APRICOTS YIELD

[Written for Pacific Rural Press.]

There are reasons for the banner seventy-ton apricot crop from six acres sold for $3000 last year by F. G. Wells, who lives in the flat, light soil of Santa Clara county. This is over twice as much as he used to get. In all the twelve years, Mr. Wells has owned the ranch, there has never been a winter that a cover crop of vetch or bur clover has not been planted; and in addition to this, three years ago, Mr. Wells paid the Peacock Stables of San Jose $80 for the manure made there during the year. He spread it on all the orchard, which includes eleven acres besides the apricots, at the rate of three and a half tons per acre and six to twelve inches deep. He hauled about five loads a week at 2½ to 3 tons per load, making a cost of about $1 per ton for hauling. The direct results of this manure application were seen in the heavy crop of last year.

The cultivation also has helped in bringing the yield of this orchard up to its present efficiency. Mr. Wells pays about $3 per acre for the plowing, and insists upon it being well done. Right after the plowing is the harrowing which costs about 25 cents an acre. Then with a shovel and disk cultivator the orchard is worked fine both ways sometimes as many as ten times a season at a cost of about $1 for each time.

The pruning of the trees in the winter costs about $12 per acre at the rate of 15 cents per tree, and Mr. Wells also insures his crop by having oil smudgepots to protect from frost. In case of use, he figures the cost at about $8.50 per acre, though this varies greatly with the season.

The orchard was never sprayed but once, and that was with distillate emulsion four years ago just for a general clean-up. The trees are still in clean condition.

Fifty cents an acre is allowed for the ridging for irrigation and $25 for pumping and applying the water.

"Picking may cost anything you may want to make it cost," says Mr. Wells, "but if you have it well and economically done by the day, costs about $4 per ton."

Part of the crop was sold to the canner and part of it was dried. Last year with a bumper crop, a bumper price also was received because it was sold early. This early selling, however, has been the cause of great grief to many others, especially if done before the crop was well set on the trees.

APRICOTS AMONG WALNUTS.

"Never, never plant apricots among walnut trees," is the advice of Mrs. Dr. J. G. Berneike of Tustin, whose husband is one of many in that section who have interplanted in this way. Their Placentia walnuts are about 50 feet apart and the rows are interplanted with Royal apricot rows, while the trees within the row are also interplanted with apricot trees. All are of the same age.

The reason for this advice is that the apricots are a constant hindrance to the walnuts, especially since they have begun to bear. The walnuts need irrigation between June 1 and August 1 on account of the filling out of the nuts, but the apricots are being gathered all through July, and if they are irrigated they will be too mushy for use.

In this southern country the apricots are allowed to drop to the ground or are shaken off, and if irrigated shortly before picking, they would simply mush when they fall.

YOUNG PEARS CONSPICUOUS.

[Written for Pacific Rural Press.]

Whitewashing his newly set pear trees, not particularly because they are likely to sunburn, but to make them white so the cultivator may easily see and avoid them, is the practice of Will Weston of Santa Clara County. He has set out a considerable acreage this spring, as well as last, putting them 20 x 24 feet apart.

He has observed that there is a great deal of woolly aphis on his apple trees, but not noticeable on his pears, which are on French root.

Lots of trees in Vaca valley died on account of the dry years, according to D. C. Pennington when they wouldn't, if they had been planted 36 feet apart instead of 24. They required more moisture than was there, for there was no irrigation.

"Winter Rhubarb, Culture and Marketing."

By

Reginald Bland

A complete manual of field culture for this valuable crop, filling an important vacancy in Agricultural Literature. Chapter titles are, **Rhubarb — and Winter Rhubarb, Selection of the Location, Preparation for Planting, Planting, Culture, Picking and Packing, Marketing, Propagation and Development.**

This new book will be useful to successful growers; **invaluable** to beginners, to prospective planters and to those who may have been unsuccessful! interesting and instructive to all.

The strenuous pioneering years are over. Recent develments have brought new life and impetus to rhubarb culture. One company, shipping from 200 to 250 cars annually (over 90 per cent of the total California production), says, "We now have more customers on our books than we have rhubarb" —and only a few of the big eastern markets have been supplied. Every one who wishes to profit by this great opportunity should have the sound, practical instruction and advice to be found in

"Winter Rhubarb, Culture and Marketing"

In cloth, 50c; in paper, 25c; postpaid.

Reginald Bland

San Luis Rey, San Diego Co., Cal.

Walnuts for PROFIT

Why not grow them? No better market present or future for any California product.. 10% of walnuts consumed in the U. S. are imported.

OUR FRANQUETTE
and
SAN JOSE MAYETTE TREES

Grafted on native California Black root are late blooming, not frosted and practically immune to blight. See article in Pacific Rural Press of November 7th on our walnut orchard at Morgan Hill. Be sure to see samples of our nuts and investigate our trees before ordering elsewhere.

Ruehl-Whee er Nursery
163 South Market St.,
San Jose, Cal.

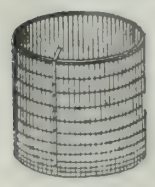
Trees for sale and samples of nuts also at
HALLAWELL SEED CO.,
258 Market St., San Francisco.
CALIFORNIA SEED CO.,
151 Market St., San Francisco.
SUNSET NURSERY CO.,
92 41st St., Oakland.
VALLANCE BROS.,
31 Glen Ave., Oakland

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.
NEWCASTLE, CAL.



REDWOOD TANKS
SILOS.

Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON
640 SO. CENTER ST., STOCKTON, CAL.

Hot Water For Orange Spray.

[Written for Pacific Rural Press.]

In learning how to fight the gray scale last year in Tulare county, some experiments in fumigation were carried on rather early in the season, owing to the different climatic conditions there from those in the South, where R. P. Cundiff, the manager of the operations, had his fumigation experiences.

A great deal of fruit was spotted and much new growth of the trees was killed back. This trouble seemed to have been overcome later in the season. Yet, as was reported in the Pacific Rural Press about that time, the expense was about 33 cents for a large size tree.

There is no doubt that fumigation is more thorough in severe cases of scale infestation than spraying, as pointed out by members of the Citrus Experiment Station at Riverside. **Nevertheless, the fumigation season** has passed now until July or August anyway, though in the meantime the gray or other scales will be getting in some bad licks. Spraying, however, will not be out of season, and some folks have sprayed with more or less satisfaction, according to the thoroughness with which the job was done.

Among orange growers of Tulare county who have sprayed successfully is D. A. Beattie, who has about 160 acres of navels near Porterville.

His spraying material costs about six cents for his twenty-year trees, some of which are 16x18 feet high. While there was considerable infestation in the ten rows last spring next to a neglected orchard nearby, there is no possibility now of finding live scales, as Mr. Beattie has frequently gone over the orchard with a glass and searched the trees that were worst infected.

Why Spraying Succeeded.—His success with spraying is due to two primary reasons. One is thorough application. He used 250 to 300 pounds pressure and his men, who are with him, the year round, were careful to insert the nozzles inside the trees and reach every part.

The carefulness of the men, however, could not give so thorough a job were it not for the fact that Mr. Beattie conceived the idea of heating the water used in the spraying. A neighbor of his sprayed with whale oil emulsion and spotted his fruit in places an inch across. Mr. Beattie thinks that this was due to the fact that they used cold water in mixing the emulsion. He, himself, tried it in the early spraying and soon saw that is was not making a satisfactory spray.

Heats Spray Water.—On this account, a 400-gallon galvanized iron tank was set on bricks piled a foot high under its side edges, left open on one end, and closed except for smoke vent on the other. This made a furnace in which wood could be burned to heat water in the tank. When the water was as hot as one could hold his finger in, the spray tank was filled by means of a pump, and two gallons of Kreso Dip No. 1 was added for the purpose of killing the scales. When this tankful was used up, another tank was filled, using three gallons of Kreso Dip, and still another, using four gallons which made a 2 per cent solution.

Having used the hot water for the agitated mixture, the 250-pound pressure produced a fine, foggy cloud of spray which was driven into every hiding place the scales might have on the trees. Later examination showed very few alive where the 1 per cent and the 1½ per cent mixture had been used, but all were dead where the two per cent mixture was used. The fruit had not been marked in any way.

One or two sprays will be applied this year just on general principles.

It required two men and a team to run the outfit. Returning to the heating tank for a new supply each time and keeping the spray tank closed, there was very little cooling

California Farms Orchards Dairies

For Sale Rent or Exchange

LAND FOR SALE.

FARM OWNERS—ask for special rates in this department.

26¼ ACRES in Santa Clara Valley, near Saratoga, mostly in young prunes and apricots; some bearing prunes; one acre in citrus. Pumping plant, plenty of water. Fine building site, view and climate unsurpassed. New barn, poultry houses and cabin. ¾ mile from steam and electric cars; 1½ hours to San Francisco. Full particulars from Owner, care Pacific Rural Press.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

CALIFORNIA LAND—Money-making little farms. High class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms, P. O. Box 97, Salinas, Cal.

FOR SALE—20 acres of best sandy loam land. 18 acres in alfalfa, four room house, good barn, cream house and good well, all fenced. Near good school, abundance of water. 4½ miles of Modesto. Address: Route 1, Box 30, Modesto, Cal.

20 ACRE DAIRY FARM, house, barns, outbuildings, 18 acres alfalfa, family orchard, 15 good dairy cows, one registered Jersey bull, 14 young stock. Will sell with or without dairy. Write for terms and price. R. R. 1, Box 13, Orland, Cal.

FRUIT RANCH or land for sale in Bartlett Pear belt in Nevada county. Beautiful locality for summer resort to one who is interested. Address owner, W. H. Cunningham, Grass Valley, Cal.

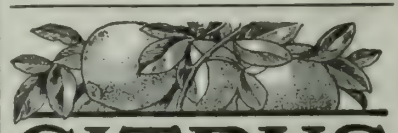
FOR SALE—40-acre ranch. 34 acres alfalfa, remainder in grain. Good buildings, fences, good soil, abundance of water. Fruit and shade trees. For particulars write to John Walter, Dos Palos, Cal.

A BARGAIN—10½ acres orchard in bearing, 4 years old. Fine location 1½ miles from Hughson on Santa Fe. Six miles from Turlock. Ten miles from Modesto. Good terms. Address Turlock Nursery, Turlock, Cal.

FOR SALE—Three mountain ranches in Calaveras county. Apply A. M. Davis, Esmeralda, Cal.

How to Control Grape Mildew.

Finely divided sulphur is known to be effective for mildew control when it can be kept properly spread over the surface of the foliage and canes. Obviously, then, the logical treatment is to apply this sulphur as a liquid spray. Another point to be remembered is, that the more finely divided the sulphur, the more uniform the covering and the more adhesive the spray, the better will be the results obtained. Also a liquid spray may be effectively applied to the undersides of the leaves and on the canes where it will do the most good. Atomic sulphur dissolves readily in water, remains in good suspension, spreads well over the surface of foliage and canes, is adhesive, and gives the right results. The sulphur is more finely divided than any dry forms of sulphur, and the greater adhesiveness gives protection over a longer period of time; one application being efficient and doing more good than two or three dry applications. Use 12 pounds to 100 gallons of water and spray the vines soon after growth starts and before blooming. Full information gladly furnished free on application to **S. W. FOSTER, Entomologist, General Chemical Company, 201 Sansome Street, San Francisco, Cal.**



CITRUS TREES

Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries
San Dimas, Cal. U.S.A.

TREE PLANTING

20 years' experience in Northwest and California. Average price 10c per tree. Go anywhere. Work guaranteed, or no pay.

F. C. Caswell, Orland, Glenn Co., Cal.

before the tankful was used, so that the full effect of the heat was gained all though, at very little expense.

THAT AUSTRALIAN CITRUS PROBLEM.

To the Editor: I was interested to see on page 260, Rural Press of February 27, under heading "Views of Australian Citrus Problem," an inquiry from H. B. Anderson of Echuca, Australia and Dr. Lipman's answer thereto.

As I am a Victorian, and it will be some weeks before Mr. Anderson can reply, he may not mind my giving some of the particulars, in the meantime, that Dr. Lipman asks for:

Echuca town is on the South bank of the river Murray and the surrounding land is, as I remember it 15 years ago when quite a youngster, a brick red, sandy loam. Geologists describe the Murray River flats as being tertiary deposits, covered with further sedimentary deposits from the river when flooded.

This climate has a minimum winter temperature of about 30 degrees F. This district produces our earliest tomatoes and in summer the temperature reaches around 109 degrees at times.

I have not seen the sub-soil there, but at Kerang, 60 miles west, I have come across the limestone strata Mr. Anderson mentions, when sinking post holes and generally at a depth of about three feet, six inches.

While it breaks up readily as described when immersed in water, it was fairly hard to punch through with the bar when sinking holes. Mr. Anderson's case may be dissimilar, but I would hazard that citrus roots would find it difficult to penetrate the layer I have in mind, also it would act as a hardpan, and unless it were broken up, would affect the moisture supply.

Concerning the supply of nitrogen in the soil, our wheat farmers find no need to apply either nitrogen or potassic manures, as there appears to be a plentiful supply for wheat production at least. The education that I have seen the use of the soil sugar yield, at the State Farm at Davis, and on several ranches, in knowing exactly the soil conditions, down to a depth of six to 12 feet, is such that Mr. Anderson ought to try it out if he has not done so previously to this.—**Harold D. Rundle**, Whittier.

PLUMS ON ALL SOILS.

To the Editor: In regard to your recent article on Wickson plums in Sacramento county, we give at your request further details. In this vicinity, plums and prunes have always been heavy bearers. Failure or partial failure of crop comes only when heavy storms interfere with pollenation; or cold, strong north winds prevail for two or three days when the fruit is just forming.

The Wickson plum does equally well on all of our soils, sandy loam, heavy clay, and all the betweens. The Myrobolan root seems to make the best trees and this is the stock on which Rev. Hoskinson's orchard is planted. There were 180 trees in his orchard and most of them are still in place and full bearing. They have had no special care and really ought to have had more careful pruning and better cultivation, but unless some climatic influences interfere with the blooming and setting of the fruit, they bear a heavy crop, in fact, too large a crop for the trees.—**Elmore Chase**, Fair Oaks.

To the Editor: In regard to my Wickson orchard mentioned in the Pacific Rural Press recently, it bore 300 crates of marketable fruit last season and a half as much more of second grades. The June drop has never amounted to much—they always need much thinning. Possibly the reason this variety does not bear well in San Joaquin county is that they need stronger fertilization and more watering. I think that they need careful cultivation, irrigation, and also pruning back in May which enlarges the fruit.—**W. S. Hoskinson**, Montara.

ORANGE LEAF INJURIES.

To the Editor: Is this injured orange leaf the work of twelve-spotted cucumber beetles, which have been seen in quantities on the trees? The green is eaten from both sides of an area on the leaf and only the fibers remain. They drop out when much handled, leaving holes like the large leaf shows most plainly—D. A. B., Porterville.

[Yes, the particular work you describe is that of the Diabrotica soror, wrongly called "green lady bird." The brown discolorations on the same leaf are not to be charged to the insect; they are probably caused by sunburn or possibly by frost, just when the exposed part of the leaf was in condition to be injured by either. Fortunately all these injuries are usually not sufficient in amount to weaken the tree and usually nothing is done to prevent them.—Editor.]

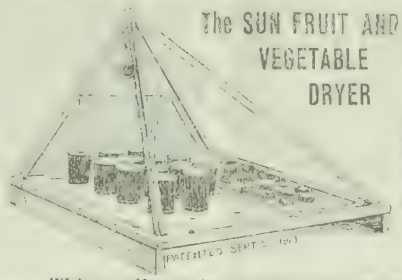
Fiber board boxes will be used exclusively for the Associated Raisin Co.'s own shipments. They are not so much cheaper, but they are strong, and lighter weight.

BEES IN ORCHARD.

A few bees are kept in the apricot-walnut orchard of J. G. Berneike of Orange county for the purpose of pollenizing the blosoms, as well as for the honey that they will provide.

An encouragement for the bees is suggested by Mrs. Berneike in the shape of a bean intercrop, for, as she says, the bees will go miles to get onto bean blossoms even while fruit is being dried nearer, for they do not like the sulphur on the fruit.

"Cloddy land lacks humus" according to one observer, but perhaps it lacked cultivation.



Redlands, Cal., Jan. 28, 1914

E. E. DOW, City.

Dear Sir: I have used one of your driers in my family for the past two summers, and have been very much pleased with the results. We have used it, specially in preparing sunshine pineapples, prunes, pears and candied apricots and peaches. The products are exceedingly rich and delicate in flavor, far richer and more delicate, we think, than those prepared by any other process.

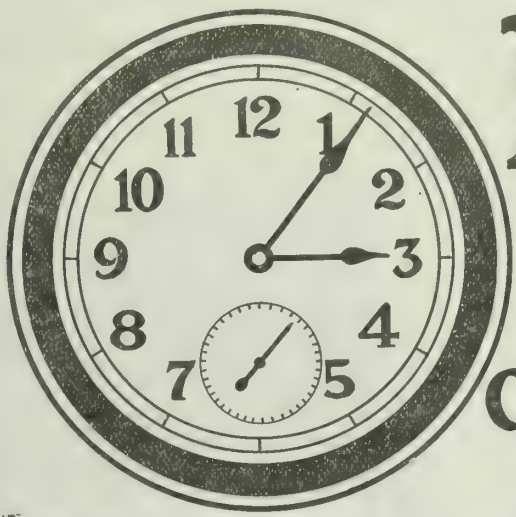
Very truly yours,
WM. M. TISDALE.

This appliance is practical and very useful. It is successful wherever the sun shines. Sweet corn, peas and other vegetables can be preserved in a form occupying little space and may be served in the winter as fresh as from the garden. It cures and preserves deciduous fruits, prunes, grapes, figs, etc.. All without the use of chemicals, protected from rain, dust, wind and insects. In it can be made sun-rayed jellies, preserves, marmalades, strawberries, fruit candies, etc., retaining all of the fresh fruit flavor and color that are lost on the cook stove. It does this important work in a simple, inexpensive and efficient manner. Positively guaranteed.

No agents, or commissions. Sold direct to the user at very small cost. Descriptive circular free; contains full information, and testimonials from persons using the drier, both for family purposes and on a commercial basis. Many of these are making large profits preparing sun-rayed dainties for sale.

E. E. Dow & Co.

REDLANDS, CALIFORNIA.



Don't Delay -Send in your order for TREES now

If you don't wish to be disappointed in securing the varieties you expect to plant this season—we urge you to send us your order NOW.

Surplus Stock—Special Prices

We have heeled in at our packing grounds a complete line of deciduous fruit and ornamental trees, small fruits, grape vines, and roses. Write us at once for our surplus List and Special clean-up prices on this stock. The trees are in perfect condition and ready for immediate shipment.

OLIVES

We have a fine stock of Mission and Manzanillo and every prospective planter should get in touch with us before placing his order. Trees can be delivered either from our Fresno or Los Angeles Nurseries. Special quotations for stock in any quantity.

Our Book for Planters

"Roeding's Practical Planter's Guide, the result of 30 years' experience in California Horticulture," contains complete cultural instructions with illustrations showing "before" and "after" pruning. The regular price of the booklet is 25c, but if you send us your list for prices and suggestions, we will send you a copy free. Write us today.

Illustrated Catalog Free

for the season 1914-1915 is FREE, fully illustrated. Contains 60 pages and briefly lists and prices all stock carried by us, consisting of over 2000 varieties of trees, vines and plants. A copy will be sent free to any address upon request.

Fancher Creek Nurseries, Inc.

Paid up Capital, $200,000.00. Geo. C. Roeding, Pres. & Mgr.

Box 18 FRESNO CALIF.

Too Much Early Irrigation.

[Written for Pacific Rural Press.]

"Sunburn isn't due to exposure to the sun." This is the statement of a life-long fruit grower, and is backed up by the following statements:

Sunburn is due to a lack of sap supply to keep bark and fruit cool when it is exposed to the sun. If there is free circulation to the exposed parts, there will be enough evaporation at that point to keep the temperature of the bark or fruit below the danger point, but water in the soil doesn't necessarliy prevent sunburn. It must be available to the circulation of the tree or vine.

An excess of water in the soil excludes the air, checks bacterial activity and its consequent making available of food elements, decreases the nutriment available for the tree and its roots, and thus both indirectly and directly checks root activity on which the sap flow is dependent.

To prevent sunburn is only one of many reasons for avoiding waterlogged soil. A great trouble with many vineyardists and orchardists is that they fill up the soil in the springtime with irrigation water, and later in the season forget to cultivate to conserve this moisture. When water gets scarce, just at the time when it is needed, there is just one way to have enough.

In a Fresno County vineyard, L. C. Jolley observed once a path where the dust accumulated several inches deep. The vineyard was not well cultivated, and he noticed that in the path you could kick away the dust and find moisture, while in the vineyard beside it, you would have to dig way down and then perhaps not find moist dirt.

Another vineyard was cultivated one way, but not crosswise until three days later on account of lack of time. The spaces between the vines and within the rows, where the cultivator had not touched, were dry noticeably deeper when the cross cultivation came at the end of three days, than the space that had been harrowed between the rows.

Irrigate After the Crop is Off.—There is another time of year when irrigation is usually forgotten when it is most needed. That is directly after the crop is taken off. Then the plants are in a practically exhausted condition due to the strain of the crop, and they need every encouragement to use their leaves in the storing up of reserve food in the trunks and roots in order to get a good start next spring and help the roots all through the season when they are most busily engaged supplying plant food for the building of fruit and wood.

This again was noticeable in the orchard of Mr. Overholser of Fowler. It was in one October that he built a ditch through his eight-year-old vineyard diagonally to supply the orchard just beyond it. The water ran through this ditch just a week and was then turned off. The vineyard had never been irrigated before.

The vines finished the season in fine shape on the two rows next to the ditch, and the next year bore a fine crop which did not sunburn. The rest of the vineyard bore a fair crop which did sunburn owing to the lack of reserve force which ought to have been put there by attention after the crop was off the year before.

FIRE BLIGHT is a preventable disease. Pear Blight, commonly called "Fire Blight," is caused by microscopic, invisible plants (bacteria), growing inside the bark of the trees. No chemical has yet been found which will kill these bacteria without killing the tree. It causes losses of $25,000,000 annually to the country. If a foreign foe should invade the country and demand a tenth of this amount, millions would be expended on our army to defeat it. If a fleet of pirates should prey upon our commerce at the rate of $1,000,000 per year, a hundred million would be expended on battleships to combat the foe. The disease can be controlled. Inspection is necessary. Give the inspectors your support. Consult your farm adviser horticultural commissioner. Cleaning up "Hold-over" blight is the best means of prevention, the only known way to control blight is by surgery. In cutting it out, cut 6 to 24 inches below the canker. Disinfect tools and cuts with corrosive sublimate. Aphis, flies, ants, and other insects are important carriers of blight. Combat these insects. Birds are the natural enemies of insects. Protect the birds. Inspect Nursery Stock carefully for blight. Avoid excessive watering of trees. There is no patent cure. Beware of the fakir with the "blight cures." Do not attempt to cure blight by sprays, tree paints, inoculations, or soil "doctoring." Blight fighting is a community matter. Organize and go after it. Encourage your neighbors to clean up their orchards. Eternal vigilance is the price of clean orchards.—Washington Agricultural Experiment Station, Pullman, Wash., February, 1915. Popular Bulletin No. 80. Ira D. Cardiff, Director and Botanist.

BUDDING THE PEACH.

To the Editor: Last summer we budded a different variety of peaches on one-year growth of six-year-old peach trees. The bark slipped, but none of the buds took. The bark curled back and the buds dried up, although we tied a string above and below the buds. Should we have waxed them?—L. K., Yountville.

[Probably you should have given a better wrapping either by several more turns of soft cotton string or with a strip of cloth or raffia. Waxing is not necessary in budding deciduous trees. We are taking it for granted that the buds you used were well plumped out and were properly cut.—Editor.]

Little Stories of Success

No. 5

John P. Jones & Sons of Fair Oaks make a specialty of planting orchards and ornamental trees, and doing landscape gardening. Jones & Sons use no horses at all. A Baby Caterpillar pulls up stumps, hauls off tree trunks, plows, cultivates, and hauls wagons loaded with trees to be planted. Often they haul 20 ton loads from the railroad station to their nursery—a distance of 5 miles up grade. All they use is six wagons hitched on to the Baby. Jones & Sons figure the Baby takes the place of five four-horse teams.

The Baby Caterpillar is a handy tractor—it seems to fit in almost anywhere, and still has plenty of power for heavy work. There is probably one in your neighborhood.

THE HOLT MFG. CO.
(Incorporated)
Stockton San Francisco Los Angeles
Both Expositions — San Francisco and San Diego

CATERPILLAR
Reg. U.S. Pat. Off.
Don't say Caterpillar unless you mean Holt!

We Raise 60 and 70 Bushels of Corn Per Acre

and GUARANTEE you the same. HOW? Get acclimated, pedigreed seed. Note results. 1904 bought 80 bushels per acre Nebraska pedigreed seed. See our yield same year 25 bushels. 1905 selected and planted. YIELD 35 bushels, etc., until now we have the above results.

Price F. O. B. our station:

Select on ear $4 per 100 lbs.
Select shelled $4 per 100 lbs.

ROUGH'S GREENFIELDS, Arlington, Riverside Co., Cal.

FINEST
NURSERY STOCK
IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN, CALIFORNIA.

Write for this Nursery Catalog

Full line of Trees, Plants, Shrubs, Roses, etc. Very finest ornamental stock in California. Unsurpassed packing and shipping facilities. If you anticipate purchasing any kind of nursery stock, by all means write for our BEAUTIFUL FREE CATALOG. Full of fine illustrations, and information invaluable to every planter.

MISSION AND MANZANILLO OLIVES

CLAREMONT NURSERIES, INC.
1300 Indian Hill Blvd. Claremont, Calif.

SEED

No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California

Uses Yardstick In Orchard.

(Continued from page 385)

"There is no dobe on the place, but as soon as the dirt is turned we harrow it with a spike-tooth harrow which works considerably faster than the acme harrows which we use sometimes. If we left the plowed ground more than a day or two before harrowing, it would get so hard that there would be considerable difficulty in breaking up the clods. We harrow six, or eight, or ten times in the season if it rains that often, for we insist on having a good, level mulch, and no baked topsoil. Sometimes in the twenty-seven acres in which blackberries were interplanted with young trees in the spring of 1912, we use a shovel cultivator to tear out the blackberry suckers. The trees there are twenty-five feet apart, planted hexagonally so that we get about 80 trees per acre, fifteen per cent more than we could by the square method. The vines are planted about eight feet apart between the trees, but not between the rows on account of inconvenience in spraying the trees. It takes considerably longer to harrow this section interplanted with blackberries than the open orchard—about three days' work is required each time.

"After plowing and harrowing, we have one of the Japanese women hoe around each tree with a big grub hoe. This is not so expensive or so tedious as it might seem, as she makes strikingly good time. This is not done when we have plowed toward the trees. It is far better to hoe around them in order to avoid injuring the trees with a plow or cultivator. We must keep out all of the grass through the summer months. Every blade of grass is a pump which takes water from the soil.

Berries Between Trees.—"Though we have the berries between our apple trees, we have found that it is not a very good plan because the extra cost of picking, cultivating, etc., takes all the profit, and makes the cost of staking, tieing, and pruning really a loss. But a cultivated intercrop, such as beans, strawberries, etc., has paid us well, besides keeping the orchard in first-class tilth. We planted four rows of Canadian Wonder beans between each two rows of trees and sold the crop for $300, having to ship them to Los Angeles on account of the better prices to be obtained there than in San Francisco at that time.

"On three and a half acres of strawberries among the trees in the hill system, and hoed four to six times each season, cutting the runners to get close to the plants, we sold $700 worth of berries. We cultivated them every week at first, but soon found that it was better to hoe them. They are still bearing, having begun early last spring, and having stopped for only a short time in August.

Varieties Better Together.—"Of the apple trees, there are many varieties badly mixed up except in the old 'south orchard' where different varieties have been planted in strips of several rows each. This mixture, too, is uneconomical on account of the trouble in picking. Among our Gravensteins, twenty-seven boxes per day is good picking, but it is a very slow picker indeed who cannot get sixty boxes a day of the Greenings, because they are closer together.

"We never plant two-year trees, but always get the best one-year trees that we can find. We cut them back to eighteen inches, leaving the top bud either on the northwest which is the windward side, or the southwest, which is the sunny side. Where the wind is not so great a factor, we prefer to have the top bud on the southwest in order to make a growth that will shade the trunk sooner. About five buds are left on the tree and we run a finger nail under all the rest. This will save indefinite trouble later with undesirable branches and sprouts, for it helps prevent the formation of dormant buds at those points.

Protect Young Trees.—"Each young tree is protected by a thin sheet of water-elm bark grown on the islands of the Mississippi in Iowa. This is cheaper and less perishable than the yucca tree protectors, and it has the advantage of being bitter, so that mice or rabbits do not get to the trees. About six inches of the lower end of each protector is dipped in a tar preparation; and this part is sunk in the ground. The protected trees are not bothered either by aphis or with cultivator wounds; but at the end of the year the protector is tight, so we take it off, and set it into the ground on the sunny side of the trees. The trees do not seem to be tender, but we have lime-sulphured them after taking off the protectors, and a year later whitewashed them."

Miss French prunes the young trees herself—three or four thousand of them—but that is another story.

Pull Out Stumps With the Famous Hercules!

Triple-Power

Pull an acre or more of stumps a day. Pull any stump in 5 minutes or less. Don't have loafer land when it's so easy and cheap to *pull the stumps out!* Make 1000% profit by using the Hercules. $1281.00 the *first year* on 4 acres! $750.00 every year after. Let us *prove* it.

Low Price and Book Free!

Get the facts. Read our book. Tells what all steel, triple power means. Shows many features of the Hercules. Shows many photos and letters from owners. Postal will do.

HERCULES MFG. COMPANY
112 -23rd St. Centerville, Iowa

GET THE STUMPS OUT!

Make ALL Your Land Earn Money For You

"K" HAND-POWER STUMP PULLER

Makes stump pulling a one-man job. This powerful machine *weighs* only 171 lbs., but it *pulls* 96,000 lbs. Two speeds, high speed for light work, power speed for heavy work. No chains. Pull more than horse machines. Complete equipment, including 200 feet Weatherproof English steel cable. Used by U.S. Gov't in Alaska, and by many states and counties.

Valuable Book on Land Clearing FREE—My new catalog tells costs of different methods of land clearing. Write for it today, and get special direct-to-you prices.

W. J. FITZPATRICK
Box 32 1926 2nd Ave.
Seattle, Wash.

"Behind each tree is our guarantee"

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS

NOW

IS THE TIME TO PLANT YOUR FRUIT TREES

IT IS A MATTER OF DAYS NOW AND THEN YOU LOSE A WHOLE YEAR

Send Today for Our Revised February Stock List

If you know just what trees you want and which root stock, etc., you wish, do not wait for the revised stock list. Send your order, and if trees are still in stock we shall immediately fill your order.

Time is Valuable—
ACT NOW

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE CAL. TRADE MARK REGISTERED

SILVA-BERGTHOLDT Co.
NEWCASTLE CALIFORNA

Attention, Planters

ON HAND, IN FIRST-CLASS CONDITION:
FRENCH PRUNE, on almond, apricot and plum roots.
IMPERIAL PRUNE, on almond.
ROYAL and BLENHEIM APRICOT on apricot and peach.
SUGAR PRUNE, on apricot and almond.
WILTZ, or SAN JOSE MAYETTE and MAYETTE WALNUT;
Almonds, Pears, Peaches, Apples, Cherries.
ALL AT GREATLY REDUCED PRICES.
ORNAMENTAL stock in great assortment; special rates to the trade or to gardeners.
Landscape Gardening a Specialty.

Leonard Coates Nursery Co.
MORGAN HILL, CALIFORNIA.

A 40-ACRE EQUIPPED FARM
in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.

SPECIAL: Land absolutely above all flood from rivers; titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms. I want to show you this specially selected piece of land.

OUR CO-OPERATIVE BUYING-SERVICE will enable you to get any acreage, in certain selected tracts, at strictly wholesale values. You should know about this. Write today.

DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Shallow Cherry Cultivation.

[Written for Pacific Rural Press.]

Cherry trees had better be allowed to grow weeds than to disturb the roots when the fruit is setting, according to A. E. Crabb of Alameda county, whose experience dates from boyhood. His present orchard was planted partly in 1889 and partly in 1897.

It is just at that time that the new roots are growing into the surface soil and supplying the food necessary to give a strong setting. If any plowing or cultivating is done at that time, it certainly ought to be not over six inches deep. If a mulch could be laid on the ground so as keep down the weeds and save the moisture, it would be the best thing in the world to insure cherries especially on old trees.

Mr. Crabb's old orchard is planted 20x20 because, as he says, the nurseryman wanted to sell all the trees he could. It is now quite evident that they should have been set 30x30 because they would be stronger trees, would bear more, and the fruit would be better exposed to the sun and light, there would be more soil per tree from which to derive plant food, and the trees would be more vigorous instead of dying back at the tips, as has been the case last year. There would also be more water available per tree in this section where no irrigation is practiced.

His neighbor, J. F. Sarmento, believes in leaving the water sprouts on both apricots and cherries, for these will have small buds which next year will produce fruit. Thus, the trees, especially those which are likely to die back, as many have in the past year or two, will be renewed from the head.

A MODEL CANNERY AT WORLD'S FAIR.

One of the most interesting of all practical exhibits in the Palace of Horticulture at the Panama-Pacific International Exposition is the operation of the model cannery.

The exhibit is impersonal in that no brands are represented, the exhibit being designed to instruct the public in the methods employed by all up-to-date canneries in preparing and packing foods for preservation.

The exhibit demonstrates every process entailed in the canning of fruits, vegetables, fish, and soups, and every detail is shown from the washing of the raw commodity to the ultimate packing of the can.

Here the visitor will see, being prepared for canning, fish far fresher than ordinarily found in the markets. The washing is done by a special apparatus between sprays of water exerting a pressure of one hundred pounds to the square inch. From the washing appliance the raw material goes to the preparation table or machine under the constant cleansing play of fresh running water. Syrups, brine, or other additions are made in every case by machinery. The cans are filled, sealed, cooked, weighed, labeled, and boxed entirely by ingenious machinery that defies a human equal for efficiency or sanitation.

As an instance of the wonderful caution taken in the better class of canneries these days, the demonstration shows how temperature controllers and timing devices automatically regulate the cooking, insuring uniformity regardless of how many thousands of cans may be involved.

In connection with the cannery is a laboratory for the scientific testing of all products. Both chemical and bacteriological tests are made, the double check being necessary to assure both sterility and uniformity of quality in the factory's output. This laboratory is to be used also for continuing research of the exhibiting association during the continuance of the exposition.

The basic purpose of this demonstration is to combat the lingering prejudice against commercial canned goods by showing how, in reality, a great cannery, equipped with all that the last word in science has brought forth for sanitation and efficiency, can turn out a product invincibly superior to the "home-made" goods.

"We've tried individual selling of cured fruit ever since the beginning," says E. O. Amundsen, farm adviser for the Kerman settlers in Fresno county. "It hasn't worked. So I urge our settlers to organize a local of the Cured Fruit Exchange."

Bad roads keep children away from school and impair the efficiency of church work in a community.

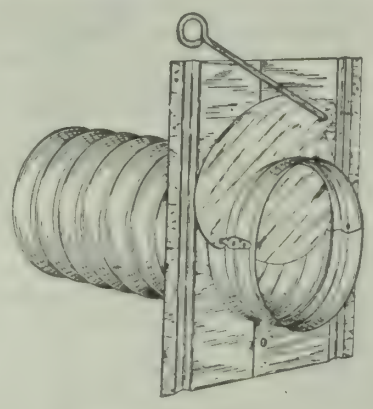
MANLESS LAND
for the
LANDLESS MAN
2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway
BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.



4-C
Irrigation
Gate

Reduces labor of irrigating.
Easy and quick to install or move to new locations.
Does not wash out.
Saves water and stops scalding of crops.
Can be removed, ditches cleaned with teams, and gates replaced without loss.
DURABLE because made from RUST RESISTING
American Ingot Iron
Five other types of Gates, Culverts, Siphons, Flumes, Stock and Water Troughs.
WRITE US
California Corrugated Culvert Company
417 Leroy St., Los Angeles. 406 Parker St., Berkeley.

Modern Methods in Farming

Tractors, cement pipes for irrigating, automobiles, and scores of modern improvements and equipments benefit the farmer.

But the farmer who benefits most is he who raises the biggest crops of the finest quality on the least ground.

Animal fertilizer is the truest and surest of all crop producers. GOLD BEAR brand animal fertilizer is surest in results.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

The booklet which tells about it will be sent you on request, free.

Western Meat Company
704 TOWNSEND STREET,
SAN FRANCISCO.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursefy Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

All Kinds of Pipe
and Fittings,
Corrugated Iron,
Roofing Paper,
Barbed Wire and Nails.

PLUMBING SUPPLIES ROOFING MATERIAL
WRITE FOR SPECIAL PRICES
SIMON BROS
1049-53 HOWARD ST SAN FRANCISCO
OTHER LINES THAT WE CARRY

Bath Tubs, Sinks,
Lavatories, Toilets,
Range Boilers, Heaters,
Brass Goods.
General Hardware.

Organic Manures Aid Bacteria.

[By Prof. C. B. Lipman, University of California.]

Under the subject of organic manures, I wish particularly to speak of our stable and barnyard manures, since the others may be taken up under the head of commercial fertilizers. As has been already indicated, there is perhaps nothing of greater importance to our agricultural practice than the maintenance of a good humus supply, and means have been indicated for such a maintenance through green manuring. While such must be the method largely used for maintaining the humus supply, it must be urged that wherever the use of barnyard manures is possible it must be encouraged. In the case of many fruit ranches a good deal is produced from the stock used and in the operations on the ranch and should be properly preserved, not only to conserve whatever it has in the way of value as a plant food, but to maintain it in a good condition for the development of the bacteria it contains. Barnyard manures not only influence the soil bacteria through the plant foods added and through the organic matter added, from which humus may be formed, but from the larger numbers of bacteria which it introduces into the soil, especially under circumstances where 20, 30 and 40 tons of manure per acre are used, as happens in some cases on the fruit lands in this State. There are thus introduced per acre for every foot of soil millions upon millions of bacteria in addition to those naturally existing in the soil, which undoubtedly modify the flora sufficiently to change the power of the soil to produce soluble nitrogen and to add nitrogen from the atmosphere, to say nothing of the effects carried out by such flora on the lime and sulphur content of the soil and on minerals of other kinds present there. With reference to this subject therefore, the use of barnyard manures where they can be had cheaply or where they are produced on the ranches in question, must be urged as a very good practice from the standpoint of the encouragement and activities of the soil bacteria and the maintenance of the humus supply in the soil. To do the greatest good, manure should be kept in cemented pits where the temperature does not get high and kept well packed down and moist in order to prevent fire-fanging and the loss of valuable elements. They should not be allowed, when applied to the soil, to dry out, but should be plowed under as soon as it is possible to do so and they should be plowed in deeply and well covered in order to do the most good.

In this connection it is well to remark also, both as regards the barnyard manures and the green manures, that great harm may be done to the soil flora and their activities may be very much depressed if large quanties of organic matter are incorporated into the soil with too low a moisture content to decay rapidly that organic matter. This may have not only a negative effect, in that only a small amount of humus will be produced, but it will tend to dry out the soil by allowing the air to circulate so much more rapidly in the upper layers thereof. A good supply of moisture therefore must be assured if a green manure crop is to be plowed under. Otherwise, the crop had better be cut and used as feed if the soil moisture conditions are not to be endangered. Moreover the furrows must be plowed as close to each other as possible when the green manure crop is plowed in so that no large open spaces may be allowed for the exposure of some organic matter and for the too free passage of air so that moisture may be lost. Disking is also essential for the proper decay of the organic matter and prevention of any bad effects which organic matter may have under the circumstances above indicated.

Mazzard cherry roots make larger trees, but Mahalebs make healthier trees which bear younger, according to M. Sharpe of Vacaville.

Exterminate Squirrels

GOPHERS, PRAIRIE DOGS, BORERS, ANTS, ROOT APHIS, ETC.

USE

Carbon Bisulphide

It is absolutely effective, and leaves no injurious effect if inhaled while handling.

Wheeler, Reynolds & Stauffer

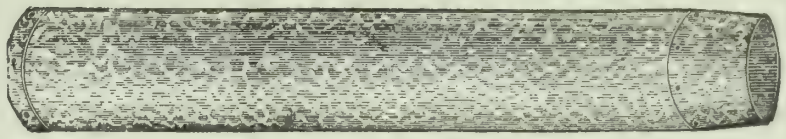
624 CALIFORNIA STREET,
San Francisco, California

The Only Scientifically Constructed Surface IRRIGATION PIPE Is The "AMERICAN"

LOCK SEAMS WITHOUT RIVETS. NO ROUND SEAMS TO LEAK.
Will outlast any other pipe made—easily handled—best for irrigating alfalfa. (We make and recommend Riveted Pipe for underground use only.) Write for Illustrated Catalogue, Irrigation Folder, and ask us "How to Test Pipe."

American Steel Pipe & Tank Co.

354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CAL.
Branch: 1228 H St., Fresno.



SEVENTH EDITION—FULLY REVISED

California Fruits and How to Grow Them

BY
EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION
June, 1914

Bound in Blue Cloth Vellum with Gilt Lettering

Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS

525 MARKET ST., SAN FRANCISCO, CAL.
Publishers

Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

Avocado Pear Trees

We offer 4000 budded alligator pear trees in the choicest varieties for immediate delivery and planting.

Trees three years old, budded two years, grown in the open nursery and never under shelter. The stock we offer is strictly first-class.

Single balled specimen trees, $5.00 each. Correspondence invited from large planters.. Agents,

Hockridge Nurseries, Inc.

REDLANDS, CALIFORNIA.

PIPE

NEW Threads and For Every Purpose Couplings Hot Asphaltum Dipped

2nd Hand and New

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

A Farmer Discredits Pending Rural Credit

To the Editor: In all the concrete forms of rural credit propositions I have seen discussed in publications coming to my notice, I have read none that, to my mind, should be acceptable to the country at large, or to the farmer in particular. We believe, and with reason, the United States leads the world in industrial progressiveness, and, incidentally in the art of borrowing moneys on these industries: why should we send some dozens of men to Europe to "study" rural credits? Why should we fashion our rural credits after those of any foreign country when it has been said "The American farmer is not in a condition of serfdom or semi-serfdom in which were the European people for which government aid was extended in some form or other during the last century."

Several Hard Kicks.—Why must we adopt a "German Plan," when a small commission could have obtained ideas from our farmers as to what would best suit their purpose (if they are to be considered as interested,) at a very small cost as compared with a junket trip to Europe? Why adopt "Australian Plans," when there is nothing in California to colonize; that is to say, as far as the state's interests are concerned; or is this just another scheme for the financial aggrandizement of a few? Where has California any land to colonize; or is it proposed the state shall buy tracts for this purpose, at the sellers' figure? [It is proposed so to do, but at the state's valuations.—Editor.] Or is it planned to furnish a handicap for the benefit of graduates of agricultural schools? for with a board of administrators, imbued with scientific theories, it is safe to assume that such would get the first benefits, even to the point of monopoly; as we presume the funds available for loans would be somewhat limited for some time to come. Certain discussions and more recent suggestions lead to this hypothesis.

Furthermore: why must the act be burdened with the everlasting contentions of the professional educator for scientific instructions, be they intelligent, practical, or otherwise; theories of people who seem to see no way of advancement without increased expenses; who seem to be unable to advise anything without adding to the general cost. The American Commission, investigating rural credits, is an instance.

A Discussion of Purposes.—When the rural credits feature was first given prominence by the press, and became a popular subject, I supposed that the main idea was to enable the farmer to produce in such a manner as to reduce the general cost of living; not simply to produce more, simply to have it absorbed by the idlers. A mechanic would hardly run a transmission hither and yon, simply to engage an additional lot of idlers. With a minimum fund of ten million dollars loaned, it looks to me as though it would cost the state two or more per cent to administer under the proposed bills. Then there is the cost and loss of time involved in the organizing of associations. Why kill a good thing by wrong handling?

Mr. Rutherford, of Oakley, (Pacific Rural Press Jan. 17, '14) indulged in retrospection of 50 years ago. The educational world has forgotten all about this kind of economy, in the study of theories.

Mr. Bowden, of Benicia, (Pacific Rural Press Jan. 24, '14) forgets we have had drilled into us for the past hundred years, from forum, pulpit and platform, the theory that we must forever coddle pet and pamper capital. It seems to have become a second nature with us—this worry about the proper treatment of capital. You are told you must not do this or you will scare it away; you must do this to attract it. Of capital we seem to have constituted an idol; to appease which we must ever give something, whose wrath is a menace; the fear of which seems to have invaded our very homes; to have dominated our every act. Mr. Bowden's suggestion that Postal Banks savings be used direct, without going through an intermedary bath in those institutions done in onyx (as our editor has suggested), would probably be regarded as sacrilege, in Washington, just now.

To Mr. Isaak, this should indicate why bankers can get government money for one-half to one per cent and turn it right back at 4 per cent. We are bred to it. This is why every plan so far advanced brings the "onyx" into the play. Capital must be "protected"; it must be allowed to sweat drops of blood out of every dollar each time it is turned over. This is the spirit which allows banks to manipulate industrial bonds to several times the actual value of such industries, while farms cannot be bonded for more than half their market value.

The Idlers Entrenched.—The banker, the broker and others; the idlers, over which our belts (medium) of exchange have been allowed to run, have absorbed just so much of the original power as would equal the world's debt today; for without artificial values and artificial conditions there could be nothing obtained without an equivalent exchange: therefore no indebtedness. However this inculcated spirit will accept an elaborate plan, contrary to our convictions, though it may be, to ameliorate conditions without eliminating the idlers—the main cause of such conditions —notwithstanding such might be the simpler expedient. We would hardly hand our purse over to another, on the strength of a plausible argument; why, then, should we pay a bank 1 per cent just to "O K" our collateral? I contend that a rural credit as proposed will make it possible for promoters to colonize land at inflated values. The promoters can form an organization; a humble farmer cannot. The former goes at it for financial aggrandizement; the latter would improve conditions for mankind. Just another example of our artificial conditions.

Prevailing Conditions.—In many sections of California only ¼ to ½ of the tillable land is now under cultivation, and which is owned and tilled by people who are little interested in rural credit, as ordinarily they do not care to borrow; and who are doing nothing to bring the

California Garden Flowers,

Trees, Shrubs and Vines.

By Prof. E. J. Wickson.

In this new book the amateur flower grower of the Coast will find just what he wants to know about the care of his garden, with detailed instructions, telling how to get the best results from the soil.

No new book is receiving the endorsement of the authorities that has already been accorded "California Garden Flowers." Here are same of the endorsements:

John W. Gregg of U. C. at Berkeley, says: "The literaure dealing with floriculture and landscape gardening for California is extremely scarce, especially that which is in a form to be of assistance to the amateur gardener. We appreciate your contribution because I believe it will materially help in furthering the interests in California Gardening."

Carroll B. Smith, Redlands, says: "There is daily need of just such a book, and I am sure better gardens will follow."

Luther Burbank, Santa Rosa, writes: "This book meets with my hearty approval, as it will be of great use to amateurs, and is also of more or less use to specialists as a reference book. There is a call for this class of books."

W. Vortriede, Sacramento, says: "There is nothing that could have pleased me more in this line. I have been an ardent admirer of Prof. Wickson since 1887, since which time I have been a reader of the Rural Press. I am always glad to recommend the Press and its books, because I know I can do a great deal of good to many Californians."

The book contains 260 pages of text; also a dozen full-page plates and other illustrations. It is handsomely bound in cloth with two-color cover.

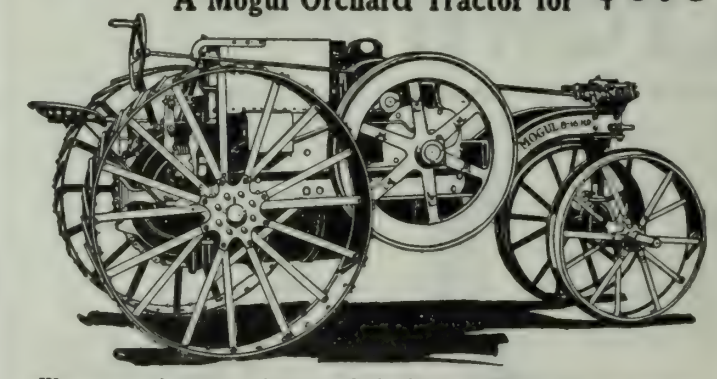
No plant lover, be he farmer or suburbanite, can afford to be without this book. **The price is $1.50 postpaid.**

The time for your spring work is at hand, and you should have this book to help make your work more successful.

Pacific Rural Press, Publishers

525 Market St., San Francisco.

Our New Year's Announcement A Mogul Orchard Tractor for $675



We announce for 1915 an all-purpose Orchard tractor with 8-H. P. at the drawbar and 16 on the belt—Mogul 8-16

An Easily Handled, Short Turning Tractor

THIS new Mogul 8-16 tractor will do the work of eight horses in the orchard.

Being a four-wheeled, all-purpose tractor, you can use it every working day.

It will do plowing and seeding as well as orchard cultivating.

It will draw manure spreaders, wagons, mowers or binders.

It will run a corn sheller, feed grinder, small shredder, thresher or ensilage cutter.

Any farmer can buy this new Mogul 8-16 tractor for **$675.00 cash, f. o. b. Chicago.**

The man who can use one of these Mogul tractors pays, at this price, the least for which a good, reliable, all-purpose 8-16 tractor can be sold.

If you want to use a Mogul small-farm tractor for spring work, your order should be placed now with the I H C local dealer.

Write us for full information.

International Harvester Company of America
(INCORPORATED)

Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

MAXWELL'S NURSERIES, Napa, Cal.

Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.
FIRST CLASS STOCK TRUE TO NAME.

uncultivated land under cultivation, either from lack of interest or lack of funds. At times there may be two or three individuals who might decide simultaneously that they would like to own and develop land in any one of these sections, but who would be ignorant of each other's wishes, therefore unlikely to see any chance of co-operation. Nor would they be likely to interest the resident farmer, for he generally regards an increased production in his own vicinity, as competition. and while he may not bother himself to oppose it, he certainly will not bother to approve or aid in any organization.

If the resident farmer does not come under the above category, then he is generally a man who feels that he cannot spare the time from his ranch work to devote to the subject; so that it is up to the promoter to gobble up the undeveloped land, on which circumstances have enabled him to set his own price—the resident owner having left his guard down, through short-sighted policy or disinterestedness. The promoter through publicity gets together the few who were previously inclined to invest, and others who are amenable to a popular idea, form a association, establish a rural credit institution and sell the land. Again he sets his own price.

What the Proposed Bill Would Do.—This bill would act as a discrimination against individuals and in favor of localities; inflating values in some districts, depreciating values in others. The scheme being under state control makes it unwieldly; for only through a state-wide organization could abuses as above be rectified; and we have seen how little chance there is of the farmer becoming thoroughly organized; nothing short of a call to arms will cement the rural men into one solid body, with but a single purpose.

A Plan Proposed—I would suggest as a more feasible plan, one that would be more likely to result in a fair opportunity to all, and for the best interest of California, the following:

1st. State legislature to pass an enabling act permitting counties to establish rural credit departments, permitting the transferring of surplus moneys from any funds to rural credit funds, as a starter, until bonds could be voted, thereafter issuing bonds to finance same; permitting surplus county funds to participate in these bonds at all times.

2nd. Legislature (if it be within its rights) to authorize State Treasurer to purchase such bonds of various terms, with surplus coin.

3rd. Submit a measure to the people for a state bond issue to aid counties (if state bonds are more attractive than county bonds.

4th. Counties sufficiently interested in the scheme to vote bonds for the purpose shall administer same through its existing officers; probably Assessor, Treasurer, Auditor and Recorder; each of these officers being under sufficient bonds to insure their absolute fairness. Loans to be made in proportion to the assessed value of lands involved; this would obviate the necessity of an expensive investigation of values. All loans made by the county to be of a public character. If newspapers cared to print any reference of recordings, they be required to print names, amounts and localities by townships and precincts involved; also providing a list of loans to be made and furnished each school district quarterly, listing all loans involved within such district. This to guard against "deals" being made.

Not only would such a plan reduce by a large percentage the cost of issuing loans, as the lands would not only have to be appraised (publicity and taxes involved would tend to prevent inflated values), but this would prevent any particular part of the state from "hogging" the available funds through undue influence. This would remove the feature from party politics, and from political influence as far as it would seem possible under present conditions, as well as bring the matter down to a local issue wherein any objectional features could be quickly corrected. Furthermore we should have had, in the present conditions in Europe, example enough of the evils of dictatorship, to warn us not to want to start anything of the sort over here, be the standard along educational lines or otherwise.

Laurel, D. A. LA PORTE.

[Surely a good kick is better than indifference. If all the farmers whom we have exhorted to think about this matter allow the above to pass uncontroverted it will involve clear rural discredit of pending propositions. Readers, it's up to you.—Editor.

FARM BUREAU ON RURAL CREDIT.

To the Editor: We will thank you for publishing the following resolution, which was adopted unanimously at a recent meeting of the Chowchilla Unit No. 4, of the Madera County Farm Bureau.

RESOLVED: That, believing that Rural Credits would promote the welfare of the whole State of California, and that more money at smaller rate of interest should be available to the farmers of this state, we, the members of the Chowchilla Unit No. 4, of the Madera County Farm Bureau, do respectfully urge the Committee appointed by Governor Johnson to prepare a bill providing for same, to use their best endeavors to secure the passage of this bill by our legislature at the earliest possible date.—**W. P. Coombs**, for the Committee.

BUDDED SEEDLING OLIVES.

To the Editor: Please tell me if olives will produce good fruit if budded from a seedling. I have some planted out and expect to bud. Some claim that the Mission will come true from seed. Is this so?—T. E. W., Hughson.

[If olive seedlings are budded to the right varieties, they will produce good or better crops than if the trees were grown from cuttings, and they will be entirely true to type from which the buds came.

Mission seedlings do not come true to type, neither do other varieties.

You will have noted the article on olive grafting in a recent issue of Pacific Rural Press.—Editors.]

If topgrafted or heavily pruned trees are not already whitewashed, get to it at once and cover even the grafting wax.

Armstrong Nurseries
ESTABLISHED 1889

—A Letter
—or a Telegram

addressed to me requesting lowest prices on Mission and Manzanillo

Olive Trees

will result in obtaining the lowest prices available on first class, scientifically propagated stock. Trees that will grow and produce an abundance of fruit true to name.

Can make prompt shipments and guarantee safe deliveries to all points in California and Arizona.

WRITE OR WIRE TODAY FOR PRICES.

JOHN S. ARMSTRONG, Proprietor
406 Euclid Ave.
Ontario California

THE WAY TO THE EAST

BEFORE YOU GO EAST THIS SPRING

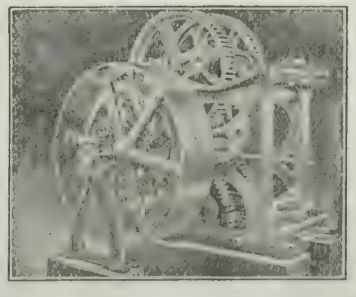
Please see a Salt Lake Route Ticket Agent and let him tell you about the excellent service to all points East of and including Salt Lake City.

Three daily trains have through standard and tourist sleepers to many points, and we are certain you will be well satisfied if you make the journey over the

SALT LAKE ROUTE

Any agent can give you full information.
San Francisco Office is at 643 Market St.
Phone Douglas 3614.

CALIFORNIA ORANGE DAY MARCH 20. EAT ORANGES.



Pomona
DEEP WELL
Pumps

For deep lifts, as well as shallow lifts combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalogue 104,
with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.

Efficiency Counts in Farm Labor.

To the Editor: I am much interested in the article of Harry H. Cockley on "Efficiency in Agriculture" in your paper of Mar 13th. Probably my interest is largely owing to the fact that I have tramped the same trail under practically the same conditions and arrived at different conclusions.

Landing in Tulare county. June 1, 1886, with a capital stock consisting of $20 in cash, $100,000 worth of optimism and more energy than avoirdupois. I joined the throng, and like Mr. Cockley, become "a common laborer in the field." I continued as such for the following 15 years, serving as faithfully and well as I knew how the many employers under whose direction I worked in various parts of this great state. I roamed over it, eager to acquaint myself with all its advantages and disadvantages and to experience all its varied climates. I think my career during those 15 years was about as checkered as the average farm laborer's, but the experience gained was an excellent foundation on which to build the future.

Ten-hour days were only pleasant dreams, which were rudely shattered by the alarm clock at 4 a. m. Feeding, cleaning and harnessing six to ten mules was followed by breakfast at 5:30. Then to the field which in the short winter days was before daylight. The mid-day meal was hurried and often taken in the field, sitting on the plow, on which occasions the faithful mules were forced to content themselves as best they could with a drink of water for their lunch and live in anticipation of more solid nourishment when they returned to the barn after dark. Usually a part of each evening was spent in repairing harness and padding collars to relieve the galled necks. This sort of work, together with roaching the mules, repairing the machines with which we worked, doing the weekly washing and other preparations for the coming week occupied most and often all of each Sunday. The average wage for all but harvest labor was one dollar per day, and often for months at a time we never saw the inside of a dwelling or place of amusement.

In all those days of "shifting" but not "shiftless" labor, I seldom found an employer who did not fully appreciate efficiency in his employees. I cannot agree that efficiency counts for nothing in our agricultural operations today. As an employer now, it is practically the whole thing in my estimation, and when I find a really efficient man I encourage him in every possible way to stick closer than a brother.

According to my observation and experience, it is the employee and not the employer that is unappreciative. With ten hour days, better wages, comfortable quarters and social advantages unthought of twenty years ago, I find the average laborer much less efficient than then. I do not believe there is any such thing as the "leveling process" employed in agriculture. Any man will rise to his level and overcome all obstacles to get there. If he has "skill, efficiency, knowledge and intelligence," he will receive the "just consideration and equitable reward." These are just the sort of laborers employers are eagerly seeking, but too often fail to find. The price of success is work and we must expect to pay the price before the goods are delivered. This last line brings to mind a well-known rhyme, which seems appropriate here

"Unless you make good, as you should, you ought to go back to the woods;
For the fellow who stays in these modern days, is the one who delivers the goods."

My advise to Cockley is, do not get discouraged. "Two years" is not long to work for advancement. Good qualities are appreciated just as much as they ever were and the opportunities for advancement were never better. If you are "a common laborer in the field" be the best one there. Brace up and show your courage. Be different from the rest. Don't you believe there are no other alternatives offered but "to fall in line with these laborers and be content to abide by the level wage." The best labor has as ready sale at a premium as the best horse, the best fruit, or the best of anything. The most of the trouble lies in the fact that, as you say, "the laborers halfheartedly perform their tasks." Such labor is worth but the ordinary wage and never will be worth more. "A just reward for the efficient worker" is not "an idle dream" but a glorious reality, as thousands of efficient workers can testify. Don't talk "tragedy," talk "comedy." Be optimistic, smile.

"Its fun to fight when you know you are right and your heart is in it too,
Though the fray be long and the foe be strong and the comrades you have are few.
When the wise ones pant that you simply can't, it's fun for a fighting man,
To laugh and try with a daring eye, and prove to the world that he can."

Chas. F. Collins, Visalia, Cal.

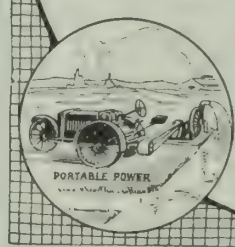
Horticultural Commissioner H. P. Stabler of Sutter county would plant walnuts 25 feet apart and remove half of them later.

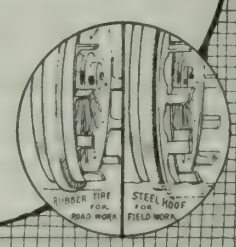
TREES
Slaughtered

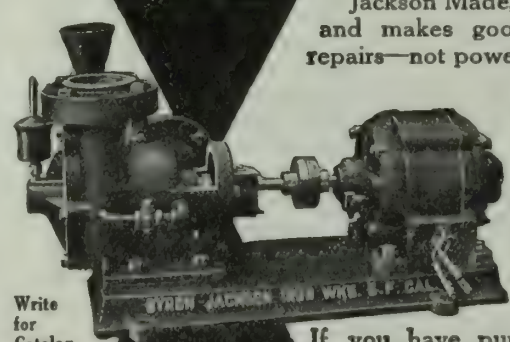
25,000 Surplus fine trees cut low in prices. Prunes, Peaches, Bartletts, Apples, Cherries, Figs, Olives, Walnuts. Prices reduced very low. Stock in fine condition. Want to close out yard quickly. Wire reservations, write or phone for low prices on your wants.

TABLE GROVE NURSERIES
Healdsburg, Calif.
Res. Phone 12F3. Office Phone 33.

CITRUS TREES OLIVE
Orange, Lemon, Grapefruit, Olives.
Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.
Orders Now Being Booked.
Write for prices and particulars.
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.

LAMBERT STEEL HOOF TRACTOR in the Orchard
The One and Only Tractor for Ranches of All Sizes
When you get a Lambert you get the finest, most dependable tractor in the World. Nothing cheap enters into its construction. For instance, Timkin bearings are used throughout instead of ordinary bearings generally found in tractors. The Steel-Hoofs are another feature. They tend to walk over the ground instead of digging into it and at the same time afford a vise-like grip—no chance of slipping. The Lambert deserves a place on your ranch because it positively saves money. Less than a dollar's worth of fuel is required for a day's work and it easily does the work of 8 or 10 horses. That means absolute economy. It will plow, disc, harrow, cultivate, haul crops to town and many other things.
Call and let us demonstrate this Tractor —you'll be convinced it is the Tractor you should have. Write for descriptive booklet.
William Gregory
666 N. Main St., Los Angeles
Dealer in
Engines Pumps,
Irrigation Machinery, Autos
Oils, Etc.




"Jackson MADE"
The secret of the wonderful popularity of "Jackson Made" pumps is their all the year round efficiency. No matter what the job may be to which you put a "Jackson Made," it takes right hold and makes good. No expensive repairs—not power eaters.

"Jackson Made" Pumps save practically their first cost in a very few months.
Write for Catalog No. 47 J
If you have pumping worries—tell them to our expert engineers—they'll help you free of charge.
A Better Make Not Made
Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

MOCOCO SUPERPHOSPHATE
WHY NOT INCREASE YOUR
Alfalfa Crop?
You can by using $2.00 worth of Mococo Superphosphate per acre. It will increase your yield anywhere from one ton to four tons per acre. The richest phosphorus fertilizer on the market. Write for booklet giving testimonials.
Mountain Copper Co., Ltd.
332 PINE STREET, SAN FRANCISCO, CAL.

Write for a copy of Morse's 1915 Garden Guide
Just off the press
Mailed Free
C. C. MORSE & CO.
GARDEN-FIELD AND FARM SEEDS
749 FRONT ST. SAN FRANCISCO
Every package of Morse's Seeds Vegetable or Flower, are dependable seeds. Fully tested before packed.
For Sale Everywhere.

Tepary Bean Growing.

[Written for Pacific Rural Press by J. B. McGrury, Mulberry.]

As I have received a large number of inquiries regarding the Tepary bean from subscribers of Pacific Rural Press, and others, I am going to try and answer them in this manner:

Net Good Returns.—I imported seed from Arizona several years ago, and since then have raised fifty to seventy-five acres of them each year. I find these beans very desirable for a summer crop. Aside from their ability to add humus and nitrogen to the soil, they may net $50 per acre on unirrigated land, and also as high as $100 on land that is irrigated, after occupying the land for the short space of 90 to 100 days. They command the same price on the market as the small white bean. A good way to distinguish the Tepary from other small white or navy bean is to immerse them in water. The skim of the Tepary will wrinkle in five minutes, while it will take the others more than a hour.

Thrive in Heat.—The hotter it gets, the better they seem to get along. I have had them flourish in weather that was so hot that it wilted my corn The ground should be moist enough to bring the Tepary up, and it will continue to blossom as long as there is any moisture in the ground or the frost sets in. They should be planted early after all danger of frost is past, and should be cultivated like other beans.

How to Plant.—They should be planted in rows wide enough apart so they can be cultivated. I sometimes use a corn-planter with the plates set so as to drop two or three beans one foot apart. It will require from 8 to 12 pounds of seed but I have seen people thresh them to plant an acre, and the seed should be put down to moisture. Try and have your ground as even as possible and avoid low places so that your crop will all ripen at the same time.

When picking time comes, the vines should be placed on canvas or boards to prevent loss from shattering till they are ready to be threshed. In harvesting ours, we use a Case Separator to thresh them with a stick or flail. A bean huller would be best if a person had many to harvest.

MORE ABOUT THE TEPARY.

To the Editor: In the spring of 1914 I received one ounce of Tepary beans from the Government Experiment Station in Arizona. I planted them the 25th day of May at Park City, Montana. The land was very dry and it took them two weeks to come up and first ripe beans showed up ninety days from the time they were planted The loop-worms ate the beans off for two weeks They were irrigated twice. When they were threshed, there were ninety-six ounces. Some stalks had as many as two thousand beans. I intend to plant quite a lot this year. —C. E. Grow, Le Grand.

FATTENING BELGIAN HARES.

[Written for Pacific Rural Press By Mrs. R. S. Knight, Santa Rosa.]

I have read several very interesting articles in the Press about Belgian hares, and now that the question of the increased cost of living is becoming a more important one every day, I thought I would like to tell of my successful experience in fattening hares for the market and for home consumption.

I have kept hares a long time, and for market purposes have always raised a cross strain of Flemish and Belgians, or Flemish and New Zealands. They seem to make a strong animal, wonderfully free from complaints.

The feeding of corn on the cob and skim milk makes white, firm flesh and is very successful in every respect. I feed it from the time they peep out of the nest and commence to nibble, though mine do not come out early. I attribute this to the fact that I give the does a good balanced ration to help the milk flow. They have their panful of milk, which they always finish, and as soon as the young ones begin to take some I increase the supply. I give the does plenty of grain twice a day, corn on the cob, and a rackful of good volunteer hay. The hares are extremely fond of the latter.

I give the young ones, when they leave their mothers at six weeks of age, some grain in the morning, or carrots, a big dish of milk, and plenty of hay. At night, I feed as many corncobs as they can manage and ought to have. I am giving four large ones (as a sample of quantity) to a litter of eight hares two months old, a pan of milk, and a rackful of hay.

A word about milk: If you give any animals you keep a taste for milk, by even giving it to them occasionally, you will find it a very good thing in time of illness, as they will drink milk when they refuse everything else. Feed well and keep warm in winter, is the watchword of success.

I have had no trouble with slobbers when I feed corn, and I find that at three months of age they grow into fine, solid-fleshed animals and make very good eating. What I feed may be called a generous diet and considered too expensive by some, but I have yet to learn a cheap way to raise stock either for breeding or the market.

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK COMPANY, Dept. B.
731 Market St., San Francisco, Cal.

If you want small clean
Picholine Olive Seed
Write me for samples.
PRICES:
50 lbs. or more - 65c. per lb.
Less than 50 lbs. - 75c per lb.
A. L. Fairbanks, Bangor, Cal.

OLIVE TREES

Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.

THEODORE PAYNE,
345 S. MAIN ST., LOS ANGELES, CAL.

ESTABLISHED REX 1896

Arsenate of Lead

UNEXCELLED IN ITS
FINENESS OF PRECIPITATION
SPREADING QUALITY
MISCIBILITY ADHESION
QUICK KILLING

Rex Arsenate of Lead

is made from the very best quality of Raw Materials, is processed in our own factory by our own Chemists, who have had the experience of years.

REX has demonstrated 100 per cent efficiency in numerous orchards. Why not use it in yours?

Write for
Rex Arsenate of Lead Booklet
To

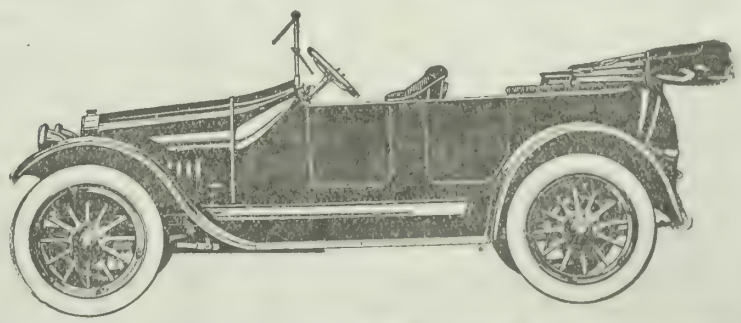
CALIFORNIA REX SPRAY CO.
BENICIA, CALIFORNIA
Manufacturers of

Rex Lime and Sulphur Solution
Rex Iron Sulphide
Rex Miscible Oils and Distillates

ETC. ETC. ETC.

Mitchell

Light Four $1250 Special Six $1895
Light Six $1585 Six de Luxe $2350



Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco.

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground High Grade
Shield Brand

Phosphate Rock

The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

Mechanical Power on the Farm.

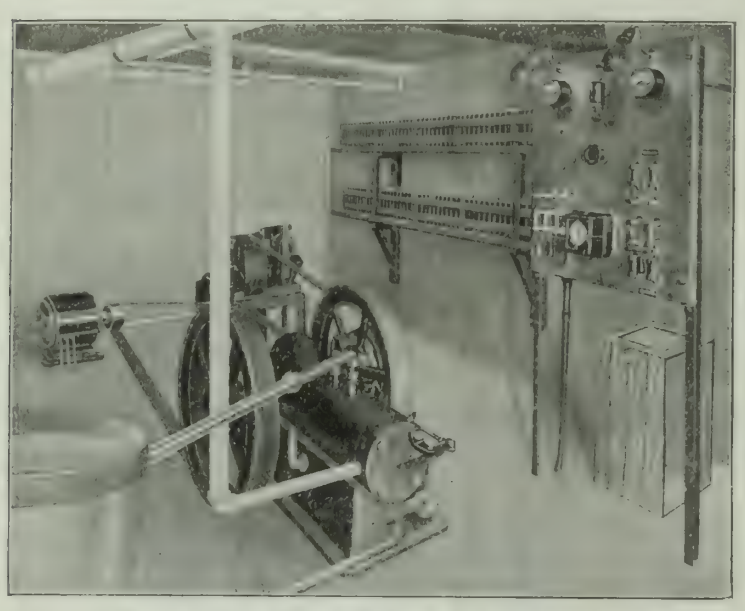
ELECTRIC LIGHTS REDUCE FIRE LOSS.

[Written for Pacific Rural Press by E. M. Cutting, San Francisco.]

Every ten minutes $5,000 worth of property is destroyed by fire in the United States.

A great many of these fires are caused by overturned oil lamps and other defective lighting systems. Such causes of fire are especially dangerous in the rural districts.

Suppose you send a farm hand out to feed the stock with an ordinary lantern, and suppose he overturns it in a hay mow, or the wind blows it over while he leaves it for a minute and the hay and grain in your barn catch fire and you lose the buildings and the horses, cows, etc., if you cannot get them out in time?



Farm Electric Lighting Outfit is Good for Other Uses, Too.

This thing has happened in every rural community; and every time it happens means just one more unnecessary fire.

The danger of fire from defective illumination is reduced to practically nil when an efficient electric lighting system is used.

Right here on the Pacific Coast there are numerous rural homes in which electric light could be installed economically and conveniently, and the only obstacle is the fact that the owners of these homes have the mistaken idea that electric light is costly, is hard to take care of, or is apt to be dangerous.

There is absolutely no danger whatever from electric light, as the wires are fully protected by insulation; and as the light is "bottled light," it cannot set a fire as is the case with oil and gas. It cannot be upset because it is always in the bulb in the socket.

It certainly is not costly because electric light is just as economical as any other system when you consider the cost per candle power hour as shown below. And it is extremely simple and easy to operate.

When Thomas A. Edison invented electric lights for the city, it was not long before he realized the fact that they would be even more of a boon to country dwellers. In fact, he worked for many years upon the developing of a practical lighting plant for country homes. His ideal has been realized, as is shown by the experience of thousands of rural homes where electric lights brighten the evenings and make everyone contented to stay at home and read, play, study, sew, etc., by its brilliant yet soft and pleasing light.

Same Plant for Other Uses.—Mr. Edison realized that not only would electric light reduce the fire risk, but it would also provide a source of power for many other uses.

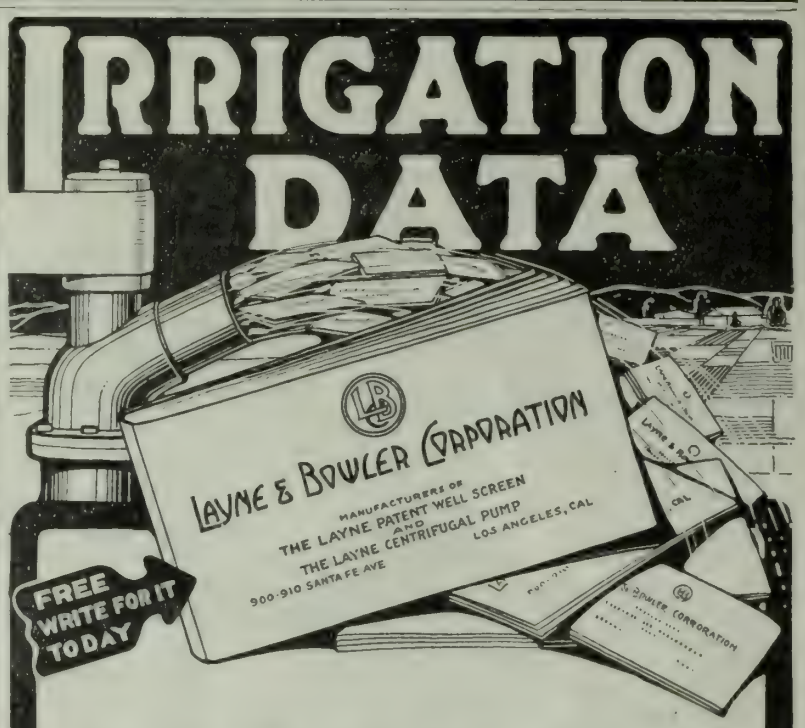
An electric battery system consists—apart from the wiring and fixtures—of four elements: A gasoline engine, or other source of mechanical energy, which is employed to operate the second element—the dynamo. The function of the dynamo is to generate an electric current, which, in turn, is employed to charge a storage battery. Finally, the fourth element is a switchboard, whose function is to provide a means of controlling the electric operations.

The gasoline engine may be disconnected and operated to run various mechanical devices. If the mechanical devices are too far away or too scattered to permit use of the gasoline engine as a source of power, then we may operate them by an electric current. Thus, current may be obtained by operating the gasoline engine and the dynamo in conjunction. Indeed, we may connect up the electric light wires and operate the lights in the same way. Then, we may use the whole plant and "store up" electricity in the storage battery, which may be used to supply current for lighting or the operation of mechanical devices, churns, separators, sewing machine, motors, fans, etc.

Using the Plant Economically.—These several alternatives are not equally economical in respect to the cost of operation. For example, we can run a pump for less money by connecting it to the gasoline engine than by using current from the dynamo or the storage battery. Again, we can operate it more economically by using current from the dynamo rather than from the battery. The fundamental reason underlying these facts is the consideration that every change of energy involves loss. We have a certain amount of energy locked up in the gasoline. When this is converted into mechanical energy by the engine we lose something. When this mechanical energy is converted into electric energy by the dynamo there is another loss. And, finally, when we "store" energy in the battery and use it as current later on, we lose once more. A good grasp of this principle will make for the most economical operation.

Estimate Size of Plant Needed.—In deciding on an electric lighting plant for your home, the first thing to consider is the number of lamps that will be in operation at one time. While you may have fifty lights distributed among your different buildings on the average farm there may never be over ten or twelve in use at one time. The distance in feet of

IRRIGATION DATA



Fill Out and Mail This Coupon for Valuable Pump and Irrigation Booklet

LAYNE & BOWLER CORPORATION,
900 Santa Fe Ave., Los Angeles.
Gentlemen:
Without obligation on my part, please send me your Irrigation Booklet No. 25.

Name .....

Street or R. F. D. .....

Town ..... State .....

Install The Layne & Bowler Pump—Produce Cheapest Water.
"See exhibit of pumps at San Francisco Exposition."

Layne & Bowler Corporation
900-910 SANTA FE AVE. LOS ANGELES.

READ-MILLER CO.

Both Lock-Seamed and Soldered

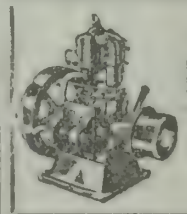
Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

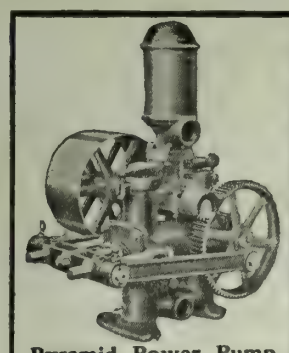
Robinson Hardware Co.
Box V, Gilroy, California.



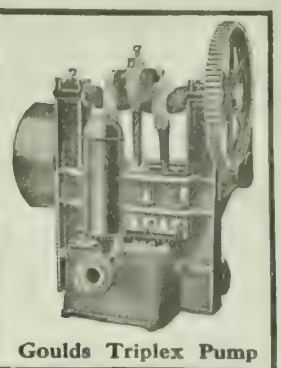
CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Light Weight.
Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

Redwood Tanks
I sell to the consumer, Box shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. Wilson, Stockton, Calif.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon


Pyramid Power Pump

WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEM
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
GASOLINE ENGINES
Send for our large No. 36 Catalogue Mailed Free.
Inquire of your Local Dealer for full particulars.


Goulds Triplex Pump

and from each other must then be considered. If the farthest electric light bulb is not over 400 feet from the battery, a 30-volt plant is preferable. There is absolutely no difference in the electric light, either in brilliancy or otherwise, whether it is 30-volt or 110-volt.

Another point to be considered in deciding on the proper plant is how often you run your engine if you are using it for running your electric plant. If you are running your engine only for your electric lighting plant it is advisable to install a battery which will supply your average demand for approximately three days on one charge of the battery. Under these conditions it would only be necessary for you to run your engine about twice a week to charge your battery; or by running the engine an hour or two a day you will always have plenty of light. It requires seven hours to charge a storage battery completely if lights have been used until the battery is entirely exhausted.

Answers to the considerations mentioned will enable any electrical concern selling the complete electric plant to recommend a unit of suitable size.

Probable costs of such outfits will be printed in next issue.—Ed.]

No Pit
is required with the
Krogh Deep Well Turbine Pumps

For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company
SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

WALNUT ORCHARD TRACTOR GREAT.

[Written for Pacific Rural Press.]

So green at handling tractors that part of the time his gang plow wheel was running up among the weeds on the unplowed land, and at other times the tractor itself was running in the furrow, but so enthusiastic that he kept on plowing when he ought to have been doing chores, Frank Campbell of Goleta pointed to his first day's plowing in the small walnut orchard, and said, "It usually takes twelve days to plow that orchard with four horses, but I will finish by Saturday night with this little tractor, though it is the first time the tractor has ever been hitched to any plow, and it is the first time that I ever handled a tractor". It was Thursday night that he spoke.

Not only was he going to do so much plowing, but it was to be smoothed down at once by a triangular spike-tooth harrow hitched behind the three-gang plow by a chain which extended from the plow frame out over the end of the heavy strap iron arm, so that the harrows followed the plow exactly.

The little eight-horse-pull tractor is built for a four-gang plow to cut forty inches wide, but Mr. Campbell was not waiting until he could get a new plow, because the time had come for the work, and so he used the old plow. He expects to get a new four gang plow as soon as possible, and harrow behind it as he is behind the three gang now.

Plowing five inches deep in the unirrigated orchard, many of the walnut roots were cut, as shown by the bunches of them which accumulated on the drag teeth.

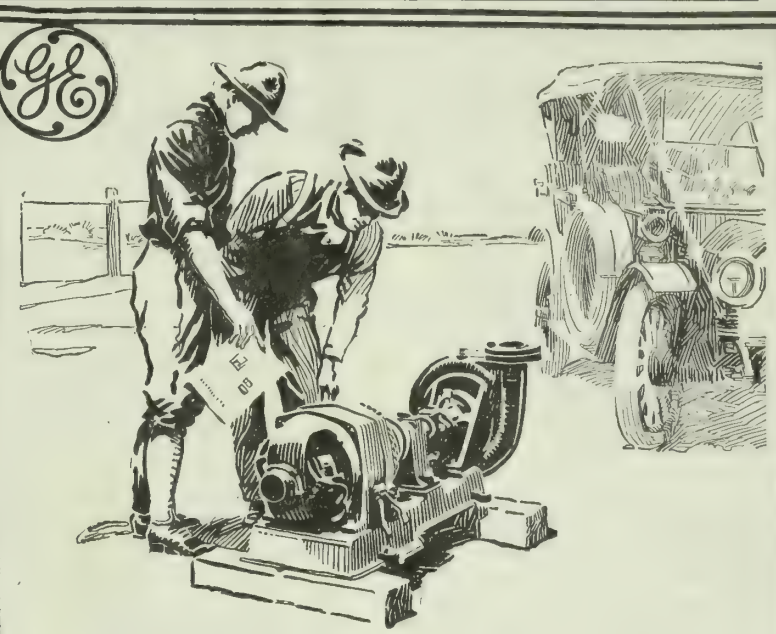
"This is all right," said the father, D. W. Campbell, "for root pruning is as necessary as top pruning. It is the growing tips of the roots which provide moisture and plant food for the tree; and by cutting the roots off now, new ones will be encouraged to come up in the soft soil and gather plant food as they come."

The Campbells usually left two rounds next to the trees when plowing with four horses. The outside round would have to be plowed with a two-horse team and the last one next to the trees, with a one-horse plow. This is because the large roots or the plows would be in danger of serious injury if the gang plows were used so close.

However, with the tractor, dirt was turned away from the trees, leaving the edge of the furrow only a foot from the trunks, and Frank expects to do even better than this.

A single plow will be hitched by a chain, somewhat as the drag is hitched, to run shallower than the rest of the plows and cut away the dirt close to the trees as it could be cut with a single horse. This one will be hitched to the tractor by means of a wooden pin so that if the big roots are encountered, the pin will break rather than tearing up the roots or damaging the plow.

Moves Machinery on Sled.—Mr. Campbell has a heavy sled on which he loads the cultivating machinery when moving it from one field to another, rather than dragging it along the roads. To load the machinery on the sled, he lays planks for a run-way, hauling the machinery up by means of a long chain hitched to the tractor, the tractor then hauls the sled-load to the field where it is to be used.



Let a G-E Engineer Help You Save Money

When you buy a G-E Electric Motor, you get with it the expert services and advice of a competent engineer who represents the largest and most widely experienced electrical manufacturing company in the world. Any problem of economically using a regulated supply of water for your ranch is easily solved if you will let a G-E engineer and a G-E motor help you.

Hundreds of letters have been received from ranchmen, stockmen and farmers throughout the West praising

G-E ELECTRIC MOTORS For RANCH AND FARM

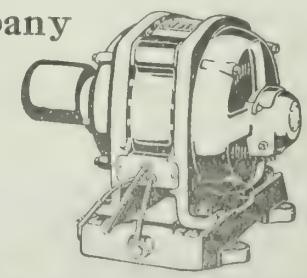
Sturdy, dependable, no delicate valves or machinery to get out of order, they outlast the best engine.

—And there is real economy in a G-E motor. It will deliver power every hour in the day without attention and can be switched on and off, a mile away if necessary.

Write today for our illustrated booklets about ranching with electricity—they are free.

General Electric Company

Los Angeles Office:
124 West 4th Street
San Francisco Office:
Rialto Building



The General Electric Company will gladly answer all questions relating to the use of electric power for ranch and market garden irrigation.

Address nearest office. 4957

To upset and tighten the worn track links of the large Caterpillar type tractor takes two men about two days in a blacksmith shop. An old pin is inserted in the hole after the link has been heated and the link is then hammered to fit the old pin. There is seldom any trouble in getting the old pin out.

The greatest chasm between the producer and the consumer is the mud hole.

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

The Santa Paula Citrus Association has recently installed a spray outfit as a co-operative proposition to work on the mealy bug which is bad in some of their orchards.

According to the estimate of D. E. Huff, manager of the Orange County Fruit Exchange, the outlook for Valencias in that section is very promising.

A corporation for the handling of Tulare county citrus fruit has recently been formed, called the Lindsay-Merryman Citrus Exchange, and last week was admitted into the California Fruit Growers' Exchange.

The unusually early bloom of the oranges in the Porterville section has stimulated the shipment of many stands of bees from the apiaries for the crop of orange honey, which always brings good prices.

DECIDUOUS FRUITS.

Five thousand apricot trees in one shipment were condemned in Ventura county in February on account of the peach root borer.

Extensive tree planting is taking place in Glenn county. One firm is planting one thousand acres to peaches and almonds.

The Beaumont Farms and Heights Co. of Riverside has arranged to plant seventy acres of its land to cherries and apples this season.

Apricots are the leading fruit imported to Ventura county last winter. In December, there were 300 trees; in January, 30,968, and in February, 36,510.

A disease, unlike the blight, is affecting the pear trees in the Auburn section, and Prof. W. T. Horne of the University of California is making investigations in regard to the causes of the trouble.

According to reports received from Chico, it is thought that this year's cherry crop will be the largest in history, in the neighborhood of fifty-five tons, and fully twice as large as last year.

OLIVES AND NUTS.

California Ripe Olive Day is to be celebrated on March 31.

The firm of McGiffin and McGregor are preparing to plant sixty acres to Mission olives near Dinuba this spring.

A large acreage is being planted to olives in Butte county this spring, and it is reported that more than 25,000 olive trees have been imported to the Oroville and Palermo sections to date.

A tremendous increase has been noted in the olive acreage in Shasta county this spring. There are about 1500 acres in the county, the Ehman Olive Co. having the largest holdings, consisting of 120 acres of bearing trees and about 800 acres of non-bearing.

GRAPES AND SMALL FRUITS.

Last week the Lodi grape growers received $200,000, the second payment from the Association for the 1914 crop.

On March 11, Loomis, Placer county, shipped the season's first strawberries. This shipment was made about a month earlier than the first shipment last season.

A large number of Del Rey farmers recently joined the Associated Raisin Company, realizing the importance of putting their crops in the hands of the Association.

The Happy Valley Berry Growers' Association of Shasta county recently met and adopted rules to govern the marketing of the products of the growers in that section. There has been very little co-operation among the growers in the past, and it is thought that the new regulations will greatly benefit conditions.

GRAIN AND FIELD CROPS.

Idaho potatoes are being shipped into Salinas Valley, so clean has their local supply been sold out.

Extensive seeding to alfalfa is reported from the Los Molinos section, one merchant recently selling 3500 pounds.

Shipping of rice will shortly take place from Gridley, a Sacramento firm having purchased 15,000 sacks of rough rice.

Peppers from Florida are selling in San Francisco at 30 cents while "large" California peppers are selling at 20 cents on account of inferior size.

Ventura county produced 1,200,000 bags of lima beans in 1914 on 67,000 acres, according to the census by Horticultural Commisioner A. A. Brock.

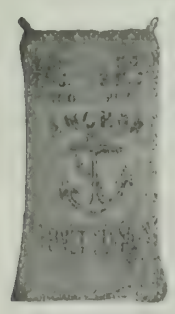
Two contractors from Chicago have recently purchased 640 acres of land from the Richvale Land Co. in Butte county to plant to rice this year.

From present indications, every available acre of bottom land in Yuba and Sutter counties will be seeded to rice this season, a total of about 25,000 acres.

Receipts of asparagus in San Francisco, according to Wetmore Bros., increased from 1800 boxes Mar. 16 to 6884 boxes Mar. 23, which caused prices to drop from 12 to 5 cents per pound.

According to the horticultural inspector at Oxnard, there were last year 14,810 acres of sugar beets in that section which averaged 10.07 tons per acre and sold at an average of $6.30 per ton.

L. H. Twede of Willows, Glenn Co., is preparing 300 acres of land for rice planting this season, and if weather conditions are favorable, he will finish planting before the month is over. This will be the earliest planting ever done in that county.



SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes. LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO., 624 California St., San Francisco, Cal.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO., 56 Sutter St., San Francisco

The cheer-up wind of jimmy pipe joy

Copyright 1915 R. J. Reynolds Tobacco Co.

It sure comes to real men mighty quick when they get on the trail of Prince Albert—pipe and cigarette makin's tobacco that *never did* and *never will* bite tongues or parch throats.

That's because it's friendly-like; because it's manufactured by an exclusive patented process that cuts out the bite and the scorch and just makes men so all-fired happy they can hear the pollywogs purr even before the pussy willows peep into the spring sunshine.

PRINCE ALBERT

the national joy smoke

is particularly for men who smoke and for men who want to smoke and have found heretofore they couldn't. So take this invitation and come on around and get acquainted with Prince Albert in the tidy red tin. Let real pipe and cigarette happiness break right into your life.

Get started on the tidy red tin, then you'll graduate to the crystal-glass pound humidor with the sponge in the top that keeps your P. A. fine and pipe-fit all the time.

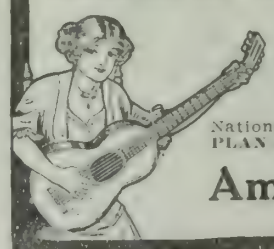
Prince Albert is sold everywhere. Toppy red bags, 5c; tidy red tins, 10c; handsome pound and half-pound tin humidors; crystal-glass pound humidors.

R. J. REYNOLDS TOBACCO CO., Winston-Salem, N. C.

FREE To Introduce Our Course

One Month's Tuition Without Charge. Send for Particulars at Once.

Learn Any Instrument



At social gatherings no one is in such demand as the person who plays. You can learn any instrument by our method in a very short time. Hundreds of others have. Our big free catalogue tells the story—send for it now! We teach piano, violin, mandolin, guitar, banjo, organ, cornet, etc. Reference: Northwestern National Bank. DON'T DELAY — SEND FOR OUR PLAN AT ONCE. It does not obligate you in the least.

American School of Music

Suite 750, Commonwealth Bldg., PORTLAND, OREGON.

Ask Your Dealer for

El Dorado Cocoanut Oil Cake

for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,

149 California Street, San Francisco

"Campbell" Gates — Anderson Flume Gate Company — Diamond Gates

Redlands, Cal. Phone Black 96

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

MISCELLANEOUS.

The Tulare County Canning Company is shipping its product rapidly, and it is thought that the stock will be cleaned out in the next few weeks.

The agricultural income of Ventura county is due, according to the Horticultural Commissioner, to the following products which are named in the order of their income importance: Beans, lemons, apricots, oranges, and beets.

All records in world's fair attendance were broken when the Panama-Pacific International Exposition closed its gates March 20, thirty days from opening, with an attendance record of two million. The average daily attendance has been 66,880, and both the total and daily average is higher than they were at the Chicago and St. Louis Expositions.

AGRICULTURAL FEDERATION

The committee authorized at the recent meeting of representatives of all agricultural organizations in California to draft a constitution and by-laws for a State-wide federation of all agricultural organizations, has been appointed, although two men, Messrs. Geo. Roeding and G. H. Hecke, have not accepted. C. B. Messenger of the California Cultivator, temporary chairman of the committee, reports the following acceptances for service: Prof. H. E. Van Norman of the University Farm School, who is to be chairman; Dr. H. J. Webber of the Citrus Experiment Station at Riverside; C. Thorpe, Walnut Growers' Exchange; C. A. Kimble, California Wool Growers' Association, and Guy H. Miller of Modesto.

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for **Portland Cement Concrete.**

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Cement Concrete

The first cost is the last cost.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

WORLD'S FAIR FLOWER SHOW.

What Carl Purdy says is the best display of spring bulbs ever held in San Francisco was staged at the Horticultural Building of the Panama-Pacific Exposition last Saturday and Sunday. There were indeed some of the most beautiful bulb flowers that have been created.

Notable among them were the Darwin tulips, tall, stiff-stemmed flowers. These were not so large as they would be later if grown outdoors, because they had been forced by hot-house conditions to get them blooming in time.

Mr. Purdy expects to have Darwin tulips in a month or so growing on his bulb farm 2300 feet high in Humboldt county, so tall that it would be impossible to get them into a three foot case. Bulbs forced by too much heat, either indoors or out, make smaller flowers.

Another among the finest exhibits was that of the Easter lilies, which towered above the rest of the show in glorious fashion.

Snuggling along the edges, almost under the visitors' feet, were masses of fragrant lilies of the valley whose delicate leaves and great waxy white flowers showed their hot-house origin.

Some especially fine iris were there. One of them called the Susiana was almost spherical in form, six inches across, with lips hanging orchid-like between the petals and having velvety black throats. The petals were delicately dashed with brown spots.

Daffodils, narcissus, and their kindred made a starry, gladsome display and several masses of gorgeous azaleas decorated the spacious hall with their vari-colored crowns.

Though it was nearly too late for hot-house roses and a little early for outside fancy roses, there was a splendid though small exhibit of La France, Marchioness, American Beauty, and a number of other beautiful kinds.

The show was held under the auspices of the Pacific Coast Horticultural Society, a trade organization of flower growers.

A silver medal for first prize was awarded Pelicano and Rossi for the most beautiful bridal bouquet, made of butterfly orchids and lilies of the valley. Second prize was given a bouquet of the white cyclamen.

It will not be long until the outside gardens, south of the Horticultural Building, comprising flowers from about 150 exhibitors, will be competing for World's Fair prizes. Already there are several gorgeous sections.

Creating a New Art

At the Centennial Exhibition at Philadelphia, the exhibit of the Bell System consisted of two telephones capable of talking from one part of the room to another.

Faint as the transmission of speech then was, it became at once the marvel of all the world, causing scientists, as well as laymen, to exclaim with wonder.

Starting with only these feeble instruments, the Bell Company, by persistent study, incessant experimentation and the expenditure of immense sums of money, has created a new art, inventing, developing and perfecting; making improvements great and small in telephones, transmitter, lines, cables, switchboards and every other piece of apparatus and plant required for the transmission of speech.

As the culmination of all this, the Bell exhibit at the Panama-Pacific Exposition marks the completion of a Trans-continental Telephone line three thousand four hundred miles long, joining the Atlantic and the Pacific and carrying the human voice instantly and distinctly between New York and San Francisco.

This telephone line is part of the Bell System of twenty-one million miles of wire connecting nine million telephone stations located everywhere throughout the United States.

Composing this System, are the American Telephone and Telegraph Company and Associated Companies, and connecting companies, giving to one hundred million people Universal Service unparalleled among the nations of the earth.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

TRADE MARK REG'D DEC. 6, 1898 NO. 32212

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" — the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

See your seed dealer or write for *free booklet.*

ARMOUR FERTILIZER WORKS, Dept. 137 Los Angeles, Calif.

GIANT WINTER RHUBARB

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

Constructing Stave Silo Foundations.

[Written for Pacific Rural Press By Wm. Curtis Clark, San Francisco.]

If a thing is worth while, it is well to have it at once. Many defer the building of a silo, because they want one of concrete and must wait for more money. It is not possible that the monolithic construction and monumental appearance of the concrete silo has created a certain prejudice in the mind that is not entirely justified from a practical stand point?

Drawing a comparison from redwood tanks, it is safe to assume the life of a redwood silo will be twenty years with reasonable care.

Where it is decided to build a redwood stave silo, it is by all odds best to have it erected by a man from the factory who thoroughly understands his business. He will need one helper and do quicker work with two. The requisite scaffolding material should be ascertained and ready when the work begins.

The writer has recently superintended the construction of two silos, one 16x40 and the other 12x40. Both were erected in five days by factory man with two intelligent helpers from the ranch.

Best Diameter 16 feet.—The capacity of the 16 foot silo is 70 per cent more than the 12 foot, while the cost is about 30 per cent greater. The difference increases in favor of the cost as the diameter is greater, but there is unfortunately a limit to the practical diameter which we may have. It requires too much time to move silage across a silo of 20-foot width before it can be thrown out, while most of it can be thrown directly into the chute from one of 16-foot width.

Forty feet is a very good height. It is higher than the average, perhaps, but the greater pressure exerted by the silage above has a tendency to improve that below as well as to compress a somewhat greater tonnage proportionately.

The factory furnishes plans showing the lines for the excavation cement work, location of sill bolts, guy bolts, etc. The cubic feet of material necessary is also given, so the amount of hauling and cement required may be known. This is important in order to have sufficient cement on hand as well as sand and gravel.

As a permanent improvement, it is desirable to have a smooth, neat piece of work and of course substantial. The main point is to produce a nearly level surface for the silo sill to rest upon also to keep a perfect curvature.

The following description should enable any one to accomplish this work with very little waste of time:

Laying out the Foundation.—A "2x2" stake is firmly driven into the ground at the point selected for the centre of the silo, leaving the top of the stake exactly 6 inches above the ground surface. Care should be taken not to disturb this, as it is the fixed point from which all the work is measured and leveled. Drive a 10-d nail into the top center of the stake and cut the head to form a pin to hold one end of the radius or guide stick.

Make the guide stick of light, stiff material about 2 inches square and perfectly straight. Punch a hole in one end to fit over the center pin and cut the stick off 18 inches beyond the outside line of the foundation.

To mark out the lines for digging, bore a 3-8 inch hole in the stick at the proper distance from the center pin, insert a bolt and swing the circles. Keep the trench straight on the inside but let the outside slope to make the bottom 4 inches wider than the top, giving a rampart footing.

The inside of the form is a duplicate of the outside but the outside should be finished first so as not to interfere with the use of the guide stick in curving the face.

When the digging is done, cut sixteen 2x4 stakes, and drive them at the end of the guide stick at equal distances around the circle. Being 18 inches away from the trench there is no danger of cracking the ground or walls. We will call these the anchor stakes; they hold the form braces.

Cut sixteen form braces 1x6-24 inches long, one for each anchor stake. These must set level and square against the form from ½ inch below the form rim. To place these braces quickly and exactly, use the guide stick as a straight edge, tie a pocket level on top directly over the braces, and tack a strip ½ inch thick on the bottom long enough to reach the end of the stick from the outside face of the form. When the stick is held level and the braces are flush with the strip at top and end they are in their exact place and may be firmly nailed to the anchor brace stakes in a few minutes. The inside form braces are set in the same manner.

The form walls are made of clear, limber resaw ½ inch thick and 6 inches wide. Bend this to the braces and fasten it to them with shingle nails, being sure to keep the level true by the guide stick. As the resaw is being put on, it will flatten or bulge between the braces. These irregularities should be brought to the circle before continuing. That is what the intermediate braces are for. They furnish a second set of contacts giving thirty-two holding points to the form outside and the same inside.

The result will be two perfect circles, concentric, level individually and with each other.

Laying the Concrete.—The concrete is put in, in two sections. The wall first, and afterward the floor. The wall top is covered with sacks and allowed to set while the 6 inches of dirt is removed for the floor.

A strip of building paper should be hung on the inside face of the wall form before the concrete is poured so as to keep it clean for a union with the floor.

A good mixing platform is made of ten 1x12 inch boards set on five 2x4 inch stringers, with a 1x6 inch facing on three sides, projecting 3 inches above the floor to hold the material on and increase the platform capacity. The open side admits the wheel-barrow. The

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face".....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Feltface" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.

Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.

Very truly, W. F. INGWERSON, (Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

The California Breeders
Second Annual Jersey Consignment Sale
Will be held this year at
Modesto, in the Auditorium, May 4th

We have 80 head or more of magnificent animals to offer. There is not a cull in the consignment. We have PRIZE WINNERS, cows with authenticated records, and young stock, that is exceptionally promising. EVERY animal has been selected with care.

ALL STOCK FULLY GUARANTEED.

CONSIGNORS:

C. N. Odell, Modesto.
D. Larsen, Stevinson.
Dr. L. J. Belknap, San Jose.
F. B. Wulff, Modesto.
Dr. S. Z. Peoples, Petaluma.
D. Wall, Modesto.
Mrs. A. E. Melander, Stevenson.

and many others.

For free catalogue and particulars, address
G. O. HILLIER, Sales Manager.
2106 Telegraph Ave., Oakland.

B. A. RHOADES Auctioneer, Los Angeles, Calif.

We are also going to sell 60 HEAD of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

Grandsons of Tilly Alcartra
At Prices Within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornedyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

SALVADOR STOCK FARM

Shire Stallions and Mares

STALLIONS and MARES, both imported and home bred, for sale. I have some very good horses for sale at moderate prices. Satisfaction guaranteed. Call or write.

Henry Wheatley
NAPA, CALIFORNIA.

cracks are battened tight on the bottom to prevent the cement from washing through.

This platform will hold one yard. To insure uniformity a measuring box is used, 3 feet wide, 6 feet long, and 18 inches deep, holding one cubic yard.

A mixture of 1 to 5, fresh cement and coarse sand containing little mica; or 1-2-4, fresh cement, sharp sand, coarse gravel size of walnuts. Either is good and the length of haul should determine which to use. The latter requires 13-20ths of a sack less cement to the yard of material or a saving of 14 2-5 per cent on total cost of cement. Sometimes a longer haul for gravel and screening labor would offset the saving on the cement item in favor of the former mixture.

Have all material around the platform so it may be thrown directly into the box, also a water barrel, and use a can for wetting in preference to direct hose stream.

The material should be leveled off in the measuring box with boards cut to proper width. Level the sand in the box 3 inches below the top and fill the top with 3 inches of cement. Since the box holds 1 cubic yard or 27 cubic feet, 1-6 part of cement equals 4 and a half cubic feet or 4 and a half sacks of cement to each batch of a 1 to 5 mixture. Similarly with the 1-2-4 mixture, filling the box first with the coarser material and always topping off with the cement.

Thorough Mixture Absolutely Necessary.—The great secret of good cement work of any kind lies in thorough mixing and measurement. Before wetting the batch should show an even grey color, indicating that the cement is uniformly distributed throughout.

The material should be worked over carefully three times dry with square ended shovels, taking the material from the bottom of the pile and turning it up side down on the opposite side of the platform with a spreading motion of the shovels.

After dry mixing, let one man turn the batch over twice while the other wets it down until it becomes moderately sloppy, when it is ready for use.

As the batch is being used, never allow any of the rich cement water to trickle away over the platform. Keep it bunched up and riffle it with the shovel to liven it and as the last is used add a trifle more water.

Put the shovels in the water barrel, wash off the trowels, wheel-barrow and all metal parts whenever the work is interrupted, also keep the platform scraped clean of each batch.

Wherever the cement comes in contact with the wooden forms, work a trowel up and down between, as this crowds the coarse material back and sucks the finer particles toward the face, leaving the work with a finished appearance on removing the forms.

These suggestions apply generally to all cement work and are given upon the assumption that the work is to be done by one not entirely familiar with the details.

There is an inside and outside bevel or drain slope each side of the flat sill. To mold this properly, saw out a pattern stick or board to the exact shape required and use this to scrape out the surplus cement from the full form by sliding it back and forth over the edges of the form boards. The form braces previously described were set ½ inch below the form boards to allow free use of this pattern stick.

Laying the Floor.—When the wall has set a half day, throw sacks over it and start digging out six inches of dirt for the floor. As a guide for digging, lay a stick across the top of the wall form and dig 12 inches below the stick and if you wish a pitch to the floor put a 2 inch block under one end of the guide stick, but always move the stick parallel with its first position, (i. e. to the line of slope.)

Furthermore, if the floor is sloped you will have to run a one and a half inch drain pipe through the wall, with a brass screen (¼ inch mesh) on inside end and plug outside, to be wired to bottom of form boards before filling. This is an advantage in cleaning out the silo.

To lay the floor level, divide the circle into four parts on the cross diameter and drive three sets of stakes notched to hold guide strips. Leave a hand-hold above the notches for pulling out. Drive the center set of stakes first so the notches line up to hold the top of the guide strip at the exact surface line of the floor. Level the other two strips up, parallel to centre strip. By filling in the cement to a level with the tops of three strips and floating over the surface with a straight-edged board resting upon the strips, the floor will be brought to exact level. Start filling broadside to the first strip so that it may be pulled out after the work is completed past it and the groove filled in while the material is wet.

Use an edger for moulding the outside edge and a large floating trowel is being used by the writer for surface finish.

If gravel is used in the mixture it will interfere with surface floating, therefore spread a 1 to 4 layer on top of the concrete for finishing.

The 12 inch and 16 inch foundations will cost approximately $75 and $100 with free access to material at two miles over good roads.

WHAT OLD SHEEP MEN THINK OF PRESSING ON THE NERVE CENTERS.

To the Editor: The so called "poisoning" of sheep mentioned several times in your paper seems to be all over the state. A deputy state veterinary termed it as being purely mechanical, due to the position of the lamb pressing on the nerve centers. Old sheep men have said it is due to so much mud eaten by the sheep with the short feed.

Dixon. SUBSCRIBER.

RABBIT SKINS—NO SALE.

To the Editor: Do you know if Belgian hare and white and black rabbit skins are of any value? If so, where could I sell them, and how much would they be worth?—R. T., Colusa.

[Our market reporter advises us that there is practically no market for them.—Editors.]

700 Head of Dairy Cows, Heifers and Bulls

at

PUBLIC SALE

at the ranch of

Hubbard & Carmichael Bros.

on

THURSDAY AND FRIDAY
April 15 and 16, 1915

Three miles Southwest of Newman and one mile Northwest of Gustine, Merced Co., Calif.

On the above dates I will sell to the highest bidder, without reserve, their complete dairy herd, consisting of

475 EXTRA SELECTED HIGH GRADE HOLSTEIN AND DURHAM DAIRY COWS.

400 of these cows are now milking. About 75 head are choice heifers with first calf. All these cows are young. Have sound teats and udders. Are heavy milkers. Three-fourths of the herd are high-grade Holsteins.

Also 220 HEAD OF YOUNG HEIFERS selected from this choice herd from 3 months to 20 months old. This is an extra fine opportunity to get your pick of A1 dairy stock at its best and in its prime.

15 HEAD OF REGISTERED AND HIGH GRADE HOLSTEIN AND DURHAM BULLS. No old bulls in the herd, and they are surely choice animals.

30 BROOD SOWS. Some with pigs, some due to farrow soon. A very choice lot to select from.

Also 1 tractor engine, almost new, only used for a short time, 40 horse power on the belt. 1 20-horse-power gasoline engine. 1 19-inch Ohio feed cutter. 1 26-inch Ross feed cutter.

The sale will be held to accommodate the buyers. Parties from a distance can buy in 10, 20, or carload lots, or a string of milkers, as they stand in the stanchions, will be offered, while the larger portion of the herd will be auctioned one at a time. The young stock will be sold in lots, one with the privilege.

TERMS OF SALE: $500.00 or under, cash. On sums over $500 time will be given at 8 per cent on approved security. Parties desiring time must see or communicate with Hubbard & Carmichael Bros., 384 West Santa Clara Street, San Jose; phone 53.

NOTE.—The owners will be at the ranch five days preceding the auction, where arrangements can be made for terms and shipments.

Parties from a distance take the west side train; get off at Newman or Gustine.

Sale will start promptly at 10:30 Thursday, April 15th, and continue until every dairy animal is sold. The dairy cows will be sold first, the young stock last.

A NICE LUNCH WILL BE SERVED ON THE GROUNDS.

REMEMBER THE DATE.

Hubbard & Carmichael Bros. Owners — J. H. Corley, of Modesto Auctioneer

"CALIFORNIA being a comparatively new purebred livestock State, should benefit by the mistakes made in older States and establish community breeding at once. Get your breeders here to take up some one breed in every locality and then stick to that breed, making a reputation for their section as well as for themselves and the breed. Headway in this direction has been seriously handicapped with us in the East, because we have had to transplant the newer and better method in localities where many breeders of various breeds predominated. It seems to me that your conditions are ideal at this time for the community breeding plan."
—John F. Myers, P. P. I. E. representative American Berkshire Swine Breeders' Association.

Livestock Convention Starts.

[Written for Pacific Rural Press.]

With cattle men from all of the great range states in the West and Middle West assembled, San Francisco took on the air of a stock man's headquarters early this week, and as this is written there was every promise that the present meeting of the American National Livestock Association will be one of, if not the biggest convention of agricultural interests to be held in California this year.

While the regular program did not start till Wednesday morning, a joint meeting of the Sanitary Committee, State Veterinarians from 13 states, and officers of the Bureau of Animal Industry, held Tuesday afternoon, afforded an interesting and lengthy discussion of the foot and mouth disease which, while not at the present time of threatening nature to California stock men, due to strict State quarantine regulations, is of vital importance to the range industry of the West and one very justly deserving the attention of all livestock men.

The sanitary meeting was the outcome of an endeavor put forth by Chas. Keane, State Veterinarian, to have all of the western States which have safeguarded themselves by strict quarantines, co-operate in an effort to allow cattle shipments from one State to another where no disease has as yet made its apearance.

No conclusions were formed as to the best methods to pursue in this co-operation and the meeting was adjourned for further deliberations Wednesday, at which time there was still no definite plan of settlement decided upon, and the committee asked for further time to report.

At the same time that the Sanitary meeting was being held, the California Cattle Men's Protective Association held their first annual convention, in an adjoining room. Chief among the topics discussed by the members present was the entertainment of the visiting delegates to the National convention and the active support of bills now before the Legislature. The general opinion of the assemblage was that cattle rustling can be stopped by the passage of the hide and brand inspection bill.

The beginning of the National Association's meeting proper started Wednesday in the immense new auditorium at the Civic Center. After listening to the addresses of welcome and responses by visiting delegates, President H. A. Jastro gave his annual address.

In his address, President Jastro naturally dealt with facts and ideas directly connected with the range aspect of meat production and manifested his characteristic cautious and conservative habit of thought. As to the general condition and outlook for range products he remarked as follows:

"When the war began, our public press was filled with optimistic prophesies as to the benefits to be derived by this country from an increased demand for our products of all kinds, at highly remunerative prices, and from the capturing of markets not heretofore enjoyed by us; that, in fact, we would supply most of the world with food-stuffs, and at the same time be its banker and manufacturer. These predictions of our unchallenged commercial supremacy will, I fear, not be realized. Temporarily we may increase our exports, but in the end we must buy from other countries approximately as much as we sell abroad, in order to maintain a proper trade equilibrium.

Live stock is selling on all the markets in this country on a lower level of prices than prevailed previous to the war, notwithstanding the fact that receipts at all market points and the total slaughter have been less than the average of corresponding periods of recent years.

On account of the war, our exports of canned meats have increased, but the total amount and value of our exports of meat products for 1914 were less than in 1913, and for the last six months of 1914 were but little different from those of the same months in 1913. Possibly our exports of meat products to the European continent would increase if the difficulties and uncertainties of ocean transportation were removed. Dealers hesitate to ship for fear of seizure, delay, and possible total loss. Largely for this reason, our exports of meats to Europe have materially decreased, and the trade is at a standstill.

It has been frequently stated that after the war is ended the countries engaged will be practically denuded of meat-food animals and meat-food products, and that consequently there will be an immense foreign demand for our meat products. That statement assumes that the consumers abroad will have the purchasing power to buy our meat products after the close of the war. On the contrary I believe their ability to buy our meat products will be smaller than before the war."

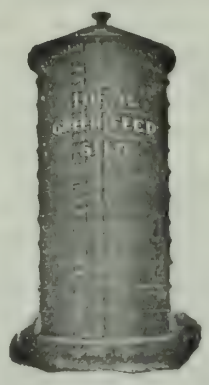
Mr. Jastro believes the future of the range industry will be mainly along the line of American meats for American mouths. He said: "The foreign demand for our meats does not now exert so important and permanent an influence on prices as in former years when our exports of meat-food animals and meat-food products amounted to 25 per cent of our production, and no foreign meats were imported. The volume of our production of meat products, and our capacity to consume them are now far greater factors in price making than our imports or exports of meat products. Our home market fixes the mean average price."

Toward the realization of this end, Mr. Jastro strongly approves several forms of government regulation—saying: As I view it, the most important question confronting the stockmen, the public and the government is not so much how to increase the production of live stock, as it is to eliminate any present unnecessary expenses in raising and marketing live stock and distributing its products, so that both the producer and consumer will be substantially benefited. Federal supervision of the open range is one economy I have in mind which would lessen the cost of raising live stock."

He also believes that the current operation of the packing and slaughtering interests, which lie between the range producers and the consumers, is for the good of neither. He said: "I also believe there is no opportunity for economy in the marketing of live stock and particularly in the distribution of its products. There seems to be too wide a margin between what the producer receives for live stock and prices paid by the consumer. These ups and downs in the market do not exist to so great an extent in any other live stock producing country on the globe. It may be that so long as the present centralization of the meat-packing and other allied industries at large markets continues, it will be difficult to correct the evils flowing from wide fluctuations in prices. I believe that this Association should take the initiative in arranging for a conference between the officials of the Department of Agriculture and all interests concerned in raising, maturing and marketing live stock, for the purpose of securing, if possible, more stable, and fairly remunerative prices."

There is also need of fairer financing of range production: "The difficulties of financing live stock loans on a reasonable basis is another burden weighing heavily on our industry. This subject will be discussed by Mr. Bassett, of our Executive Committee, and I will only say that stockmen pay too high a rate of in-

An Ideal Green Feed Silo



is not merely a tank or a barnyard building, but is A THOROUGHLY PRACTICAL PIECE OF DAIRY EQUIPMENT.

OVER TWENTY YEARS OF PRACTICAL EXPERIENCE in silo building has enabled us to overcome the difficulties in silo construction and to build a silo that will return to you as good ensilage every pound of good feed you put into it.

To experiment will be expensive for you. Why not profit by the experience of over 20,000 users of the

Ideal Green Feed Silo

and order yours now.

It Will Pay for Itself the First Season

Write for Special Silo Catalog B.

De Laval Dairy Supply Co.

"Everything for the Dairy."

SAN FRANCISCO, SEATTLE.

On May 12th, at Ascot Park, Los Angeles, Calif.

WILL OCCUR THE GREATEST EVENT OF

HOLSTEIN HISTORY IN THE WEST

It is to your interest to be there. Watch next week's issue for announcement.

terest for the money they borrow at the banks, loan companies et al.

Of the effect of tariff reform, Mr. Jastro said: "The placing of live stock, meats, hides and wool on the free list has been of no real benefit to the consumer and has given packers and those operating in other countries a decided advantage; it has taken from our government a large sum of much needed revenue; and has tended to make the raising and maturing of live stock in this country a more uncertain business. At the time of the consideration of the tariff bill we pointed out these facts to Congress."

Mr. Jastro also spoke forcibly about the regulation of charges by transportation companies upon range products and reported that some important concessions are being attained through appeals to the Inter-State Commission and some advantages are being secured by national legislation.

With the Live Stock Men.

DAIRYING.

Dairymen of Kings county received a total of $126,000 for butter fat during February, about $6000 more than was paid out in January.

At a recent meeting of the Chowchilla Farm Bureau a project was launched for the provision of a creamery for that place.

Newman, Stanislaus county, is shipping about 350 cans of cream daily, averaging a total of $3500 for the lot.

Chas. W. Williams of Oakland has recently purchased a 40-acre dairy ranch near Modesto, where he is milking about twenty-five cows.

Tulare creameries paid out a total of nearly $70,000 for cream during February. The total amount of butter fat delivered during the month amounted to about 216,513 pounds.

The large herd of stock owned by Hubbard & Carmichael near Newman, Stanislaus county, is to be sold at auction on April 15 and 16. The firm intends to retire from the dairy business and devote their holdings to the raising of beef stock.

The first scoring of the 1915 Educational Butter Scoring Contest took place at the University Farm, Davis, on March 11, the contestants numbering thirty-one. The butter sent was of fair quality, with an average of 91.68 for all entries.

HORSES AND SWINE.

Great losses from hog cholera have been reported from the vicinity of Walnut Grove, Sacramento county, where whole herds have been completely wiped out.

A Percheron stallion, Sarrento 70377, a handsome pedigreed animal, has just been imported from J. B. Keane & Co., Plainfield, Ill., by L. P. Rohde and Thygesen Bros. of Monterey county.

One of the largest horses for his age that has ever been shipped from the Livermore Valley left there last week for the Western Horse Market in San Francisco. It was a gelding six years old that weighed 1950 pounds and was shipped by D. M. Teeter.

According to reports received from the Grapewild Farm, Mayhews, the demand for Berkshire hogs for export trade is unusually heavy. They recently shipped six young boars to Hawaii, and a purebred boar and sow to the Mills Orchard Co. at Willows.

Active steps are being taken to organize the Yolo County Swine Breeders' Association in order to co-operate for the stamping out of hog cholera in that county. A demonstration and lecture was recently held there by Dr. Cady of the Agricultural Department of the University of California in regard to the control of the disease.

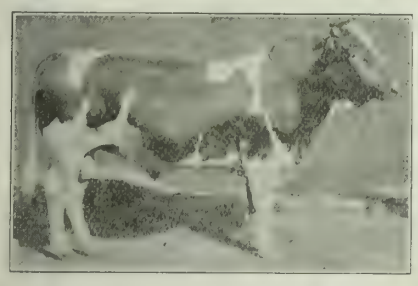
CATTLE AND SHEEP.

Sheep and cattle men of Nevada are preparing to affiliate, the former joining the Nevada Cattle Owners' Association, which at present has a membership of 132.

Seven thoroughbred Hereford bulls have recently been imported by the Trinity Land & Water Co. to improve their extensive herds in Trinity county. Their herds number 1600 head and they have 10,000 acres of range and ranch land in that county.

Mr. G. O. Hillier, Sales Manager of the Jersey consignment sale to be held in Modesto the first week of May, reports that favorable progress is being made. They have some eighty head already consigned.

Portland Union Stock Yards' receipts for the week ending March 18 are as follows: 1079 cattle; 2071 hogs; and 1419 sheep. Best steers brought $7.75; prime lightweight hogs brought $7.60, and yearlings sold for $7.75.



Segis Pontiac de Kol Burke
1st Prize 2-year-old Cal. State Fair 1914.

The bull that combines the blood of the greatest producing families in Holstein history. He is an outstanding individual, weighing 2200 at just three years of age. His dam RIVERSIDE SADIE DE KOL BURKE, is the heaviest milker that the breed has ever developed. She and six of her sisters have records above 30-lbs. butter in seven days.

A few sons of this sire are now available, some of which are soon ready for service. Several are from half sisters to Aralia De Kol, 30-lbs. butter in seven days at 12½ years, 28090 lbs. milk and 1142 lbs. butter in one year. Prices reasonable.

Pedigrees and Prices on Application.

A. W. Morris & Sons Corporation
Box 398-D. Woodland, Calif.

BARGAIN IN DUROC JERSEYS

I am overstocked and will book orders on weanling pigs at extremely low prices. Highest quality. Smooth and perfect in build. Best of blood lines. Many of Grand Champion breeding. Variety of breeding and sexes unrelated. Here is your chance to stock up at very little over cost of grades. Safe delivery guaranteed. Pay after you get them.

Write now.

C. C. ROBBINS,
DODGE CENTER, MINN.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:

PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

Milking Machines

3 Sizes and Power.
See our exhibit at the Exposition, or write for pamphlet giving full particulars.

A. F. STEINER,
Block 1, Agricultural Palace,
P. P. I. E. San Francisco

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons.—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

KENILWORTH—At Stud a thoroughbred with a wonderful track record and as a great sire. Special rates for saddle mares. Send for folder. Bugela Bros., Novato, Calif.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE—Several choice Shetland ponies. Zach Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

HOLSTEINS Mr. Breeder and Dairyman: I am offering the best bred bull in Stanislaus county, Pontiac breeding and out of the great cow Brinka de Kol. Also some good grade heifers bred to one of the best bulls in the county. J. A. Pelanda, Salida, Cal.

SIXTEEN COWS FOR SALE—Mostly Holstein grades. All young, tuberculin tested. Cows are best selected stock and milking heavy. Bred to registered Holstein Bull of exceptional merit. Address W. N. Totman, Emmaton, Cal.

FOR SALE—Reg. Holstein-Freisian bull calves, sired by a grandson of King of the Pontiacs. Write for prices and pedigrees. E. A. Clausen, 1739 Devisadero St., San Francisco, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

TWO FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

SWINE.

O. I. C. SWINE—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckles Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won Gold Medal at Nevada State Fair, 1913. Write for pedigrees and and prices. J. L. Gish, Lava, Inyo county, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif

REGISTERED BERKSHIRE SWINE—all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. E. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED DUROCS—Fine young boars. November farrow. Thorp, R. 6, Stockton.

REOAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal

DUROC-JERSEY REGISTERED BOAR PIGS. H. E Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type Prize-winning stock. S. F. Williams, Chico.

POLAND CHINA HOGS—Registered. E. J. Miller Llewellyn Ranch, Lathrop.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman. Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

INFECTIOUS ABORTION.

To the Editor: Will you kindly tell me how, and how much, and how long to give methylene blue for infectious abortion in cows. — J. F. T., Modesto.

[Give each animal in your herd, including the bull, one ounce methelyne blue daily for six days, then allow an interval of six days, and begin again, giving one ounce every day until six more doses are given.]

CRACKED TEAT.

To the Editor: My heifer, fresh two days, has a cracked teat. It is between the opening at lower part of teat and the udder. Milk exudes from crack when milking. Kindly advise me what to do.—W. W. K., Glenn.

[Heat a wire to red heat and cauterize crack, being sure to sear the tissues well into opening. Afterwards apply flexible collodion to prevent milk from leaking out and also wound.]

LAME PIGS.

To the Editor: One of our brood sows had eight pigs, and all seemed to be getting along fine when one of them got lame in one hind leg, then the other one, until it was lame in all four legs. Then it went blind and finally died. All of the eight went the same way.—J. B. W., Lindsay.

[Your pigs became infected probably through a wound or navel. Clean up and thoroughly disinfect your yards and pens.]

HORSE RUBS AS IF ITCHING.

To the Editor: I have a horse that seems to have some skin disease. He is continually rubbing against something. Can you give some remedy? —F. A. S., Campbell.

[Your horse is affected with Psoroptes communis vari, equi, or mange mite. Wash him off by scrubbing thoroughly with a 2 per cent solution liq. cresolis compositus and apply the following at ten-day intervals, at least three times: oil of tar, one ounce; flowers of sulphur, one ounce; oil cajuput, one ounce, and neutral oil enough to make a quart.]

UDDER CAKED.

To the Editor: I have a cow which started about a week ago to get a hard or caked udder. Her milk seems good, but I am afraid she will lose all of it. She gives about two gallons per milking. Please inform me what to do.—F. R. G., Patterson.

[Apply camphor liniment to the udder once daily, rubbed in well. Wrap udder in a blanket wrung out in hot water and kept warm for two or three hours. Give internally three or four times daily fluid extract belladonna one drachm, fluid extract phytolacca, one ounce, until trouble subsides.]

SHEEP LAME.

To the Editor: I have a small flock of sheep just for home use. Some time ago one ewe got lame in one front leg. As she was quite an old ewe, I did not think much of it, but later on she got quite stiff in all four legs. Then a yearling wether got the same way. Yesterday I noticed another ewe lame in one front leg and today she can hardly use her front legs. Two sheep have died. Will you kindly tell me what the trouble is.—P. B. W., Jolon.

[Your trouble is due to an organism called the Bacillus Necrophorus, and is usually caused by infected mud or water. Keep your sheep on a hard, dry floor until ground dries up. Let them stand for thirty minutes in a warm 2 per cent solution of creolin daily for a few days, washing, and scrubbing feet and legs thoroughly.]

HOGS' FEET CRACK.

To the Editor: I have 80 hogs in an alfalfa field, ranging in weight from forty to two hundred and fifty pounds. All have been healthy until the past week, when I find several are affected with sore feet which crack up and bleed and get so lame they cannot walk. The hoofs become a pinkish, red color. Can you give the name of the disease and the remedy for same?—J. O. C., Glendale, Ariz.

[Your trouble is caused by the bacillus necrophoras. This germ lives in water and mud, contamination of which produces the trouble you have. Give animals internally ten grains potassium nitrate for each 100 pounds live weight, two or three times daily in feed. Make animals stand in 3 per cent solution creolin for five to ten minutes twice a day. Disinfect mud holes and wallows with a 5 per cent solution creolin.]

PIGS HAVE WORMS AND COLD.

To the Editor: I have seven young pigs, about three months old, and their mother, who is again pregnant, about two months along. Some time ago the sow developed a cough and I have noticed recently that several of the little pigs have one also. We have a good deal of rain here at this time of year and it is pretty wet, but they have dry sleeping quarters. Am feeding them soaked, dried beet pulp and alfalfa meal, mixed with brown midds, ground barley and oats, and a little cocoanut oil meal. They have charcoal and salt before them. Can you tell me if it is likely that worms are present? They seem in good health, are on natural pasture and forage practically all day, and eat heartily of the grain feed twice a day. Have also noticed with several of the small pigs a mucous coming out of the nostrils.—R. W. H., Yountville.

[It is wise to suspect worms in pigs at all times. Place some powdered iron sulphate where they can have free access to it for this trouble. For the colds which your pigs have, give the following: quinine sulphate, 1½ drachms; pulverized nux vomica, 1 drachm; pulverized ammonium carbonate, 2 drachms; pulverized camphor, 1 drachm; pulverized potassium nitrate, 3 drachms; pulverized gentian root, 3 drachms. Make this into twelve powders and give one powder twice a day in molasses.]

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OR SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Durocs Cholera Immuned
and
GUERNSEY CATTLE.
Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

The survival of the fittest

TRIED in the furnace of competition and subjected to the test of years of practical use on nearly 2,000,000 farms the world over, the De Laval has proved its overwhelming superiority to all other cream separators.

Twenty years ago there were as many makes of factory as of farm separators, but for the past ten years the De Laval has had this field almost to itself, 98 per cent of the cream separators in use by creamerymen and market milk dealers to-day being of the De Laval make.

It has taken the inexperienced farmer a little longer to sort the true from the untrue, the wheat from the chaff, in the maze of conflictory catalog and local dealer separator claims, but year by year the ever-increasing proportion of farm separator buyers is reaching the same conclusion as the creameryman—that the De Laval is the only cream separator they can afford to buy or use.

Many other cream separators have come into the limelight of publicity for a few short months or a few short years, claiming to be "as good as" or "cheaper" than the De Laval, but their users have sooner or later found them lacking in some one respect or another, and even where a few have seemingly done well their users have come to learn that the De Laval was a still better machine.

The unfit or the less fit cannot possibly survive for long in separators or anything else. Think of all the separators you used to see advertised so extravagantly in your favorite farm papers. Where are they now? Why do you seldom, if at all, see their names mentioned? Simply because the fittest must survive and the others must fall out of the race.

The De Laval has triumphed over all other separators, and its supremacy is now almost as firmly established in farm as in factory separators because its separating system, design and construction are essentially different from and superior to other separators.

A De Laval catalog to be had for the asking explains and illustrates these differences. A De Laval machine, to be had on test or trial from the nearest local De Laval agent, does so better still. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

DE LAVAL DAIRY SUPPLY CO.
101 Drumm St., San Francisco 1016 Western Ave., Seattle
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Colt Shows Seem Assured.

At a meeting of the directors of the California Draft Horse Breeders' Association last week, it was decided to take immediate steps toward the advancement of fall colt shows all over the State this year, and as a result preliminary work is now being started by the association.

While new to the farmers of this State, the colt show idea has become a permanent event in many sections throughout the middle west, and experience there has shown that their influence on the welfare of the horse industry is of immense value, inasmuch as they demonstrate in no uncertain manner the value of good sires as well as what may be expected from proper feeding of and caring for colts.

As the name implies, these shows are held during the fall months, competitors being any farmer with a draft horse colt who cares to exhibit his colts, whether they be grades or purebreds. The prizes are offered by stallion owners in the form of a free service fee for the best colt sired by his stallion or by merchants, boards of trade, or other commercial bodies who are benefitted by more and better horses in a locality.

The colts shown are those which have been foaled the spring previous to the show, thus giving all an equal chance for the premiums, and it is for that reason that prompt action on the part of all concerned with this fall's shows must be taken, as there are details to be worked out, prize money to be raised, articles donated by business men, and free services offered by stallion owners to be promised. Then, too, the farmers of the community must have the plan explained to them and be urged, often by personal solicitation, to make entries of their colts, which is accomplished by writing or filling out an application blank and sending to the person in charge of the local show. No entry fee is required as would be required at a State or county fair as there is no expense incurred, the premiums being donated as before mentioned, and the show itself being held on some centrally located lot or street in town.

Disinterested and competent judges are secured, either through the agricultural college or among local horse men whose services are donated free of cost, and it is thought likely that with the large number of farm bureaus and farm advisers now in the State, the work of promoting interest in these shows will gain headway at a rapid rate.

The following quotation taken from the Breeders' Gazette gives a clear idea of the value of the colt show to eastern sections. They say:

"A colt show will not run itself the first year. Like every new project, it must gather momentum before it will run on without being pushed. And even when once established, it is the show that is enthusiastically pushed that becomes a genuine source of pride to the community.

"The state of Iowa has taken the lead in these colt shows. Years ago a few such shows were started, and the almost magical benefit they wrought in the horse stock of the surrounding country fully attested their value. Places in Iowa where colt shows have been held regularly for some years are now esteemed by horsemen as sources of high-class stock. Last year Prof. W. J. Kennedy gave special attention to establishing colt shows. His department conducted thirty-seven of them, at which 1,660 colts were entered. These shows were attended by 28,200 people and reached all parts of the state. About forty other shows were held by local organizations in Iowa.

"The colt show is useful to the town as well as the surrounding country. It offers one of the best possible attractions, and furnishes clean healthful sport. People for miles around—men, women and children alike—congregate for a colt show, and of course they spend some money with the local merchants. The business men appreciate the fact that anything which attracts country people to their town ultimately increases their volume of trade. The colt show has only to be tried in capable hands to be unanimously voted a big success."

MILK WON'T CHURN.

To the Editor: We bought a young cow the beginning of October, she having her first calf the end of September. When wanting to churn her cream, it takes four hours before the butter comes, and you must have the temperature 54 to 56 degrees. If it gets 60 degrees and above, it turns oily and won't separate. Is there a remedy, or would it be better to sell where there are more cows? We hate to give her up as she is gentle, has good teats, an easy milker, and gives rich milk.—E. M., Napa.

[Answered by F. W. Andreasen, Secretary State Dairy Bureau.]

[Where cream from the milk of many cows is mixed and properly ripened, there is seldom difficulty in churning, but where only one cow is kept, it is frequently met. I have known instances where the cream from a single cow would not churn, and where the parties had to obtain some from other cows to put with it in order to overcome the difficulty.

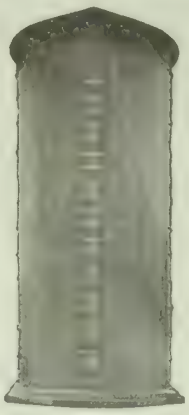
The principal causes are that the cow is well advanced in the period of lactation (which is not the cause in this case), or that her food causes hard butterfat. Difficult churning resulting from such conditions can usually be remedied by ripening to a higher degree of acidity. The riper the cream is, all other conditions being the same, the easier it will churn. Rich cream churns more easily than thin cream, provided it is not rich enough to be so thick as to cause the cream to adhere to the inside of the churn and thus escape being agitated. Sometimes cream froths, and will not agitate in the churn. Such a frothy condition has in some cases been found even though the cream seemed to be in an ideal condition for churning. It is believed by some that such a condition is brought about by a disease of the cow, or by certain ferments that produce a soapy condition of the cream. If cream froths in the churn, a little warm water thrown on the outside of it will often start the agitation of the cream within. Sometimes a little luke-warm water added directly to the cream will remedy the trouble.

A change of food for the cow, ripening the cream to a higher degree of acidity, or skimming thicker cream and churning at a higher temperature will generally remedy the difficulty.]

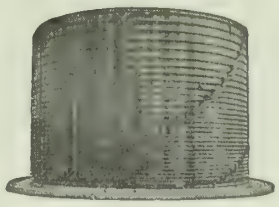
SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manufactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

Stock Buyer

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

FOR SALE
The Registered Holstein Bull
Lord Asa, No. 117335.

Because we have his heifers and require another sire.
He was sired by
SIR COLANTHA JULIANA.
Dam, QUEEN OF HOPLAND.
He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.

R. E. DRESSER, Mgr.
WOODLAND HACKNEY STUD,
Yolo, California,
or EDGAR J. DE PUE, Owner,
818 Merchants' Exchange, San Francisco

Oak Grove BERKSHIRES

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL

OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland

TAMWORTH'S DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

The Registered Hackney Stallion
Lord Lovelace No. 1665

will make the season of 1915 at the Woodland Hackney Stud near Woodland.
Mares will be properly cared for at reasonable rates, but at risk of owner only.
The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.
A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.
Service with return privilege, $25.00.
For further particulars call or address

R. E. DRESSER,
Manager Woodland Hackney Stud,
Yolo, California,
or EDGAR J. DEPUE, Owner,
818 Merchants' Exchange, San Francisco.

RHOADES & RHOADES
Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY
211 Crocker Bldg.
Circular containing 100 mechanical movements mailed free.

Stopping the $7,000,000 Loss.

[Written for PACIFIC RURAL PRESS by Geo. H. Croley, President Federated Poultry Ass'n of California.]

What can a State Commissioner of Poultry do to create better conditions for the industry in California? How will the taxpayers and the general public be ultimately benefited by the expenditure of State funds that may be appropriated for the maintenance of such a Commissioner?

The Governor Wants to Know.—These questions are printed herein not merely for our poultry breeders to read, but we intend that each reader who may be interested in poultry shall consider these questions as directed to him personally. We ask every poultry man and woman to write us a letter stating some one thing that a Poultry Commissioner might be able to do for them as individuals, or how he might better conditions for poultry raisers generally in his or her neighborhood or district. In fact, this letter writing match is open to all comers, including handlers and consumers of poultry products. Address your letter to Federated Poultry Association of California, 525 Market St., San Francisco. We know of a number of urgently important things that such an officer can and should do, but that information is worth comparatively little now.

Presently we must report the necessity of this commissioner to the State Board of Control and go to the Governor and urge him to sign the bill that will create the State poultry department; he will particularly want to know why the poultry breeders, or the people of the State as a whole, think they need this assistance.

What a few of us may think or say will have little weight as compared to the eloquence embodied in a stack of letters from the Imperial Valley, Humboldt and the remote mountain counties as well as from the more central and populous districts of the State. At one time we asked Prof. Wickson what we should do to get a State poultry department, and his answer consisted of one word, "Holler." Now folks, the time to act has come—"holler," so the Governor can hear you. If the poultry raisers of the State do not support us now, we may find ourselves somewhat in the position of a certain neighborhood of colored folks down in Georgia, who had gathered at the village church to pray for rain. At the hour appointed for the opening of the services, the old gray-haired pastor scornfully surveyed the congregation, and said, "Bred'rn and sisters, yo' all pack yo'selves up and go home. I has no bre'f to waste prayin' fo' a bunch of fool niggers what come heah wif no umbrellas."

Now good folks, "you know" Uncle Hiram. For our sakes, get busy!

Indiana Common Schools Must Teach Poultry Culture.—The accompanying illustration shows the poultry class-room in Purdue University at Lafayette, the State University of Indiana, during a session of the Summer School for teachers who must take a practical course in poultry culture at the University farm, or elsewhere, in order to qualify as teachers in the common schools of the State.

In sending us the photos from which this illustration is reproduced, Prof. A. G. Philips, the head of the poultry division of the Department of Animal Husbandry, writes, "I am glad to know that you have an organization through which you are endeavoring to do good for the poultry industry of the State. I will send you photographs of our summer school class grading eggs. All our common schools must teach agriculture and poultry is one of the phases taught."

From printed reports we have read, we understand that Prof. Philips holds practically the same office and has the authority that would be vested in a State Poultry Commissioner in California.

The reports show that among the things at his command, he has men under him who are sent, whenever possible, to help worthy projects. Sometimes this is accomplished by cooperation with poultry associations or school poultry clubs, but when necessary, through individual poultry farmers. Over 700 poultry breeders supply him with information and records of their poultry work, and the practical knowledge extracted from these records are used to teach others that poultry raising is profitable, and how to handle the fowls to make it so.

As a last word, let us again request a letter in reply to the questions printed at the head of this article. We hope to receive a thousand or more.

Summer School for Indiana School Teachers at Purdue University. Learning How to Judge and Market Eggs. All Common Schools in Indiana Must Teach Agriculture; and Poultry Is One of the Phases That is Taught.

INDIAN RUNNER DUCK EGGS.

To the Editor: Is there a market for Indian Runner duck eggs? If so, where can it be found and what price is paid? — P. E. P., Healdsburg.

[Most any commission house in San Francisco will buy your duck eggs at the regular market price for hen eggs providing they are of good quality. Before sending them to such firms, however, you should write them inquiring whether they can handle them.—Editors.]

It is the early hatched pullets that produce eggs in the fall and early winter, when prices are high.

"My friend telephoned me to make the boxes and deliver them. The two miles to the carpenter shop was nothing for the motorcycle. I made the boxes 8x8x20 inches, stacked the six of them on the motorcycle, and took them two miles to the garage, on time. Couldn't have done it without the quick transportation."

Production must cease when the transportation costs eat up the profits.

The elementary principles involved in improved highways are social and domestic happiness and business economics.

BABY CHICKS

Standard Bred.

The best to be had are shipped by us every week in the year. Also Petaluma's best utility stock. Price list and pamphlet free upon request. Now booking orders for Fall and Spring delivery.

THOMAS HATCHERY, Petaluma, Cal., Route C.

Are you troubled by rats and mice gnawing your harness? That's because you've used harness dressing containing animal oils which always attract rodents.

EUREKA HARNESS OIL

contains no animal oils,—and rodents won't touch harness that's treated with it. Eureka nourishes the leather fibre—keeps your harness soft, pliable and strong. Have your harness man dip your harness in Eureka Harness Oil. Or buy a can and apply it yourself. It's easy—and it *pays*. Make your harness last longer. Dealers everywhere.

Standard Oil Company (California) San Francisco

California Poultry Practice

by Susan Swaysgood.

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production, in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

Get the Best for your chicks

Coulson's Poultry Food

Special Chick Food

Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

Eggs Wanted

Egg Producers! Egg Shippers!

STOP! LOOK! LISTEN!

Highest prices paid for clean fresh eggs.

Address

E. F. ZUERN

Wholesale Produce

Butter-Cheese-Eggs-Poultry

854 Fourth St., Oakland, Cal.

BABY CHICKS

S. C. White Leghorns.

Large or small orders filled immediately. Capacity 25,000. Hatching eggs from selected stock.

CARL STANGE,

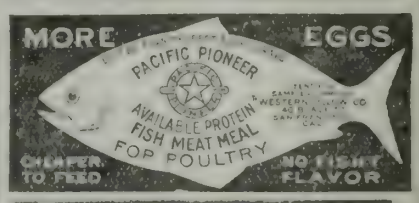
1408 Silver Ave., San Francisco.

FREE BOOK

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

F. F. SMITH & CO.,

1006 J Street, Sacramento.



Poultry for Profit.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

It is getting time now to think of the chicks, no matter whether you are brooding by hens or brooders. If with hens, the coop must be made comfortable, and should be free from drafts until the warm days are assured. Make a coop with three closed sides, a roof that will shed rain, and roomy enough for the hen to exercise in. The front may be all open slats so that the chicks can run in and out.

Feed the Hen.—Always give the feed to the hen, at least for the first two or three weeks, as she needs it and has a much better control of the chicks if she is allowed to feed them in the coop than if you feed them outside. Some people feed the hen wheat, and feed the chicks on the outside, but it is very poor policy. Make her comfortable, feed her, keep her free from lice and the vitality she imparts to the chicks will more than offset a little saving in feed.

Fireless Brooders.—The chief trouble with fireless brooders is that people do not consider the needs of the chicks. Fifty chicks in a fireless brooder are plenty, though more can be put in it with good results if you understand the principle of it. In the first place, a fireless brooder should always be put in a good building and the floor made warm. I generally put two gunny sacks, or that much thickness in something as good on the floor.

Make Nest Like Bird's.—Over that I make my nest for the chicks. I use small alfalfa hay or short cut straw, but the very best is to go in the barn and get a sackful of the small stuff the men fail to carry on their fork to the horses. I use my hand to hollow this short litter out into the nest, make it after the fashion of a bird's nest, then put in the chicks. If you have made your nest right, no chicks will stray off into cold corners; neither will they crowd, because they will be perfectly warm and comfortable with the heat from their own bodies. Keep hot water jars, hot bricks, and all such things away, and make your chicks comfortable every night. After a few days they will learn the way in and out. One drawback to the fireless brooder is the chicks have no warmth inside to attract them after they once get disturbed in the morning. If the weather is cold, the chick tender should feed and water, then hustle the little fellows in the nest again, and shut them in as if it was night.

What Brooder to Buy.—There are such a variety of brooders on the market now, that the most particular buyer can be suited. It is simply a matter of looking for what suits one's convenience as regards housing room, and finances. Though they all are put up as reasonable as we could expect, the running expenses vary quite a little, and this must always be added to the price. It does not always happen that the cheapest at first is the cheapest in the end. But this much can be said of all brooders and systems: if the house the chicks are brooded in is of too thin material, and if the ventilation is not good, no brooder can give satisfaction, no matter how good it may be.

I would rather make a brooder house of inch lumber and batten up the cracks, in this climate, than I would of the thin matched lumber, because the inch lumber keeps more cold out and less sun heat during the day. For brooding small numbers of chicks I don't know of anything better than the International sanitary brooder. It is built round and open all around after the fashion of the hen.

Keep Chicks from Crowding.—In brooding numbers varying from five hundred to fifteen hundred, the main question is to keep them from crowding, and this is best done by keeping a warm floor. If the heat from the stove solves the question, all will be well; if it does not, you can partially solve it with plenty of short cut litter, by throwing the chick feed in it to make them hustle during the day, and at night see that they have a good bed under them. Little chicks easily chill, and they get chilled very often through a cold floor. Keep the chicks as quiet as possible the first few days; after that keep them as busy as possible. By keeping a little chick feed in the short litter there is always the incentive to scratch, and scratching develops the lungs as well as the muscles.

Use Charcoal.—Keep a little charcoal handy, and if anything should cause diarrhoea commence to boil a the drinking water, and then boil a little charcoal in it. If that does not stop the trouble, pour two quarts of water over a piece of quicklime about as big as a walnut. When the liquid settles, pour it off and give this lime water to the chicks. Keep all other water away from them.

What To Feed.—If the commercial chick feed can be bought I prefer to buy it as my time is worth something. But if I am where I can't conveniently buy chick feed that suits me I make my own. Some farmers have the grain and can do so to better advantage than those that live where feed must be bought. Here is a good home-made chick feed that any one who has the grain and a coffee-mill can make: An equal measure of good, sound corn and wheat (Kafir corn will do if there is no other on hand); half of the above amount of white oats, pearl barley, millet seed, hemp seed; a little mustard seed, and if a little rice can be cracked in it it is an addition. Feed this in the litter. For a mash, mix equal parts rolled oats and ground corn; three times that amount of wheat bran; a little charcoal; some ground oyster shell, and at least five per cent beef scrap. Plenty of good, tender, green feed aids digestion, and makes bone and sinew.

Lumpy Combs.—I would like to know the cause of my hens eating paper? They have plenty of range and shells, am feeding them Egyptian corn and egg foods. They have watery eyes with little hard lump on eyes and comb?—Subscriber.

Your chickens have what is termed "chicken pox." If you can catch them, wash their heads in a good strong solution of Creolin and warm water, then rub carbolated vaseline on their heads and combs, give them all a little tonic and feed them a little more meat or milk, anything in animal food.

Fertility of Eggs Weakened by Number.—One of our subscribers, who says he is an amateur, asks how he can keep his egg yield up to the February notch. From 96 hens he got 1175 eggs for the month of Feb-

(Continued on page 415.)

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

S. C. WHITE LEGHORN BABY CHICKS—from my pure-bred flock S. C. White Leghorns, carefully selected for laying and standard qualities, $9.00 per 100, $85.00 per 1000. A first-class chick at a reasonable price. Eggs for hatching, $5.00 per 100, $45.00 per 1000. Correspondence solicited. J. R. Heinrich, Poultry Yards, Arroyo Grande, Cal., San Luis Obispo Co.

BUFF LEGHORNS EXCLUSIVELY—Trapnested prize-winners at Petaluma eight regular prizes and special silver cup. Eggs $1.25 per 15; $6 per 100; 95 per cent fertile. Chix, $12 per 100. Write for price list of special matings and chix of other varieties. Golden Feather Poultry Yards and Hatchery, Amos Bowler, R. 5, Petaluma, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

MAKE MONEY with our superb White Orpingtons. Best breed for every need. Lay most when prices highest; make finest eating. 1000 grand range-raised birds, trapnested and bred for heavy laying. Eggs, chicks, stock. Send for catalog. Whitten Ranch, R. 5, Box 646, Los Angeles.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

RETIRING FROM BUSINESS—Closing out my entire flock of Anconas. Some of the finest birds on the coast, either from a fancy or utility standpoint. Females, $1.50 up. Males, $3.50 up.. Act quickly. L. W. Potts, 1721 Berkeley Way, Berkeley.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

HATCHING EGGS—Any quantity any time. Rhode Island Reds; White Leghorns, $4 per 100; $35 per 1000. All from good layers. Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First prize winners at leading California shows. Eggs for hatching. Year-old cockerels bred from my best layers at $3, $5, $7.50 each. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

RHODE ISLAND REDS—Heavy layers, extra large eggs. Magnificent strain Toulouse Geese. Mammoth Bronze and White Holland Turkey eggs, chicks and stock. Alice Boag, Mountain View, Cal.

WHITE PLYMOUTH ROCKS and White Leghorn. Pure-bred stock. Exhibition and winter layers. Big hatch due March 25th. Write us. Pleasant View Farm, Box 291, Pleasanton, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

SELECTED—Single-comb White Leghorn eggs for hatching that will improve your flock. All hens, 220 egg type. $1.50 for 15 eggs; $8 per 100. Jay Maxwell, Madera, Cal.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

EGGS FOR HATCHING A SPECIALTY.—2-year-old S. C. White Leghorn Hoganized hens mated to Hoganized one-year-old cocks. Price for March and April, $5 per 100; $45 per 1000. Pine Tree Poultry Farm, Los Gatos.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

FOR SALE—200 White Leghorn yearling hens and a few males. Also chicks any age—White Leghorns or White Rocks. Shipped on approval. All pure-bred stock. Pleasant View Farm, Box 291, Pleasanton, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

WOODHAVEN FARM BUFF ORPINGTONS—Winter layers. Breeding stock and eggs from special matings only. No baby chicks. Mrs. C. M. Smythe, Route 3, Stockton.

BARRED ROCK EGGS from prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn, selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

FOR SALE—Last of March and April delivery. White and Brown Leghorn baby chicks from selected thoroughbred stock. Rose Hill Poultry Farm, Turlock, Cal.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

ORPINGTONS—Buff and White. Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

WHITE WYANDOTTES — Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices Thos. McGuire, Petaluma, Cal.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179B, Mountain View, Cal.

PEARL GUINEA EGGS—$1 per 13. Indian Runner Duck Eggs, $1 per 13. Mrs. Kate Lambert, Box 93, Newark, Cal.

BUFF ORPINGTON Eggs, $1.50. Runner Ducks, $1. Chix, 15c; dux, 20c. Glendale, Fleming Ave., San Jose, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

R. I. RED BABY CHICKS and Eggs from heavy-laying strain. Rosedale Ranch, Hayward, Cal.

A FEW thoroughbred English White Leghorn Cocks. David Rueck, R. 4, Box 53F, San Jose, Cal.

BLACK MINORCAS—Cockerels, Eggs, Chicks. Reasonable. Chester Fosgate, Tracy, Cal.

FINE BARRED ROCK COCKERELS for sale for $3.00 each. G. L. Hawley, Madera, Cal.

BLACK LANGSHANS—Eggs, $1.25 per 15. William Johnson, Napa, Cal.

TURKEYS, DUCKS AND GEESE.

BURBOURN RED TURKEYS — Short-legged, small-boned, round-breasted, quickly developing. Makes the early market. Eggs and poults from Los Angeles prize-winners. Poults to order in May and June. Mating list. Ferris Poultry Ranch, R. 2, 144D, Pomona, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MAMMOTH BRONZE TURKEYS—Largest and best flock in the world. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

WHITE INDIAN RUNNERS. Eggs. Sired by first drake Los Angeles 1914, $2.50 per 15. Kuehne Bros., R. 2, Pomona, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHEASANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

The Home Circle.

THE FLOCK OF DREAMS.

All through the pasture-bars of sleep
My flock of dreams comes home to me,
The glad ones, and the sad ones, that bring me rest.
At twilight, when the day is done,
My slumber fairy chooses one
And leads it to me gently, by a road she knows the best.

To-night the grass is drooped with dew;
I count the stars; and there are two,
And four, and three, and two again, above the cloudy tree.
The misty world so weary seems!
Dear slumber fairy, call my dreams,
Let down the pasture-bars of sleep, and bring one home to me.
—Miram Clark Potter.

APRIL FOOL'S DAY REVISED AND IMPROVED.

By Kate Hudson.

It's many years ago that Cousin Hallie and I were sent on our first April Fool errand. How well I remember the weary wanderings of us two plump and guileless little five-year olds—each with a big red copper cent tightly clasped in a moist and chubby hand—from baker to butcher to grocer, from grocer to druggist for half-a-dozen ten-inch tacks and an ounce of mosquito-fat.

And how very clearly I recall that other 1st of April nearly ten years later when the same Cousin Hallie and I set before our respective brothers and their dearest chums a plate of home-made tea-biscuits light and flaky to look upon, but neatly padded with cotton-batting, nevertheless.

Even now that I am more than middle-aged and qualifying for Mother-by-law and Grandmother, I never let the day go by without at least making an attempt at "April fooling" my quite grown-up young folks,—attempts which hardly ever are crowned with success; for do nc we all know that the present generation is knowing and wide-awake beyond belief and seldom taken in?

But they're not only sagacious and acute beyond their years,—these great big sons and daughters of ours,—no; they are also more kindly considerate than the big brothers and sisters of my early childhood; and even their April fooleries are of a more commendable sort and funnier withal than the ones of forty years ago. They fool the little sister nowadays by offering her "moth-balls" made of lusciously sugared hazel-nuts, and little Cousin Dick by presenting him with knobby chunks of anthracite cunningly imitated in delectable licorice taffy. They hand Father a most deceptive candy lucifer match, and bring Mother a tin already opened for inspection,—of some new brand of tomatoes,—which on closer examination will be found to contain a bunch of violets or pansies. They have a host of similar jolly April fool contrivances up their sleeve—all of them fooling up the scale and not down—which make the rough and sometimes positively cruel bamboozlings of an earlier day seem mean and silly by comparison.

THE QUEER PATIENT.

As Dr. Rule drove up to the gate of his home one morning, after making his early rounds, little Jack, who had been watching for him, ran down the path to meet him.

"O papa," he said, "we thought you'd never come! There's a patien' in the dining-room who's been waiting ever so long, and he's so bad that he has tried three times to jump out of the window."

"Out of his head, I suppose," said the doctor, as he sprang out of the buggy.

"Mamma's holding him down on the sofa now," said Jack, leading the way into the house.

The doctor hurried into the dining-room, wishing his patients would come during office hours. His wife and little daughter were both standing before the sofa, bending down very low. They did not run around or speak.

"Let me see what's the matter here," said the doctor, pushing them aside.

They answered him with a burst of laughter, and the doctor had to laugh, too, for the "patient" on the sofa was only old Bose, covered to his neck with a shawl, and looking very much ashamed of himself, and as if he would like to get up if he could.

"This is Jack's joke," said mamma. "Don't you know what day it is?"

"The first of April, I do declare!" said the doctor. "Jack, you rogue, come here."

Jack ran laughingly into his fathers's arms.

"You said no one could April fool you, papa," he cried.

"So, I did," said the doctor, and he put his hand in his pocket and took out a dime. "Take this: it's worth a dime to be caught by a little fellow only five years old!"—Florence B. Hallowell.

POLITE BOYS.

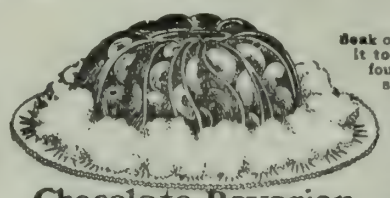
George and Henry Grafton, to fill their time during vacation and to make a little money, set up a candy and pop-corn store, with their parent's permission, in an unoccupied shop on the village street.

"Now," said George, "we shall have a good many ladies among our customers; and it won't do to let the men smoke any here."

"Oh, no!" said Henry: "we'll put up a big sign, 'No Smoking Allowed.'"

"I guess we'd better be a little more polite in our notice," said George, "so that we shan't offend any of our smoking customers."

The boys put their heads together to invent a polite "no smoking" notice, and at last, with a pleasing sense of having done exactly the right thing, hung up the following neatly lettered inscription:—



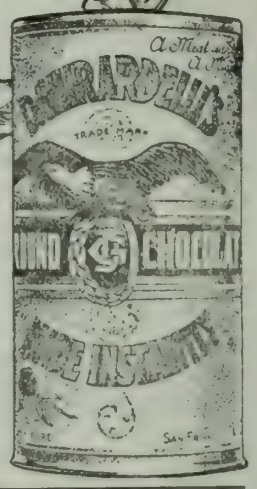
Chocolate Bavarian Cream

Soak one-half box gelatine in cold water until soft; add it to two cupfuls milk, which has been scalded, with four tablespoonfuls Ghirardelli's Ground Chocolate, stirring until dissolved. Remove from fire, add one-half cupful sugar, and one teaspoonful vanilla extract. Turn into granite basin, set in a pan of ice water, stirring until it begins to thicken; add two cupfuls of cream whipped to a stiff froth. Line a mould with peaches, turn in the mixture, set in a cold place until firm. Unmould and serve with whipped cream.

As a flavoring for cake, icing, cake filling, candy, ice cream and sauces,

Ghirardelli's Ground Chocolate

is unequalled in its purity, its economy, its flavor—It has enjoyed an unrivaled reputation for more than half a century.



As a daily beverage its health-promoting qualities as well as its low cost per cup recommend its use.

Sold by Grocers everywhere in hermetically sealed tins.

D. GHIRARDELLI CO.

San Francisco Since 1852 California

STILETTO

Comfort

At the sewing table a woman appreciates the comfort of —STILETTO— Scissors and Shears, because they never mangle the goods, but always cut sharp and true from heel to point.

There are numerous household helps sold under the —STILETTO— trade-mark. Each is the best of its kind and guaranteed to be made of the finest materials by the most skilled workmen.

—STILETTO— goods sold everywhere—if you can't get them, write us.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

BURN OIL
SAVE MONEY
STAR OIL GAS BURNER
For cook stove or furnace. Heat as intense as city gas. Burns cheap engine distillate. No smoke, dirt or odor. Absolutely guaranteed. Agents wanted. Make money selling to friends and neighbors.
Star Oil Gas Burner Co.
Pasadena, Cal.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

"Customers will please take notice that if they wish to smoke in here they will please either extinguish their pipes or else go outdoors."—The Pacific.

AS TO APRIL FOOLING.

By "the wise" we mean the many boys and girls who read our paper, and so could not well be otherwise; and by a word we mean a few short, timely suggestions as to arranging April Fool's Day surprises and fun generally on an "onward and upward" basis. By leading up to trick climaxes, instead of letting down from them, we can all of us get—and give—quite as much of a frolic and much more satisfaction out of April the first.

For instance, instead of conspicuously locating the time-honored brickbat-filled hat to bruise the foot that's bound to kick it, pelt your friends with paper snow-balls containing bonbons or walnuts.

Instead of presenting your girl chum with an attractive box containing a dead fish, a frog or garter-snake, confront her with beetle, mouse, or spider cunningly contrived of chocolate or marchpane.

Instead of passing round luscious-looking lollypops stuffed with bran, beans, or cork, fool your friends with bits of chip, cork, or shavings, cleverly imitated in pale molasses candy, with moth-balls which turn out to be sugar-coated hazel-nuts, and with black taffy masquerading as chunks of coal. The scare, the fun, will be the same, but how much pleasanter the upward than the downward tendency of the surprise!

You catch the idea, don't you? To find a bad thing better instead of a good thing worse than expected is not only far more agreeable, but quite as much fun; and the laughter caused will be longer and louder because there's neither pain nor ache nor disappointment in it. We consequently repeat a word to the wise; let your April-fooling, like everything else, be in an upward direction.—B. K. H.

Some clever games for entertaining on All Fools's day may include the "Foolish Walk," for which pile sofapillows, books, plants and anything in the way of obstruction on the floor; then tell a certain person to mark each article carefully in mind, blindfold him and tell him to walk across the room. In the meantime, after the victim is blindfolded. the objects have been noiselessly removed, leaving the floor clear. It is amusing in the extreme to see the blind one making his way, and when the bandage is removed the astonishment is great.

This may be followed by a guessing contest. Provide cards and pencils for each guest, with numbers for each course of a dinner menu. Have your courses prepared beforehand, bring each one in separately, and after two minutes remove it. The contestants write down the name of each course as they guess it, and a prize given to the one making the largest number of correct guesses. The following "dishes" are suggested: Oysters, short-pointed ends of blue crayons (blue-points); soup, small brown cardboard turtles, in a soupplate of water; relishes, toy or paper red dishes (radishes); crackers, tiny firecrackers; meat, a toy lamb in a small pan; poultry, a map of Turkey with the name erased; dessert, a curl of hair (lady-lock) or a strawberry emery in a dish of ice (frozen strawberry); cake, the ends of sulphur matches (devil's food); nuts, the iron nuts used in bolts and machinery. Decorate with vegetables instead of flowers, and amongst the refreshments have a dish of chocolates, which are nothing but cotton-batting, dipped in melted chocolate.

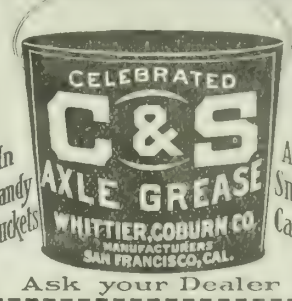
BY JIMMINY, CRICKETS!

Crickets can be poisoned by stirring a little arsenic into mashed or ground-up carrots, placing it where crickets congregate and out of the reach of the kids. They can also be trapped and ground by putting an inch or so of stale beer in the bottom of a straight-sided glass, it will draw them afar by its odor and lure them to drowning. Those who have conscientious objections to having stale beer in the house, may try sweetened water, but it will probably prove less attractive. It may be improved in this respect by adding a little chocolate to the water and sugar. Perhaps readers can contribute other ways with crickets.—Editors.

An Anglican clergyman pleading for free seats told this: "When I was a curate, the holder of a large old-fashioned pew in our church once complained of the intrusion of a stranger on the previous Sunday. He added, 'Sir, I would not dare to disturb divine worship by pushing him out of my pew, but I took the slight liberty of sitting on his hat.' The appropriation of pews had made the holder think them a kind of property."—Christian Life.

"Papa, what is an escutcheon?" "Why?" "This story says there was a blot on his escutcheon." "Oh, yes! An escutcheon is a light-colored vest. He had probably been carrying a fountain pen."—Houston Post.

"The Farmer's Friend"



In Handy Buckets

Also Small Cans

Ask your Dealer

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339.

Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

"Whiting Mead, Los Angeles

Send me your New Catalog

-I wouldn't be without it!"

"I have had your last catalog for eighteen months and know I have been saving money, for I always compare your prices. I am more than pleased, as I am getting the best when I buy building material from you, and if I am not satisfied, I always take advantage of your liberal money-back guarantee."

This is what one of our customers writes. Are you convinced? Send coupon below for our 1915 Catalog and save money.

WE LEAD THE WORLD ON PAINTS

Standard House Paints, High grade, 24 colors—per gal..... $1.50
Black Graphite Roof Paint—per gal..... 50c
Standard Roof Paints—red, green, gray—per gal..... 85c
Shingle Stain, made from pure ground colors—per gal..... 50c
Everything in Paints, Wall Tints, Brushes, etc., at big savings to you. We ship direct.

SASH AND DOORS AT UNHEARD-OF PRICES

Two light double-hung windows, 1⅜ inches thick, best American window glass. All sizes. Prices up from..... 60c

No. 1 Colonial door, selected kiln-dried Oregon pine. All stock sizes. Prices up from..... $1.50

"STANDARD" ROOFING PAPER

1-ply, double-sanded, per roll of 108 square feet..... $1.15
2-ply, double-sanded, per roll of 108 square feet.... $1.40
3-ply, double-sanded, per roll of 108 square feet.... $1.65
1-ply, "King" smooth, per roll of 108 square feet.... $1.25
2-ply, "King" smooth, per roll of 108 square feet.... $1.50
3-ply, "King" smooth, per roll of 108 square feet.... $1.75

Above prices include cement and nails ready to lay. Send for samples.

HEAVY 2-POINT GLIDDEN GALVANIZED BARB WIRE

Per hundred lbs. (catch weight reels)..... $2.75
Same as above—80 rod reels—per reel.. $2.25

High Grade Building Material

"From Factory to Consumer"

THIS SPECIAL STEEL ENAMEL BATHTUB

A wonderful bargain! Made of finest galvanized 24-gauge steel. Outside finished with a rich Sky-blue enamel, bronze trimmed. Price only $8.00

Others larger in size at $8.50, $9, $10. Just the thing for your house.

COMPLETE LINE OF LAVATORIES AT LOWEST PRICES

Best Quality Porcelain Lavatories; every one guaranteed—$10 down to..... $3.75

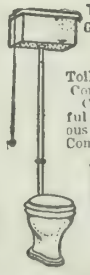
Steel Enameled Kitchen Sinks—worth $3.50..... $1.50

Light special galvanized barb wire in 80 rod reels—per reel. $1.75

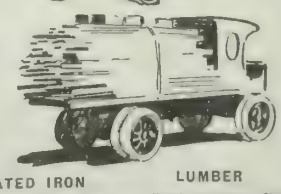
GALVANIZED POULTRY NETTING

2-inch mesh, all heights—150 lineal feet in a roll per hundred sq. feet—full rolls..... 45c
1½-inch mesh, in full rolls—per hundred sq. ft..... 55c
1-inch mesh, in full rolls—per hundred sq. ft..... $1.00

TOILET COMBINATION GUARANTEED—LOWEST PRICES



Low Down Enamel Steel Toilet Combination..... $11.50
Complete to floor wonderful value. Low Down Vitreous China Closet Combination..... $15.50
Special value—worth $22.50. Big values in High Tank Toilet Combinations. $10.00
Complete to floor — a bargain.



GALVANIZED CORRUGATED IRON

Look at this! Corrugated gavanized iron, 2-inch corrugations, from 6 ft. to 10 ft. long. This is in perfect condition and won't last long at this special price. Per 100 square feet..... $3.75

WALLBOARD

The highest grade wallboard on the market, made of 3 layers of moisture-proof fibre, with asphaltum between each layer; or cream white fiber board.

Cheaper and neater than plaster or lumber, and any one can install it in one-quarter of the time. Per 1000 square feet..... $19.00

This is a $30.00 Value.

Don't fail to send this coupon and receive our new 1915 catalog. You'll be surprised at our wondrous prices on high-grade building material.

LUMBER

Send us your list for our estimate. All lumber delivered to your nearest railroad station. Don't fail to get our prices. I will mean a big saving to you.

WHITING MEAD COMPANY

9th and Maple Avenue, Los Angeles, California

Whiting-Mead Company, 9th & Maple, Los Angeles, Calif. P.R.P.
Please send me your 1915 Catalog.
Name .....
City ..... State .....

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, Mar. 24, 1914.

WHEAT.

While there is still considerable export demand, the scarcity of tonnage is retarding shipments, and the effect on prices is depressing. Local quotations are down about $1 per ton on all varieties, corresponding to a decline in primary markets.

Cal. Club, ctl.	$2.35@2.40
Forty-fold	2.45@2.50
Northern Bluestem	2.40@2.45
Northern Club	2.35@2.40
Northern Red	2.40@2.45

BARLEY.

There are no vessels available at present to handle further export trade, and in the absence of business it is impossible to give quotations on shipping barley. Speculative business is very quiet, with an easy feeling; and with liberal offerings of feed barley, the price has again been marked down.

Choice feed, per ctl.	1.30@1.35

OATS.

Red oats are quiet, but the moderate offerings are still held at the old prices. The movement of seed oats is over for this season. There is some white oats on the market, moving in a small way at about $1.85 to $1.90.

Red Feed	$1.55@1.60
White	1.85@1.90

CORN.

With easier prices for wheat and barley, and a greater abundance of other feed, the demand for corn is somewhat curtailed. There is still a fair movement, however, and values are pretty well maintained at the old level.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80

BEANS.

Nothing of much interest has developed in the local bean situation within the last few weeks. The demand, which fell off considerably about the first of the month, is still rather light for most grades, and prices have not recovered from the recent decline, though fairly steady as quoted. Stocks in the east, however, are said to be light, and a strong revival of shipping business is expected before long. Limas in the south are very strongly held in expectation of higher prices.

(On wharf.)

Bayos, Cal., per ctl.	$5.40@5.50
Blackeyes	6.00@6.25
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	5.25@5.50
Large Whites	4.90@5.00
Pink	4.25@4.50
Limas	5.50@5.65
Red Kidneys	6.00
Mexican Reds	5.25@5.50

SEEDS.

While there is not much demand for alfalfa now, supplies have been pretty well absorbed, and prices show another slight advance.

Alfalfa	17½@18½c
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

The local market shows little feature, as arrivals are keeping up to about the same volume as for some weeks past, while there is very little demand here, and it is difficult to move off the arrivals from day to day. Prices are nominally as before, but are not very well maintained. It is reported that there is considerable inquiry for export, but business in that direction is prevented by the scarcity of vessels.

No. 1 Wheat	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@. 900

"CALIFORNIA GARDEN FLOWERS is just the book I wanted. There is something new on every page and what is new is also good."
—L. R. Smith, Berkeley.

Stock Hay	4.50@ 5.00
Straw, per bale	30 @45 c

FEEDSTUFFS.

Everything under this head is very quiet at present, with prices tending downward and no demand except for current needs. Bran has again dropped $1 per ton, with similar decline in rolled oats, while rolled barley has dropped $2.

Alfalfa meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	29.00@30.00
Rolled Oats	34.00@35.00

VEGETABLES.

Most lines of green vegetables continue to come in more freely, with a corresponding reduction of values, though so far few items are in really heavy supply, and some varieties, such as tomatoes and eggplant, are still coming from distant points. The crop of artichokes in the ocean shore district is coming out well, and prices have dropped a little; while asparagus is becoming quite plentiful, with arrivals running around 3,000 boxes in a day, and prices are much lower. The top figure on peas is also lower, with better supplies of attractive stock. Tomatoes are higher, with nothing appearing from nearby points; while bell peppers are easy. Celery and lettuce are both lower, with ample supplies, though the demand is quite active; and rhubarb finds a ready market at a slight reduction from the former figures.

Artichokes, doz., No. 1	40 @50 c
No. 2	30 @35 c
Asparagus, box	$1.25@1.75
Peas, lb.	4 @ 7 c
Peppers, bell, lb., large	10 @15 c
Tomatoes, Mex. lug	2.00@2.50
Celery, crate	2.00@2.50
Sprouts, lb	3 @ 5 c
Rhubarb, box	.75@1.25
Lettuce, crate	.75@1.25
Cucumbers, doz	90 @1.10
Eggplant, Southern, lb	15 @30 c

POTATOES AND ONIONS.

The local demand for potatoes shows a little more life, and with a shipping movement from outside points to the Southwest there is more firmness to prices, the best Oregon and River stock being higher. Onions are easier again, as there seems to be plenty of stock in storage, both here and in the north, though prices are unchanged. Garlic is very scarce, though some trashy stock is offered at cut prices.

Potatoes, Oregon, ctl.	$1.50@1.75
Salinas, ctl	1.40@.150
River Burbanks, ctl.	1.00@1.40
Sweet Potatoes, ctl	2.25@2.50
Onions, yellow, sack	70 @1.00
Garlic, per lb	17 @20 c

POULTRY.

The local demand is still considerably below expectations, but eastern stock is not coming in so rapidly as for the last few weeks, and some curtailment is also noted in offerings from nearby points. Prices accordingly show some improvement, small broilers in particular being higher, with slight advances also in hens and young roosters. Squabs are also rather scarce, and the inside figure is higher. Belgian hares are easier.

Live Turkeys, lb	17 @19 c
do, dressed	18 @21 c
Broilers, small	30 @34 c
Fryers	20 @21 c
Hens, extra, per lb.	19 @20 c
Small Hens, per lb.	18 @19 c
Young Roosters, per lb.	18 @20 c
Squabs, per doz.	$2.50@3.00
Geese, per pair	3.00@3.50

Removal Notice!

After April 1, 1915, our offices will be in the Insurance Building, California and Battery Streets, San Francisco, California.

California Almond Growers Exchange.

Copro

Cocoanut Oil Cake Meal In Its Purest Form

Be Sure the Copro Brand Is Stamped on Every Sack

Copro contains 16.4% Protein, practically all digestible, consequently the percentage of waste in assimilation is small. Because of this fact it is the most economical food to buy for Dairy Cows, Hogs and Poultry. Place your order now.

PRICES

	20 Tons	10 Tons	5 Tons	Less Quantity
Per Ton	$25	$25	$25.50	$26

f.o.b. Southern Pacific cars in 20-ton lots.
Cartage in less than car lots: 1 Ton or more, 75c per ton; Half to 1 ton 75c; Half ton 50c; 1 or 2 sacks 25c.
Terms: Net cash, immediate payment. Prices subject to change without notice.

When Ordering Address Dept. B-1

Free Sample Sent on Request

PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street, San Francisco, Cal.

Ducks, doz	6.00@9.00
Belgian Hares, live, lb	.6 @ 9 c

BUTTER.

Offerings in the local market continue quite large, but for the last few days the proportion of extra grade has been lighter, causing a slight recovery in prices for this grade. Comparison with outside markets would indicate that the Coast output in general is being pretty well absorbed.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	22½	22½	22½	23½	23	23
Prime	21½	21½	22	22	22½	22½
Firsts	21	21	21	21	21½	21½

EGGS.

Extras have advanced a little locally, and the present spread between this and the Los Angeles market is rather unusual. This is naturally bringing heavy shipments this way, and while the demand for current consumption is large, eggs are beginning to go into storage.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	21	21½	21½	21½	21	21
Sel. Pul.	18½	18½	18½	18½	18	18½

CHEESE.

Offerings of flats and Y.A.s are less excessive this week, and the former variety has recovered a little, though prices are still rather low. Monterey cheese shows a further drop, with heavy offerings and little demand.

Fancy California Flats, per lb.	12c
Monterey Cheese	10@12c

Los Angeles dairy prices:

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu
Butter	22	22	23	23	23	23
Eggs	20	19½	19	19	18	18
Cal Cheese	14	14	14	14	14	14
Flats	14½	14½	14½	14½	14½	14½

DECIDUOUS FRUITS.

Strawberries are not yet coming in very regularly, and prices are unsettled, owing to the varying quality. Some southern stock sold a few days ago at $5 per crate, but present offerings are unattractive. Larger supplies are expected from now on. Apples are dragging badly, being little more than nominal at the old range.

Strawberries, basket	15@25c
Apples, Newtown Pippins	40@80c
Belleflowers	25@50c
Baldwin	50@75c

DRIED FRUITS.

The dried fruit market in general remains rather quiet, though there is a little more inquiry in some lines, and a better all-round demand is expected, as spot stocks in the east are getting low. Considerable export business might be done, but it is impossible to get ships for that

trade. Prices show no change whatever. A little more inquiry is noted for peaches, 3½c being offered for good bright stock, and 4c might be paid for something extra fine, while poor stock is not salable. Offerings of future prunes have received little attention as yet, and spot stock is not moving very freely, prices in the east having until lately been below parity with the Coast. All dried fruits here are firmly held, the supply in most lines being light enough to assure a good cleanup. The New York Journal of Commerce says: On the spot California prunes are, under a slack demand, easy, and while prices are not quotably lower it is understood that on firm offers for round lots the inside quotations might be shaded.

Apricots and peaches are slow of sale here and despite stronger advices from the Coast the spot market remains easy. For raisins in bulk or cartons the demand on the spot continues light and the market is without interesting features. Imported raisins are closely cleaned up, but as there is no demand of consequence prices show no appreciable improvement.

Evap. Apples, 1914	5½ @ 6 c
Apricots, 1914	6 @ 9 c
Figs: White, 1914	3 @ 3½c
Black	2½ @ 2¾c
Calimyrna	5 @ 6 c
Prunes, 4-size basis, '14	5½ @ 6½c
Peaches, new	3 @ 4 c
Pears	6 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½c
Seedless Sultanas	5 c

CITRUS NOTES.

Between thirty and forty cars of citrus fruits were auctioned in New York last Monday, the market being reported strong on both oranges and lemons, the prices on the former averaging from $1.30 to $2.55 per box, while lemons ranged from $2.10 to $2.40. Other Eastern marts report steady markets with prices ruling slightly under those of New York.

The movement of oranges in the San Francisco market has been much less active for the early part of this week, a good many dealers having plenty of stock from former purchases. Prices, however, are steadily maintained on oranges, though fancy grapefruit is slightly easier.

Oranges, navel, box	$1.00 @ 2.10
Tangerines, small box	75c @ 1.75
Grapefruit, seedless, bx.	1.50 @ 2.00
Fancy	2.50 @ 3.50
Lemons, box	1.50 @ 2.50

NUTS.

The market is rather quiet. While both almonds and walnuts were thought to be pretty well cleaned up, there seem to be still a good many odd lots coming out, and bargain sales in this line by department stores are causing some dissatisfaction of the regular trade.

Almonds, 1914 crop:	
IXL	16½c
Ne Plus Ultra	15½c
Drakes	14 c
Texas Prolific	14 c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½ @ 14 c
Manchurian	7 @ 9 c

HONEY.

After standing still for a long time, honey is now beginning to move, though at very unsatisfactory prices. Most holders, however, are willing to accept a low price to get rid of their stock. The best water white extracted will hardly bring over 6c, while dark amber is selling at 2c to 3. Comb honey is getting fairly well cleaned up, and there is now little difficulty in selling good lots at the old quotations.

Water White, comb	10 @ 12 c
Light Amber	8 @ 10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

There is a little more demand for hogs at present, resulting in a slightly better range of prices. Suckling lambs are coming in rather more freely, and the dressed lambs are lower, though live lambs still bring 8 to 9c per lb. Sheep are not yet offered very freely, prices being well maintained at the recent advance.

Steers, No. 1	7 @ 7¼c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 6 c
Calves: Light	9 @ 9½c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7¼c
100 to 225 lbs	7½ @ 7¾c
Prime Wethers	7 @ 7½c
Ewes	6 @ 6½c
Yearling Lambs	7¾ @ 8 c
Suckling lambs	8 @ 9 c

HOPS.

Trading in spot hops is quiet at present, as there is no great amount offered, and the recent export demand has been stopped by the scarcity of transportation facilities. Some contracting for new crop is under way, however, at the range formerly quoted.

1914 crop, lb	11 @ 13c
1915 crop	12 @ 12½c

DRESSED MEATS.

Steers	10¾ @ 11½c
Veal, large	13½ @ 14 c
Small	15 @ 15½c
Prime Wethers	13 @ 14 c
Ewes	11½ @ 12 c
Yearling Lambs	14 @ 15 c
Suckling Lambs	14 @ 15 c
Hogs	12 @ 12½c

MISCELLANEOUS.

The Fifth Annual Pacific International Live Stock Exposition will be held at the Union Stock Yards, Portland, Ore., on December 6 to 11, 1915.

A shipment of ten fine Merino rams was recently made by Chas. Kimble of Hanford to the Hawaiian Islands. Robt. Hind of Hind, Rolph & Co. of San Francisco was the purchaser and he states that the sheep industry is rapidly increasing in the islands, though at present the standard of stock is not very high.

SAND BED FOR PIPERS.

[Written for Pacific Rural Press.]

A concrete pipe laid in heavy adobe soil did not give good satisfaction on a large ranch in Tulare county which was to be irrigated by this system.

The trouble was due to the expansion and contraction of the soil in which it was laid, so that the next line, which will soon be put in, will be laid on about six inches of sand, which will be put in the bottom of the trench to prevent the dislocation of the cement pipe joints.

BROODING AND FEEDING CHICKS

(Continued from page 411)

ruary. Now if you are using those eggs to breed from, as your letter implies, it would be most unwise to try to keep the hens up to that pitch.

In fact if you do the fertility will not be so high and the chicks will be weak. You say you have a California Poultry Practice, so I advise you to read the chapter "Feeding the Brooders"; after you read that you will know that it is not quantity that counts in hatching but "quality." If you want good, strong chicks that will be useful laying pullets, don't crowd the hens, but rather aim to keep the egg supply below the limit.

This subscriber has commenced right by getting good weight hens; of two years or over, but he must not expect too much from his hens; he will get the quality, but will have to limit the quantity. Old Leghorn hens are doing very well if they lay every other day, and they should not be crowded to do any better. If the eggs are for commercial purpose feed more wheat and barley and a little more animal food, if for hatching let them alone.

Petition for Governor.—On March 5th I sent a list of names to Honorable Knox Boude at Sacramento petitioning the Governor to sign any bills the Legislature may pass on Chinese eggs. Got over 200 names, so if everybody did as well his Excellency will see the "trend of the times."

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING PAYS BIG—Instruction books, etc., free. Send dime for sample pure honey. Gill Apiaries, Nordhoff, Cal.

WANTED.

POSITION WANTED—Ranch Manager, Superintendent or developer, possessing eight years' practical California experience, applying the practical portions of the scientific side of the work of general agriculture and its constructive and engineering features. Credentials. Box 47, Pacific Rural Press.

WANTED to RENT—Small dairy on shares. Small herd of 15 to 25 heavy milkers preferred to larger number of medium producers. Box 46, Pacific Rural Press.

WANTED—Man with family to take charge of ranch in Oakdale irrigation district. Alfalfa, young orchard, beans. Address, Box 49, Rural Press.

FIREMEN, BRAKEMEN WANTED All railroads, $120 monthly. Experience unnecessary. Railway Association, Care Box 48, Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

RHUBARB PLANTS—Now ready and going fast. Never has there been a better season for planting Latest developments have perfected eastern marketing and Rhubarb has stepped into the first rank in commercial importance. Correspondence solicited with intending planters. Starting right is more than half of success. Get my new book, "Winter Rhubarb, Culture and Marketing." Will send a copy free to all who purchase plants. Selected Plants—all No. 1 size. Burbank's Crimson Winter, 75c per doz.; Wagner's Giant, $1.50 per doz. Quantity prices on application. Reginald Bland, San Luis Rey, San Diego Co., Cal.

SOUDAN GRASS SEED—The new and unparalleled forage crop. Drought resistant and high yielding. First class, reliable seed, free from Johnson Grass, 45c a pound, or $40 per 100 lbs, f. o. b. Santa Ana, Cal. It is now time to plant. C. E. Lewis, R. 5, Box 52A, Santa Ana, Cal.

BURBANK'S SPINELESS CACTUS—100,000 leaves of the new improved varieties, direct from the home of the originator, Santa Rosa. These new varieties are 100 per cent better than the old. Order now for spring delivery. Send for catalogue and price list. J. I. Jewell, Santa Rosa, Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

GENUINE FRANQUETTE GRAFTING WOOD for sale Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

GRAFTED FRANQUETTE WALNUTS [illegible] cents being $100 more per ton than the best [illegible] and on Royal root [illegible] than the average California root. It took us ten years to develop this [illegible] disposal. Write us for number you need. Catalogue and price on application. Imperial Walnut Nurseries, R. D 7, San Jose, Cal.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of [illegible] from four to seven feet high, $2 Write for literature. W. A. Spinks, Duarte, Cal.

GENUINE BURBANK Spineless Cactus, improved prolific growing varieties, large slabs, $10 per 100 and $75 per 1000 lots [illegible] WINCHESTER CO., [illegible] Cal.

CLING PEACHES in quantity, 3 to 4 feet at 15c. Also Lovell and Elberta, 4 to 6 feet at 10c; 3 to 4 feet at 8c. We have a full line of fruit and ornamental trees. Price list free. Turlock Nursery, Turlock, Cal.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

ALFALFA HAY FOR SALE Several hundred tons of clean, leafy alfalfa must be sold at once. This hay was not wet by early or late rains, is properly cured and free from weeds. For particulars, write V. L. Wiser, Manager Sunset Ranch, Gridley, California.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

SUDAN GRASS seed grown in Santa Clara Co. without irrigation, free from Johnson grass. 5 lbs. for $2.50 postpaid; 12 lbs. for $5.00 postpaid; this month only. Geo. W. Lane, Morgan Hill, Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color. 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

BURBANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

SOUDAN GRASS SEED—The wonderful new forage. Reliable seed Reasonable prices. Responsible grower T. W. Buell, Krum, Texas.

BURBANK SPINELESS CACTUS—$100 per 1000; $15 per 100, 20c small lots. E. E. Guilbert, R. 4, Turlock, Cal.

NURSERY STOCK—Navel Oranges, Valencia late trees. Seedless grapefruit. Reasonable prices. K. Matsuoka, Sanger, Cal.

BEFORE YOU PLANT OLIVES, cactus, or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

HIMALAYA BERRY VINES One year old. $1.25 per dozen. $10 per 100 F. O. B. Sunnyvale. A. Cooley.

RHUBARB Crimson Winter, $3 per 100. Good strong, one-year plants. Currier Bulb Co., Seabright, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

WALNUTS Supply of Chase trees limited; write for descriptive circular. Magnolia Nursery, Whittier.

BELGIAN HARES.

FIR CRAGS RABBITRY—Fine breeding stock. Box 263, Sonoma, Cal.

MISCELLANEOUS.

PARTIES ON RANCHES who are producers of selected choice fruits, vegetables, table poultry, etc., who might be interested in marketing their products direct to consumer on a profitable basis, should address F. L. Darrow, 1605 Telegraph Ave., Oakland, Cal.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

CO-OPERATIVE BUYING reduces cost of living by P. C. L. plan. Write for catalog blanks and full particulars. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue SMITHS' CASH STORE, 106 Clay St., San Francisco.

ALL FARMERS—Something every farmer needs daily. You cannot get along without it. Particulars free. Write today. Western Supply Co., 320 Market, San Francisco.

FOR SALE—One model No. 7 Simplex Turbine Separator and all equipments. All in first-class condition. Write Pitcher, Pedrini & Kimball, Occidental, Cal.

AIREDALES—Registered young and grown stock. $20 up. Tunitas Kennels, 959 Phelan Bldg., San Francisco.

Ladies, You Surely Will Admire

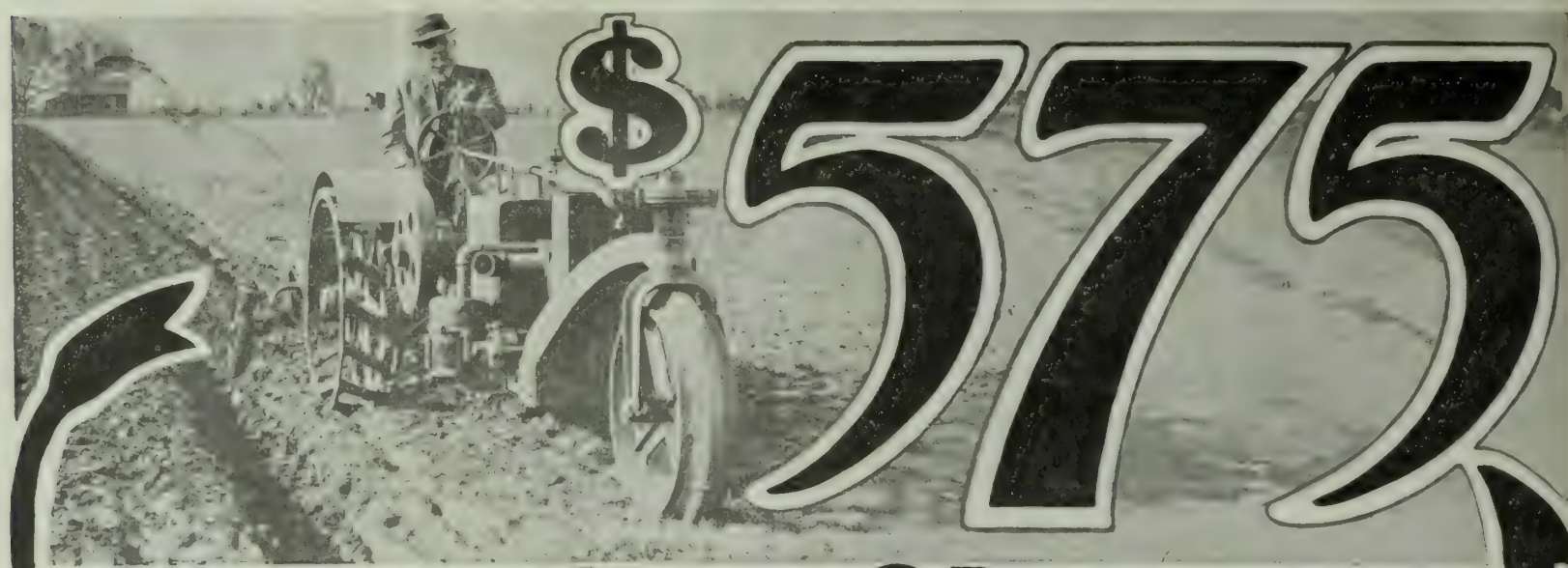
this **DAINTY** little **HAND-PAINTED** and **DECORATED SACHET PACKET.** Just the thing for your dresser and lingerie. Take advantage of this special offer and enclose ten cents—stamps or coin—and get this little dainty by return mail. Cost you three times as much anywhere. Will also send you our valuable booklet **FREE.** It is something that you will really appreciate. **WRITE QUICK** this offer will not hold always. **NORTON SALES CO., 5401 Carlton St., Oakland, Calif**

CAMPBELL

IRRIGATION

We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Turbo-Irrigator, and the new Automatic Oscillator for overhead pipes.

J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.



"the price of harness and two good mules"

is the price of the small Samson Sieve-Grip tractor. It will do the work of four to five good horses. It is built of the best crucible steel made in our own crucible foundry. The gears are vanadium steel. Even the Sieve-Grip wheels are high carbon steel and fitted with roller bearings. The eight to ten brake horse power motor is the counterpart of the same size motor we have built for fifteen years for stationary work. Completely equipped the whole machine weighs but 3,500 pounds. It is so compact, so nicely balanced and so perfectly constructed that it may be pushed along by hand—by one man—on smooth surfaces.

SAMSON SIEVE-GRIP TRACTOR

Samson quality, Samson reputation, "the strength of Samson in every part," the name we have so carefully protected for fifteen years is built into every part of this little machine.

How often have you heard at Fairs and Tractor Shows, "There's the Samson. Isn't that a well built little machine! See how well protected and strong it is."

Our stationary and marine motors from two and one-half to two hundred horse power are in use over the entire coast. Our centrifugal pumps, some with 50,000 gallons a minute capacity, are found wherever you go in the West. Our tractors, the first of which (built over thirteen years ago) placed us among the pioneers of the industry, have always delivered the best of service.

We now offer you the small Samson tractor, designed for the farmer or grower with either a small or large acreage and sold at a price within reach. Yet the price is not so small that we must slight or scrimp any necessary part. From steering wheel to transmission we have given everything the needed strength. And, while small tractors have been built before and are now built, the Samson comes to you with a reputation back of it for promises always fulfilled.

Size and Specifications.

Forty inches in height, 10 feet long and 1¾ tons in weight, the small Samson Sieve-Grip marks a new era in tractor building. It is the long-sought-for small tractor. It will do the work of the four or five animals on the average small farm or orchard, at a first cost no greater than the two or three horses and their equipment usually owned. And in maintenance, labor and operating cost no comparison exists. The small Samson uses but one gallon of distillate per hour. At 7c a gallon, this is an average daily fuel cost of 70c. But one quart of lubricating oil is needed in a day and one man can operate tractor and plows. Depreciation is very light. The simple and durable construction and the added fact that the tractor is small and the parts consequently inexpensive places depreciation at its lowest point.

The Sieve-Grip Wheel.

The Samson Sieve-Grip wheel is patented and owned exclusively by us. It is the result of long and painstaking effort to provide good traction. It is a success. It can't pack any soil, it does not slip. It will operate on any soil, whenever plowing or cultivating is practical. For traveling over asphalt or valuable roads removable road bands are provided. They can be attached or removed in five minutes. There is no complication, no up-keep cost, nothing to wear out, nothing to break down. The whole wheel is a single high carbon steel casting. It is dependable and economical, as a small tractor should be. We guarantee it to do all that we claim for it and to do your work to your satisfaction.

NOTE

In addition to the small four to five horse-pull Samson described above we build its counterpart in the eight to ten horse-pull Samson. The two tractors are identical in design and construction, the larger machine being merely twice the size and horsepower of the smaller. The brake-horsepower is 16 to 20. The price is $950. Let us tell you about it.

SEND FOR BOOKLET.

We want you to know more about the small Samson Sieve-Grip tractor. You should know more about it. We have a new catalogue, giving a complete and minute description of the entire mechanical construction of the machine. Operating costs, factory facilities responsibility of the manufacturers, are all explained in detail. Get it now. Sign the coupon and send it in. Tell us, too, how many acres you are farming and what you grow. It will help us to give you the right information. Send it now!

Samson Iron Works

Stockton, Caliornia

CLIP THE COUPON

SAMSON IRON WORKS,
Stockton, Cal.

Please send in the catalog describing the small Samson Sieve-Grip tractor and any additional information you may have. No obligation.

I have
..... acres truck farm.
..... " alfalfa ranch.
..... " orchard.
..... " vineyard.
..... " grain.

I am also interested in the tractor's
Hauling Capacity.
Stationary power.
Upkeep cost.
Hill climbing ability.
Cost of operation.
Terms of Sale.
(Check the information you want.)

Name .....
Address .....
P.R.P.
HONIG ADVERTISING COMPANY.

Vol. LXXXIX—No. 14 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, April 3, 1915 LOS ANGELES

State Library 7-1-16

Forest Service Aids Stockmen.

[From an Address by Albert F. Potter, Associate Forester, at the American National Live Stock Convention, in San Francisco.]

The one thing which stands out more clearly than any other as an accomplishment in the management of grazing within the National Forests is the fact that the ranges are producing more and better stock than they did before, and that the stockmen using them are making more money than those who are using the outside uncontrolled ranges. The most important result of this is that the National Forest ranges are not only continuing to furnish their share of the beef and mutton necessary to keep up the country's meat supply, but are gradually producing an increased amount of these food products.

Early studies of the causes which had led to deterioration in condition and decrease in carrying capacity of the ranges showed that in many instances the damage was due mainly to the manner in which the stock had been handled. Much damage had resulted from placing stock on the summer ranges too early in the season, before the forage had made sufficient growth to be ready for grazing. Also, in the rush of each stockman to get to these feeding grounds early and ahead of any of his competitors, serious damage had resulted from trampling out the grasses and plants.

The application of the very first principles of regulated grazing, which are to fix the number of stock that may be grazed upon a given area and to determine when the stock shall enter and leave it, brought about a saving of fully thirty per cent of the forage, because this proportion had been wasted by lack of system and control. Where the ranges were overcrowded it was clear that, unless this condition could be relieved by transfer of stock to other ranges which were not being fully used, it would be necessary to reduce the number of stock. To do this often required the construction of trails and bridges, and the stockmen willingly co-operated with the Forest officers in doing the necessary work.

The area available for grazing in localities where the range was unused because of the absence of stock-watering facilities was also extended by clearing out seeps and springs and piping the water into troughs, by the construction of storage reservoirs, by building trails into watered canyons, and often by piping water for many miles out into the dry portions of the range. The water development work has not stopped at opening range which had been unused before, but has been the means of improving conditions on many of the used ranges by lessening the distances which stock had to travel to reach water; in this way making it possible to produce not only more but better and heavier stock upon the same range.

A good proof of the quality of the stock grown on these ranges is that at all of the big Western stock shows the users of the National Forests have been awarded more than their proportionate share of the prizes for range stock; often not only securing the first prizes, but also the highest market price for their stock. The increase in number of stock is shown by the fact that from 692,124 head of cattle and horses and 1,514,330 head of sheep and goats on 85,852,229 acres in 1905 there has been an increase to 1,616,880 head of cattle and horses and 7,618,802 head of sheep and goats on 163,848,524 acres in 1914, which, considering the area of the Forests at each time, means that there has been a proportionate increase of over 50 per cent in the number of stock grazed.

During the past year there were 23,757 permittees grazing cattle and horses with an average permit of 68 head, and 5,188 permittees grazing sheep and goats with an average of 1,469 head. There is a limit below which it is unprofitable to handle livestock, and this is kept in mind in reducing the permits of the older users.

As has already been said, the first problems in range management were to stop the damage which was being done by unregulated grazing and to provide pasture for the stock already there by readjustments and the opening up the unused ranges. It was soon apparent, however, that before any definite plans could be formulated for progressive range development there must be a careful study of the plants and grasses which made up the forage crop and of the methods under which their best use might be secured. This was begun in 1907, by the construction of an experimental pasture on the Wallowa National Forest in Oregon. The object was to learn whether it was possible to construct a pasture fence which would be proof against coyotes and other predatory animals, and to determine the advantages of loose grazing over herding in the handling of sheep. The results

(Continued on Page 429)

California Cattle Round-Up from Forest Pastures En Route to Valley Shipping Points.

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office on Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., March 30, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.88	38.95	38.34	70°	46°
Red Bluff...	2.82	31.10	21.30	72	48
Sacramento.	1.16	13.92	16.87	68	48
S. Francisco.	2.63	23.43	19.40	64	50
San Jose....	1.18	18.72	14.55	68	48
Fresno.....	.38	9.08	8.21	80	46
Indep'nd'nce	.08	2.92	8.09	78	..
S. L. Obispo.	.77	23.77	17.98	70	44
Los Angeles.	.60	15.35	13.89	72	48
San Diego...	.18	12.93	8.80	68	48

The Week.

We have been having unusually generous spring rains this week, and they have covered large areas of the State. Coming after quite a run of fine weather, they find a cordial welcome from those who have grain and grass growing, orchard areas to work down for summer moisture-conservation, and land to get ready for field crops which must be planted after frost. With so much moisture as the generous winter rains stored in the soil and such a good spring rain to help cultivators to keep it there available for plants, the season comes near to be ideal, and production will be correspondingly large. Besides, the State is being put into condition to awaken the keenest interest and the warmest admiration from the millions who will see California for the first time during the next few months.

The California Expositions at San Francisco and San Diego continue their twin-conquests through the wide recognition of the charms and significance which the wondering worldlings accord to them. Thomas R. Marshall, Vice-President of the United States, who has been in California for a fortnight, says this of the Panama-Pacific Exposition:

"If there be any one in America with a thirst for knowledge and for beauty and a longing for a liberal education, such an one can here obtain it. This is the university of the world. It has a chair fully endowed to meet the wants and needs of each. The eye, the ear, the mind, the heart, the soul, each may have its horizon here enlarged. This Panama-Pacific Exposition seems as near perfection as the mind and hand of man have ever wrought."

Vice-President Marshall has made friends of Californians by his attitude of sincerity and appreciation, and this commendation, bearing the impress of serious conviction, will turn hundreds of thousands westward during the current year.

California the Pet of the Nation.

We are aware that some perpendicular people are vexing their cubical souls with the question as to whether California's promotion ways are really dignified and precedented. They doubt whether so great a state should disport herself in the national family circle as a kid whose content must be bought with candy or as an imperious beauty whose anger must be appeased with worship. And the question seems to have arisen sharply because Governor Lister of Washington has declined the request of California authorities to name March 31 as "Ripe Olive Day" in his State. We have not seen the full text of his proclamation, but it probably contains a transcript of the vengeance of the old sea-captain who declared, on his first taste of olives, that he would "lick the son of a sea-cook who put salt on them plums." We are sorry of course because Seattle has a considerable capacity for ripe olives, and we wish to awaken it. The Governor, says, however, that he has called upon his people to observe apple day, salmon day and orange day, and "declines to further augment the State's menu card by adding the relish course." He seems unconscious of the fact that the ripe-olive day philosophy is exactly in harmony with his decision. It desires also to banish the olive from the "relish course," and make it food and not appetite. However, the governor will get that through his head later. The question which the incident engenders is that mooted above, viz.: should we be calling on governors of other States to turn the ponderous machinery of their States to grind out publicity for our products? To answer that we quote from the announcement by Governor Withycombe of Oregon these words: "It seems to be entirely fitting that we of Oregon should acknowledge the mutuality of our interests with the growers of California by seeing to it that not only on March 31st, but on all days of the year we give preference to the olives of our neighboring State rather than to those imported from across the sea."

That is really the answer to the question. California is justified in calling upon sister states to give recognition to an American product and to choose a ripe fruit rather than a green one. Let the Governor of Washington think a little more about it, and make amends by celebrating "Raisin Day, April 30," all the more gloriously. Let him fill up with with good, stiff "plum duff" and he will have no doubt that he is up against some food and not a relish.

The Printer's Sign of Prosperity.

We are not exactly printers, but we are near enough to such ink-smudged persons to feel quite happy when we see signs of their resurrection as tokens of the public state of mind and the popular will. We say "resurrection," because they have surely lapsed somewhat from the high estate with which the immortal Benjamin Franklin endowed them at the planting of the nation. One could, however, easily have foreseen their re-arising, for printers are the impressionists of truth and everyone knows what crushed truth traditionally does. But whether one cares as much for printers as we do, does not matter: the token which they now exalt is important to everybody. A great Eastern automobile man, who is, of course, ex-officio, an apostle of truth, recently said this:

"Last week was one of the biggest buying weeks this country has had for months; although there were no sensational orders, yet the sum total was tremendous. Another significant thing is that printers are doing a much better business now than recently. The printer is a kind of barometer on business. When he is flooded with orders and is working full capacity, it means that 'business' is going ahead with definite and matured plans."

Of course, we do not ask the reader to attach too much importance to the extra activity in printing, due to the fact that the publisher of this journal "is going ahead with definite and matured plans" to double the circulation of the Pacific Rural Press during the current year. We only cite that fact as incidental to the main issue, which is the general business activity in all, perhaps, save affairs which are nearer to finance than to industry. Men who are actually hustling for themselves are obviously doing better than they who have been staking others to hustle for them. That business requires reorganization on lines more reasonable to the actual hustler—but we will not argue that matter now. Take, rather, a demonstration of what is being done right here by the people who are hustling for themselves in production and trade. During February this year exports from San Francisco amounted to $8,086,734, and this makes the month the fifth highest month in the past ten years. The six months of the war, commencing with September, show exports greater than the entire year in 1905. In 1905 the entire exports amounted to $45,898,504, in 1910 they dropped to $35,773,746, and in 1914 they had increased to $64,784,092. And Collector J. O. Davis of this port says: "The cargoes taken out consist, practically, of California products." And Mr. Davis adds: "With this showing during the last few months, when there have been but few vessels, comparatively speaking, operating on this Coast, what will it mean to San Francisco and California when the war is over and the merchantmen of the world are free to come here without molestation on the high seas by hostile warships?"

Unfairness to the Dairy Industry.

The legitimate local butter product has narrowly escaped unfairness. The California Senate undistinguished itself on March 26 by voting by a majority of four that California butter should not have the opportunity of selling as the certified product of our own grass and sky. On March 29 the Senate reversed itself, apparently realizing the wrong it was doing, but the danger still impends.

California butter-makers have suffered by the reduction of the duty on imported butter and their demand was, as conveyed by Senator Kehoe, that imported butter should be sold in such a way that buyers will know that they are not buying the local product. They did not question the right of buyers to use the imported butter, but insisted that when they did so they would know it. This the Senate de-

nied. And yet, it cannot be doubted that in denying the claim of the butter producers the Senate also denied the consumer's protection against a thing which they do not want. If the dairy industry of this State, upon whose development the profit of alfalfa and natural pasturage largely depends, cannot have protection from long-distance foreign butter under the glorious policy of world-width which the ruling party in politics is now giving us, why cannot they have the patronage which our own people desire to give to them and not to others? The answer must be found in the attitude of the opponents of Senator Kehoe's bill, which the associated press reports in these words: "Democrats asserted that the bill was a scheme to circumvent the tariff and establish artificial and unfair protection for domestic butter." We have to take it for granted that the associated press is right in thus placing the opposition. If so, then California butter is to be crushed by national politics and in deference thereto it not only has to lose a large part of its protective duty, but cannot be protected in its identity in its own home markets. It rather appears to us that these California opponents of a California product are even more cruel than their national masters, for the latter use more honey and less gall in their prescriptions. What with a National Live Stock Association meeting in San Francisco and calling upon Congress to remove distinctive marks from oleomargarine, and a California Senate meeting in Sacramento and denying the home product distinction from its over-sea competitors, it really does look as though one of the most valuable and most promising products of California was in danger of being crucified in the house of its friends.

A Bear Movement.

Why does not someone introduce a bill making it illegal to shoot or trap legislators except during January to April of each alternate year? This would surely be a protection to wild-life which would give the State high standing in naturalistic circles. Since, however, such an open season is not decreed, we shall probably have to consider bills like that introduced by Assemblyman Ream of Siskiyou county to prohibit the trapping of the animal and its slaughter, except from October 15th to June 1st. We must acknowledge that we do not know much about periodicity, hibernation, etc., in bears, but we suppose the purpose of the bill is more bears, and that is in conflict with all that everyone is doing to develop the remote lands of the State into homes and with such products as these lands are capable of. What is the use of trying to make this State populous and a big game country at the same time? Such things are naturally antagonistic. We are not surprised that protests against protection to bears are falling thickly on the legislative desks. We read that Assemblyman Sisson of Red Bluff, who represents a "bear" district, has among his constituents numerous stockmen, "who contend that bears are a decided economic disadvantage and of late years have been partial in their tastes to grazing stock. As a consequence they object to having bruin protected." That is surely putting it very mildly. This State has no use for a bear except on the State emblems and in safely enclosed government zoological reserves. Of course, we have worse big game than bears, but that is no reason why any of them should be at large for marauding or protected in their multiplication.

Revive the Old Debating Societies.

We have objected to so many things this week that we are glad to find something to favor. The extension department of the University of Wisconsin has set out to revive the old time "debating societies" in the rural districts of that State, and is being helped to that end by Professor R. L. Lyman of the University of Chicago. He points out that public oral discussion of public problems existed before the Christian era and maintained itself through the Middle Ages, which is a good historical aspect of the matter, but some of us are old enough to remember something to justify this claim of Professor Lyman: "Your crossroads debating society, roughly, imperfectly, can teach and does teach men and women to think, seriously, enthusiastically, happily, and, to a certain extent, effectively. This is the supreme desideratum of any and all truly educative processes." If our country school districts had their debating societies, and if the country schoolhouses should again resound with their home-made oratory, it would surely be a good thing for both young and old. The present rural attitude seems to be to stand around until some one pours in something and our intellectual teeth are in danger of falling out from disuse. It makes more for mental strength and purpose to get a wad of something and chew on it. Every rural community has problems which need Fletcherizing, and then there is the good old tariff question which developed oratory in your grandfathers: it is still good to grind your wits on. The Wisconsin revival should be wide-reaching.

Queries and Replies.

Querists must give name and address.

Reclaiming Overflow Land.

To the Editor: How can I reclaim a piece of swamp land that is overflooded by water from a creek, caused by the tide from the ocean. It is well drained as the tide recedes, and it can easily be shut out.—Subscriber, Morgan Hill.

Shut out the salt water, of course, and give the fresh water a chance to get out when the tide recedes. This is usually done with a levee with gates in it which close as the inflow begins and are pushed open by the outflow. These can be made to work automatically. It sounds easy, but it isn't always easy or cheap.

Wet Places in Alfalfa.

To the Editor: Would you kindly advise me what to do? I have about five acres out of 30 acres of alfalfa, which has no stand at all. The water was standing on it during the last winter. What shall I plant on it this spring to get some benefit out of it?—E. B., Modesto.

Probably the best way to get something immediately would be to use the spot for corn or sorghum; working now and planting as soon as frost danger is over. If the land is wet from overflow, you can get permanent advantage as soon as frost danger is over. If the land is wet in spots from collection of rainfall you should dig or bore down and see if you have hard pan with free soil below. If so, dynamite all the spots and give the water a chance to escape instead of standing on the surface. This may make it possible to have a complete stand of alfalfa.

HAVE "California Garden Flowers," by Wickson, and have looked it through with much interest. I am sure it will be of much service, for it contains a great amount of very useful, direct and practical information arranged in such a way that the user of it can find it readily. It is a good companion to Professor Wickson's other very useful manuals.—L. H. Bailey, Ithaca, N. Y.

Slitting Bark of Cherry Trees.

To the Editor: I have a number of cherry trees, some fifteen years of age, on which the bark was slit to allow for growth, some three years ago. Is it advisable to slit cherry trees more than once and if so, how often should it be done? I find no reference to this question in your estimable book, "California Fruits and How to Grow Them."—I. D., San Jose.

Bark-slitting can very easily become a fad and trees injured thereby. Bark-slitting is rational when a tree becomes "bark-bound," or "hide-bound" as it is usually called. This is most apt to occur during a period of neglect when the lack of moisture prevents free and adequate sap-flow. When conditions are improved, so freer growth can be sustained, such growth and trunk expansion may be facilitated by slitting, up and down, the outside bark, which has become indurated. But do not become a habitual and unreasonable tree-slitter, for it is useless and may be injurious when not necessary. And it is never desirable to do it often. Generally speaking, most trees never need it at all and a few trees may need it once in a life time. If growing conditions are so bad that trees keep on being bark-bound, it will be most profitable to make fire-wood of them.

Almonds on Loam over Clay.

To the Editor: I have a foot or so of good top soil over a deep clay. It is on hilly bench land with comparatively good drainage. The clay is mostly yellow, but in some spots it is red. I intend planting almonds on it, and would like your opinion as to whether they would produce well under those conditions. The trees have bitter almond roots.—J. C. I., Lower Lake.

The trees will grow all right if the clay does not prevent surplus winter water to move away. If the land can be worked, and teams do not mire down, during the rainy season, it will carry the trees. If so they are likely to bear unless you are liable to have sharp frosts after blooming. That is quite as important a question as that of the soil.

Resistance to Oak Fungus.

To the Editor: What is the best tree to plant where almond trees have died? The ground is deep and rich and well drained. I suppose the death of the almonds is due to oak root fungus. Will any kind of plum grow on myrobalan root, or will apples do well? I have replanted almonds on almond root, but they always die.—J. M. S., Roseville.

The pear is believed to be most resistant. Walnuts on black walnut roots, cherry, apple and fig have been reported as having decided resistance. The plums, including the myrobalan, seem to be quite subject to the disease, as do other stone fruits.

Workable Adobe Prune Orchard.

[Written for Pacific Rural Press.]

B. F. Weston of the Santa Clara valley had just told us about his first experience with adobe. He had years ago rented his pear orchard to an ambitious young man who worked through the season with the idea of making the place a model orchard. The trouble was that he allowed the soil to lie a few days after it was plowed before he worked it down. What might be expected, happened. Though this ambitious man harrowed, rolled, cultivated, and crushed those clods all summer until the ground was pretty well covered with round balls from which the corners had been worked off, in the fall he gave it up discouraged.

There is a time, however, when adobe soil can be worked down. That is, if it is plowed in a moist condition and immediately harrowed or disked. This is what a neighbor of Mr. Weston, G. Bray, had to do with his place in the years of long ago. With Mr. Weston's experience fresh in mind as we passed Mr. Bray's orchard, we noticed the adobe overturned with the plow and drying out dangerously, and thought he was following the footsteps of Mr. Weston's renter.

The orchard was in beautiful full bloom, and we were interested to inquire from Mr. Bray why he did not work down the soil immediately as all other adobe farmers that we knew of had to.

"Won't it get so hard that you can never wear it down?" with Mr. Weston's experience in mind.

"Say, come out in the middle of the orchard with me."

Dried Adobe Clods Crumbled.—We went, and kicked out the dry adobe clods gingerly for our toes' sake. It crumbled easy and fine in a surprising way. Part of the orchard had been under water for a long time last winter, and on the day mentioned had dried out and cracked in a small section yet unplowed. But Mr. Bray assured us that it would be as crumbly as the rest of the orchard, saying he could let the soil lie as plowed all summer and then work it up as easily.

Crumbling Due to Drainage.—His practice is to let it dry on top anyhow before working it down. This fine condition of an adobe soil which is the same as the rest in that section, according to Mr. Bray (and the fact was corroborated by inquiry among his neighbors), is due almost entirely to the fact that the whole thirty-five acres, a half mile long, is drained by a brick tile running lengthwise through the center and having laterals about every 100 feet. This was done in 1891 when the prune trees were only a year or two old so that no difficulty was found in digging ditches to a three-foot depth.

The place slopes lengthwise north toward San Francisco Bay with a drop of about fourteen feet in the half mile, so that there is plenty of chance for drainage, provided Mr. Bray has a good neighbor on that side. In the days before 1891, he had a neighbor who was not all that could be desired and no outlet for tile drainage could be obtained. As Mr. Bray says, "A tile without an outlet is no good at all." But this neighbor sold out in 1890 and the new owner allowed him to put a ditch through his place and even paid half of the upkeep cost, which is only $5 or $6 per year.

At once, Mr. Bray dug his ditch from the lower end of the place to the center of the prune orchard, which is about 440x550 feet at the upper end of the place. At this point the ditch was branched in two directions at an angle of 45 degrees toward the upper end and then laid along the end to each side. Lateral ditches at 45 degrees to the main were laid from the main to each side of the place at about 100-foot intervals, clear to the lower end.

Saved Surveying Cost.—Since the upper part of the place is more wet than the lower part, the laterals there are closer together. When the ditch was dug, Mr. Bray turned his artesian well water into it to be sure that he had a correct grade. This was cheaper than hiring a surveyor to level the ditch, and he had no bother with stakes. With the water running through the ditch, he leveled off the bumps and filled in the low places until there was a nice riffle running the full distance, and he knew it was ready for the tile.

Five inch clay tile about a foot long were laid for the main line; and three and four inch tile for the laterals. The ditches were not dug lengthwise of the rows, because it seemed to Mr. Bray that they would not drain more than a small strip on each side of the tile in that heavy land, but laying them across diagonally gave plenty of grade and caught the seepage from above each lateral.

As time has passed, little water channels have formed in the soil to lead surplus water directly to the cracks between the tiling. This has the effect of loosening the soil and permitting a greater circulation of air. It dries off the surplus water quickly and leaves the ground in good condition to work at almost any reasonable time.

Tile Filled with Roots.—Troubles were not lacking, however, for part of the line ran through an alfalfa field. The alfalfa roots knew a good thing when they found it. They forced their way between the tiles and completely filled the drain, so that Mr. Bray had to dig down and clean them out. He dug up enough tiles so that a 24-foot stick with a spear end could be shoved through the mass of roots to the next opening and then pulled up out a long rope of alfalfa roots. The same trouble was encountered with poplar trees at the lower end of the tile, but the trees have since been killed and there is no more trouble from them. A ten-foot strip of alfalfa was plowed out, over the tile line; and there has been no further trouble. The prune roots have never bothered. Vetch six feet tall last year among the prunes helped to mellow the ground, but it did not penetrate the tile to any noticeable degree.

IT WAS on a trip in the berry section of Sonoma county that we were told of the immense bunches of currants, almost as large as grapes, which are found in the Tehachapi valley at elevations of about 4,000 feet.

We are glad to print herewith a picture of the oldest of the pear orchards in that valley, showing how the currants are raised between the trees. There have recently been planted over 400 acres of Bartlett pears and apples in that little valley, bringing the total up to about 3,500 acres. The oldest of this planting was set out six years ago by B. M. Denison, on the strength of the good showing made by the fifty or sixty old pear trees scattered all over the district in family orchards. There is still no blight in the valley.

The trees shown in the picture have an immense setting of fruit buds, and on account of the high altitude were held back from too early blooming so that on the sixth of March they were not even commencing to swell. On that date, the almonds had not yet bloomed.

Tehachapi town, growing and improving at a rapid rate, is shown in the picture between the orchards and the mountains.

Alfalfa in the Peach Orchard.

[Written for Pacific Rural Press.]

Sales of 400 tons of peaches at a total value of $10,000 are vouched for by Mgr. W. G. Nash of Libby, McNeill & Libby, as having been made from the C. H. Schmidt orchard in Fresno county, containing 900 trees six years old at the last bearing.

Quoting from the Fresno Republican, with some changes suggested by Mr. Schmidt, we note the following commendable practice in regard to fertilizing: Mr. Schmidt uses all three of the plant food elements in fertilizing, but produces his nitrogen from manure or alfalfa.

His way of planting alfalfa is uncommon. "A four-foot strip on the east side of each row has been prepared by special fertilization and sown to alfalfa. Mr. Schmidt holds that alfalfa takes too much moisture from the ground when sown over the entire orchard. By using these strips, moisture and food for the alfalfa will be taken from one side of the trees only, and the trees can draw from the other side."

"You have no idea how hot the ground gets in the summer time in our peach orchard," says Mrs. H. L. Letcher, of Dinuba. "We believe it hurts the peach roots, and last year we experimented in using alfalfa to shade the ground through the summer time. We like the idea first-rate and have planted a much larger patch this year, seeding it closely all around the trees."

"Before seeding, however, we plowed up the ground, worked it up fine, and left a wide furrow half way between the rows for irrigation. It would not do to grow alfalfa between the trees if we did not have plenty of water because such a crop evaporates a great deal more than

the trees. Besides keeping the ground cool and allowing the roots of the tree to grow and work to the best advantage, the alfalfa adds nitrogen and makes the ground porous with its roots. We also gain considerably in humus content of the soil because the alfalfa is cut and laid back in the furrows where it will rot most quickly."

Preventable Causes of Grape Loss.

[By Prof. F. T. Bioletti, University of California.]

1. **Undertaking Too Much.**—If it requires two tons per acre to pay operating expenses, a 10-acre vineyard yielding 6 tons will be more profitable than a 40-acre vineyard yielding 3 tons. Crop differences of this magnitude are often due to differences in amount and kind of care given. Grape growing is intensive agriculture.

2. **Ignorance of Viticulture.**—To have a vigorous vineyard producing profitable crops we must know and use the methods which have been proved successful. Grape growing requires special knowledge and skilled labor.

3. **Failure to Utilize Local Conditions.**—The local conditions of climate, soil, market and transportation are best suited to some particular type of grape-growing. To attempt other types is to waste opportunity.

(a) Early table grapes can be grown only where the necesary 2500 degrees of heat above 48 deprees F. are received before the end of June.

(b) Shipping grapes are profitable only where the soil is fertile, and where packing and shipping facilities exist.

(c) Late table grapes require a late district and a location free from autumn frosts.

(d) Raisin grapes must ripen, that is, they must receive their 2500 degrees of heat while there still remain two or three weeks of hot, dry weather for curing.

(e) Grapes for fine dry wines require a comparatively cool summer for slow maturity and should ripen late when the weather is favorable for wine making.

(f) Grapes for cheap wines must be grown in rich soil where the cost per ton is low.

4. **Unsuitable Choice of Varieties.**—Varieties suitable to the type of grape growing and to the locality are alone profitable. Tokay and Rose Sultanina do not acquire a good color in the hotter regions; Malaga and Almeria produce small, worthless grapes in the colder regions. New varieties should be planted only experimentally, as only local experience can test their suitabliity to the local conditions.

5. **Insufficient Preparation of Soil.**—Early bearing, longevity, and maximum crops all depend to a great extent on thorough preparation of the soil before planting. This consists of deep plowing, 10 to 15 inches, necessary grading for irrigation and removal of stumps and large boulders. The cost of such preparation will usually be recovered by saving in planting, cultivation, and irrigation during the first year, and the extra vigor and bearing of the vines will be clear gain.

6. **Neglect of Young Vines.**—Young vines require even more care than old. Proper care will hasten bearing one or two years and will result in a vineyard which will bear more and better grapes and cost less to cultivate. Neglect during the first three years can never be wholly remedied. Neglect results in deferred bearing, misshapen vines which are expensive to prune and cultivate, and continuous growth of suckers and surface roots.

7. **Lack of Grape Stakes.**—Vines of suitable form cannot be grown without stakes. The cost of stakes is quickly recovered by saving in cultivation and earlier bearing. The proper methods of utilizing the stakes, however, must be understood.

8. **Lack of Winter Reserves in the Vine.**—The crop and vigor of a vine is dependent on the reserve store of food laid up in the roots, trunk, and the canes during the previous season. This store is diminished by defoliation during the summer, excessive summer pruning, over-bearing, or continuous growth until the time of the first winter frosts. Growth should stop when the crop ripens. Late cultivation and irrigation are often unfavorable in this respect, especially with young vines.

9. **Improper Pruning.**—The possibilities of crop depend on the soil, climate, variety, and cultivation. How much of these possibilities will be realized depends to a great extent on the pruning.

(a) A single straight, sound trunk is necessary for ease of cultivation and pruning, for the treatment of diseases, for the removal of suckers and for the longevity of the vine.

(b) The head must be kept regular, symmetrical, and of proper size and shape. It must be large enough to properly distribute the grapes without interfering with cultivation. It must be of the shape most suitable for the arrangement of the vines, i. e., vase shaped for the square system and fan-shaped for the avenue system.

(c) The number of fruit buds left should be in proportion to the vigor of the vine, the arm, and the cane. Where vigor is lacking there is no possibility of a large crop and the attempt to produce one may kill the vines. Where vigor is excessive, it should be utilized to produce grapes. If too few buds are left the vigor will be increased and what blossoms appear may drop without "setting."

(d) Most varieties of grapes produce fruitful shoots from the lower buds. These should be pruned short, as this is the most simple and cheapest method. With some varieties fruitful shoots occur only beyond the fourth or fifth buds. These must be long or cane pruned. A mixture of the two methods is illogical. In the first case the canes are unnecessary. In the second the spurs are useless. (But see f.)

(e) Fruitful shoots are produced only by buds or canes growing out of two-year-old wood. Other buds produce only sterile shoots and are useful only for the production of new spurs or canes for a crop of two years hence.

(f) Where fruit canes are left in long pruning, an equal or slightly superior number of renewal spurs for the production of canes for the following year must be left. These renewal spurs may be chosen from fruitful or sterile wood.

RESULTS of fertilizer experiments with oranges and lemons at the Citrus Experiment Station at Riverside thus far indicate the importance of nitrogen from organic sources rather than from such chemicals as nitrate of soda. Among the green manure crops which are being tested with special reference to their use in citrus orchards in Southern California, purple vetch and melilotus clover are especially promising. For the one season tested purple vetch gave a yield at the rate of 18.25 tons per acre of green tops. It is so vigorous in growth that it entirely chokes out all weeds and is resistant to aphis attack. During a four-year period, melilotus clover has given an average yield of 12.75 tons. It is found growing wild all over the southern part of California, is apparently adapted to a great variety of soil types, is very deep-rooted, resistant to aphis attack, and also withstands quite low temperatures.

Santa Clara Apricots Are Light.

[Written for Pacific Rural Press.]

After a trip covering the major portion of the Santa Clara valley, a special correspondent of this journal states that the prospects are that the coming apricot crop will be less than usual. Some trees are heavily loaded with young fruit while others have only a scattering amount. It seems that some varieties were very light in blooming and setting while the Moorparks were unusually heavy. A letter dated March 23, from F. C. Willson of Sunnyvale, in commenting on the apricot prospects, says:

"In this district the trees bloomed, not generally well, but better than I thought could be from condition of buds. But since then, the full bloom and fruit have largely dropped off. As for my own case, I did not expect much on the home place, but hoped what there was would stick, but they have not. I was astonished yesterday to see how very little there is left on my 8 year old orchard (No. 4)—almost nothing. I find it very general, and have talked with a number of large orchardists whom I would consider conservative. The general opinion is that though you cannot estimate what crop it will be, it will certainly be very short in this valley.

"From some who are in position to know general conditions over the state I learn it is considered the same way in other sections. Peaches generally bloomed well, but I hear complaint of Salways especially dropping."

Other Fruits.—While it is too early to give estimates on prunes, pears and cherries, yet it may be said that the bloom in these varieties was very heavy, and barring late frosts, the prospects are good. Almond trees generally in the valley are well set with fruit.

The farmer cannot be helped until he organizes, and the Government can best help the farmer through organization.

Summer Shade Crop in Oranges.

To the Editor: I came here nine years ago and bought an orange grove. I expected that the old-time orange growers would give me pointers and that I would just have to follow in their footsteps, but I soon found out that they took little or no stock in experiment stations then. One fellow would be blasting with powder, another putting on potash, another lime, nitrate of soda, superphosphate, blood, etc. One fellow would cultivate deep, the other fellow shallow, and not one of them would say definitely that he was sure he was doing the right thing, so I thought I had as much right as any of them to try and use a little horse sense and go experimenting, too. I felt that there was one thing that we should try to keep in the soil, and that was humus, and that I was driving it out by too much cultivation. In September, 1912, I sowed vetch in a patch of 120 Valencia trees and put in the water furrows. By next spring the vetch crop was very heavy. About the 1st of April, 1913, I started to irrigate and did this once every 40 days all summer. In September, after an irrigation, I plowed both ways, harrowed it up good, put in the furrows again, and let the vetch volunteer. The volunteer crop was very heavy. I went through the same routine of irrigation again last year. My Valencia crop over my whole place and over the whole district was very heavy This year my crop is light and light over the whole district. Prominent orange men who saw the fruit on these 120 trees declared it was equal to, if not better than, any in the district. Last year I tried this scheme on ten acres of navels. I had a good average crop. Of the fruit packed and shipped out of the packing house I am connected with, the average percentage of the fruit that went in the first grade was 69 per cent, while my percentage in this grade was 83 per cent. I am not a professor but just a common orange grower, and although I have had good results so far and my trees look good, I am not satisfied. A company owns the water and we only get the water once every 40 days. I never expect to again cultivate before the first of July, but during the hot days of July and August 40 days is too far apart. So this year I will add some straw mulch to part of it and will probably cultivate some of it through these two hot months. I like to keep everything tidy and neat, and I can assure you it is hard on my nerves to see my orchard covered with vetch and wild oats while my neighbors' are clean, but it is results I am after. I am satisfied we have been cultivating too much. At the same time I have not gone far enough in my experimenting to say that I would advise others to follow in my footsteps. I am well known here and many are watching me, but probably it would be better not to divulge my name, as I do not desire to be flooded at this time with letters from outsiders asking for results.—W. L. R., Tulare county.

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

Extensive irrigation systems have been installed on the Gillette Lemon Orchards near Porterville. The orchard will include 240 acres of Lisbons.

The owners of the Success Development Co. of Porterville will start the planting on April 15 of about sixty acres to oranges. They already have 180 acres planted.

According to reports from the Valencia, Spain, consular office, considerable damage has been done to the Spanish orange crop by frost during the first week of February. So far as can be learned, the damage will amount to about 1,500,000 cases.

Daniel Best of San Leandro is about to experiment on seven acres of his land in Alameda county by setting it out to lemons. This will be the first time that lemon growing on a commercial scale has been attempted in Alameda county.

It is reported that nearly 70,000 boxes of lemons are shipped annually from the territory within a radius of ten miles from Santa Barbara. Among the most prominent shippers of that section are: the Johnson Fruit Co. of Santa Barbara; the Crocker-Sperry ranch at Montecito; the A. Bastanchury Co.; and the Hubbard Co. of Carpinteria.

The Butte County Citrus Association is making final returns to its members for the 1914 crop. The average price net to the growers is $1.07 per box in the Thermalito section and $1.00 for those shipped from Palermo. It is said that the lower price for the Palermo section fruit is due to the fact that most of the output was held back and shipped when prices were unfavorable.

Last week the Senate passed without opposition the bill introduced by Senator King establishing a federal standard of restrictions on shipment of citrus fruits. Under the bill it is unlawful "to ship or sell citrus fruits in boxes or bulk, if the contents of any package, or if the fruit in bulk contains fifteen per cent or more of citrus fruits which on a transverse section through the center, shows a mark of drying in twenty per cent or more of the exposed pulp."

DECIDUOUS FRUITS.

A thousand dollars an acre was recently paid for an orchard south of San Jose by Wm. Sherriffs to M. S. Amerine.

Fruit growers of Sutter county are considerably worried over an infestation of peach twig borers, and every possible means are being taken to remedy the trouble.

It is reported that thrips have attacked the Bartlett pears in the island sections of Sacramento and San Joaquin counties and the Vaca valley with ruinous results.

Winchester, Riverside county, has 500 acres set to deciduous fruits, mostly apricots and peaches. One firm recently completed the planting of seventy acres to apricots.

A shipment of French prunes from France weighing 700 pounds and including several hundred trees, recently reached the Thos. Jacobs' Delta Farm near Visalia in perfect condition.

Indications point to a record-breaking fruit crop in Yuba and Sutter counties, and this together with the increasing demand for canned goods has led the big canneries of Yuba City and Marysville to install new machinery and generally improve their plants.

A deal with the Fresno Raisin and Fruit Products Co. has just been closed for the sale of thirty thousand boxes of fruits and nuts at the two expositions. The boxes will be specially packed and ready for shipment and will bear the imprint "Packed by the Fresno Raisin and Fruit Products Company, Fresno, California," and will carry their message to all parts of the world.

OLIVES AND NUTS.

The California Almond Growers' Exchange will move their headquarters from Sacramento to the Insurance Building, San Francisco on April 1.

Sheep pastures of Sutter county are being rapidly transformed into almond orchards, several thousand acres of which have been set out this year.

Over 400 acres are being made ready in the Exeter section for olive planting. Hunt Bros. of San Francisco will plant one of the largest tracts, forty acres, to pickling varieties.

That increasing interest is being shown in the olive industry is evidenced by the number of people who are taking the University of California's correspondence course in "The Olive." Over 395 are enrolled at the present time, and after the celebration of "California Olive Day" on March 31, many more are expected.

GRAPES AND SMALL FRUITS.

It is estimated that the Sebastopol Berry Growers' Union will ship 120 carloads of berries this year, an increase of 50 per cent over the previous season's shipment. The biggest increase in any one variety is looked for in Loganberries.

GRAIN AND FIELD CROPS.

The grain raisers of the Tulare lake country look for a bumper crop this year. It is said that never before was the crop so far advanced, nor the outlook better for a good yield.

The first cutting of alfalfa for the season was made on the Hotel Kings Ranch in Kings county last week. Owing to the abundant rain, followed by warm weather, the alfalfa all over the country has made rapid growth.

A syndicate of San Francisco capitalists are negotiating for the purchase of 4000 acres in Butte county for rice planting. Should the deal

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco. California.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.

624 California St., San Francisco, Cal.

OLIVE TREES

Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.

THEODORE PAYNE,

345 S. MAIN ST., LOS ANGELES, CAL.

Modern Methods in Farming

Tractors, cement pipes for irrigating, automobiles, and scores of modern improvements and equipments benefit the farmer.

But the farmer who benefits most is he who raises the biggest crops of the finest quality on the least ground.

Animal fertilizer is the truest and surest of all crop producers. GOLD BEAR brand animal fertilizer is surest in results.

The booklet which tells about it will be sent you on request, free.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Western Meat Company

704 TOWNSEND STREET, SAN FRANCISCO.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground High Grade

Shield Brand

Phosphate Rock

The Phosphate of Lime.

Efficiency and Economy are Inseparable Everywhere.

UNITED STATES PHOSPHATE CO.

405 Marsh-Strong Building, Los Angeles.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.

Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.

MORRIS & SNOW SEED CO.,

439 South Main Street. Los Angeles, California.

Morse's Garden Guide for 1915 is just off the press. It's a book every one should have. Mailed Free.

C.C. MORSE & CO.

GARDEN-FIELD AND FARM SEEDS

749 FRONT ST. SAN FRANCISCO

Morse's Seeds, both flower and vegetable are on sale everywhere — they are fresh and dependable because fully tested before packed.

CITRUS TREES

Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries INC
ESTABLISHED 1890 W. M. TEAGUE
San Dimas, Cal. U.S.A.

"Winter Rhubarb, Culture and Marketing."

By

Reginald Bland

A complete manual of field culture for this valuable crop, filling an important vacancy in Agricultural Literature. Chapter titles are, **Rhubarb — and Winter Rhubarb, Selection of the Location, Preparation for Planting, Planting, Culture, Picking and Packing, Marketing, Propagation and Development.**

This new book will be useful to successful growers; **invaluable** to beginners, to prospective planters and to those who may have been unsuccessful! interesting and instructive to all.

The strenuous pioneering years are over. Recent develments have brought new life and impetus to rhubarb culture. One company, shipping from 200 to 250 cars annually (over 90 per cent of the total California production), says, "We now have more customers on our books than we have rhubarb" —and only a few of the big eastern markets have been supplied. Every one who wishes to profit by this great opportunity should have the sound, practical instruction and advice to be found in

"Winter Rhubarb, Culture and Marketing"

In cloth, 50c; in paper, 25c; postpaid.

Reginald Bland

San Luis Rey, San Diego Co., Cal.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco

be put through, the plantation will be the largest in northern California and one of the largest in the United States.

From reports received, rice will be planted extensively this spring. In Wheatville, H. E. Kerr is preparing 160 acres for rice; on the Moulton ranch east of the Sacramento river, 7000 acres will be seeded; and a large tract of land in Alpaugh, Merced county, formerly used for pasture, is to be turned into a large rice field by a Pasadena capitalist.

MISCELLANEOUS.

California Development Board Day will be celebrated in Recital Hall at the Panama-Pacific Exposition on April 3.

A huge colonization scheme is under foot in Madera county by a Fresno firm which last week purchased 14,000 acres of grain land which they intend to subdivide and place on the market.

A prominent sulphur company of San Francisco advises us that freight rates from sulphur-producing points have been advanced 50 to 100 per cent, and that prices will probably rise after the stock on hand has been used up. Growers who expect to use sulphur may well order and pay for it at the earliest possible moment.

At a recent meeting of the California Green Fruit Association, the proposed fruit standardization law was discussed. The members being opposed to that part of the law which provides that the State Horticultural Commissioner shall inspect fruit, resolutions were adopted and forwarded to the legislators at Sacramento requesting that the power be placed in the hands of the county horticultural commissioners. The old board of directors was re-elected and plans for the coming years discussed.

VACA FRUIT LOOKS GOOD.

To the Editor: It is really too early to make a crop report at present, although at present, with the exception of pears, prospects are for 100 per cent of a crop.

Apricots are a full crop to date. We had an ideal blooming season for all kinds of fruit. The thrips are what damaged the pears.

The weather here was hot enough during the blooming season, but did no damage. **M. Sharpe.**

Vacaville.

WHAT IS LIKELY TO BE DONE ABOUT RURAL CREDIT.

Because of the proximity of its leading writers to the dominant party at Sacramento, we take it for granted that the following from the California Outlook states, as accurately as can be done in advance, what the present Legislature will do about rural credit in this State:

During the legislative recess a committee appointed by the Governor made a thorough study of the subject in its application to California conditions. The members of the committee were Chester Rowell of Fresno, Harris Weinstock of San Francisco, and Dr. David P. Barrows of the University of California.

It was discovered that, owing to constitutional and budget restrictions, it will probably be impossible to do anything during the present session beyond recommending certain constitutional amendments which will pave the way for definite legislation two years hence.

The problem of rural credits was considered by a committee from two main aspects. The first was the establishment of rural credits in a strict sense; that is, the financing of the farmer. The second was the question of land colonization. So far as the latter proposition is concerned it has been decided that it would be out of the question to accomplish any adequate result except by putting the State into the colonization business and financing it. The financial condition of the State at present makes such an undertaking an impossibility, while it is considered doubtful whether the State constitution would permit it.

So far as rural credits proper are concerned, the committee was agreed that the State must either authorize special State land banks to issue bonds, or bond issues by co-operative farmers' associations. Neither of these plans would be feasible now, because such bonds would be unsalable unless they were non-taxable.

Two recommendations will probably be made to the legislature by the investigating committee:

First—A constitutional amendment on rural credits which will make it possible for the State to authorize the issuance of rural credit bonds, and exempt them from taxation, just as State bonds are now exempt.

Second—To submit to the people a proposition authorizing a million-dollar bond issue to finance the State in the land colonization business.

A delay of two years will be inevitable, because any present action would necessarily be on a small scale, by reason of budget requirements, and at the same time would be subject to grave danger of unconstitutionality.

In all probability a commission will be appointed to serve without pay for the next two years to study the systems of rural credits now in vogue elsewhere and determine what system would be best adapted to the needs of California.

Burbank Cactus

ON EASY PAYMENTS and at PRICES YOU'VE WAITED FOR.

Spineless Cactus has come to stay. In ten years no dairyman or feeder will dream of doing without it. It no longer needs demonstration. Its value is known. I sell you the latest and best varieties.

GUARANTEE GROWTH or GIVE MONEY BACK.

I own large nurseries all over California, producing the finest cactus, suitable for all soils and localities. For that reason I can take all risk of bad results. There are none when proper varieties are selected from stock acclimated to your climatic and soil conditions.

With each order, which is shipped in a special "Vernon" packing box, I send

FREE, FRUITING CACTUS.

for your garden and for table use, equal to 5% of order.

Through large production, I can give lowest prices, 25% of last year's best price, and have an easy payment plan that will please you.

ARTHUR VERNON,
Specialist and Grower,
HEARST EXAMINER BLDG., SAN FRANCISCO.

Spring Rains Prolong Planting Season

Fruit Trees, Grape Vines, Etc., still in good condition.

No better time or season for planting.

ORNAMENTALS.
Splendid stock.

Landscape gardening a specialty.

Leonard Coates Nursery Co.

MORGAN HILL, CALIF.

MAXWELL'S NURSERIES, Napa, Cal.

Apricots, Bartlett Pear, Cherry, Peach, Apple, Etc.
French, Imperial, Sugar and Standard Prunes on All Roots.
New booking orders for all varieties of nursery stock for next season's delivery.

FIRST CLASS STOCK TRUE TO NAME.

Behind each tree is our guarantee

THE SILVA BERGTHOLDT CO. CALIFORNIA

You Will Have to Hurry

it is only a matter of days now and then—

YOU LOSE A WHOLE YEAR FOR PLANTING FRUIT TREES.

Send today for our revised FEBRUARY STOCK LIST.

We are fruit growers and shippers as well as nurserymen. Our buds are selected for propagating only from parent trees having the best record for quality of fruit and productiveness, thus insuring a pedigreed tree. Our years of experience, knowledge and observation as nurserymen and fruit growers are at your service. We show you how to succeed.

If you already know

just what trees you want, do not wait for the STOCK LIST. Send in your order. If the trees you want are still in stock, your order will be immediately filled.

Don't delay Order today.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL. TRADE MARK REGISTERED

SILVA, BERG-THOLDT Co.
NEWCASTLE, CALIFORNIA.

Spray Thrips When Petals Fall.

[Written for Pacific Rural Press.]

Over in Contra Costa county they have been spraying for the thrips, which seem to be threatening considerable damage. The Santa Clara people have found but a few of them and are not worrying about them at all. Nevertheless, in certain sections they may yet appear; and if so, it is well to know when they are coming.

A thin sheet of white cloth laid on the ground under the worst infested trees of last year will catch the thrips as they come up and can be seen through the sheet. To find them on the trees, hold the back of the hand under a cluster of flowers and tap it rather sharply, when the minute winged insects may be caught on the hand, if they are in dangerous numbers. It requires close looking to see them, and they ought not be confused with the larger winged insects which may often drop on to the hand at the same time.

They lay their eggs on the stems of the blossoms, on the leaves, and on the young fruit, and these will hatch about eight days later into little white grubs with reddish eyes and oily bodies. These grubs will feed for about fifteen days on the under side of the leaves and on the skin of the young fruit. Wherever they injure the young fruit, a many times multiplied spot will show on the fruit on account of its expansion in growth.

To catch the thrips and their grubs, a spraying when most of the petals have dropped will pay big returns if many thrips are, or have been, present. A whale-oil emulsion of 3 per cent strength is used with a pint of nicotine per 200 gallons, added after the emulsion has been diluted to its 3 per cent strength. The oil penetrates the crevices and blossoms, but would probably not kill the insects if used alone. It cannot be made strong enough on account of danger to the blossoms and fruit. The nicotine, however, is carried along with the oil and this is deadly to the insects.

In spraying for the grubs, always use an angle nozzle and begin on the under side of the leaves at the bottom of the tree, working upward to the top. This is necessary, because beginning at the top or at random would shake many of the grubs from the leaves to the ground before the insecticide touches them, and they would bore into the ground to pupate later and reproduce their kind next spring.

SOUR SAP—POOR CIRCULATION.

To the Editor: What is the cause of sour sap? Is there any cure, and is it contagious? Many people in this neighborhood have lost many almonds bought from various leading nurseries this spring. Trees look very fine when dormant, but sour-sapped when they commence to grow. The worst infected varieties are the Texas Prolifics and IXLs. Nonpareils have not been affected very much. In some bundles all the trees had sour sap, but others were entirely free. The trees were all heeled in on a well drained place. Who is to blame? — O. G. B., Arbuckle.

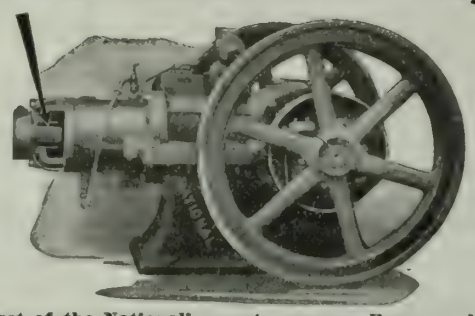
[Sour sap isn't contagious and there is no cure if the trees are badly hurt. There is always, however, some chance they will pick up and live through. It is due to lack of circulation. This is brought about from many causes; one of which is too much water in the ground at the start, which destroys the root-hairs and prevents the roots from sending up fresh supplies of sap. Planting the trees too dry may also produce the same effect.—Editors.]

YELLOW LEAF OF ORANGE.

To the Editor: Can you tell me the reason why the leaves on some of my Valencia orange trees are getting yellow? The trees were planted in June last year and are otherwise doing nicely. From 18 inches to about two feet down in the ground the soil is more or less sprinkled with magnesia, though not in any great quantities. People around here tell me, it is very common for the leaves on young Valencia orange trees to turn yellow, and I have seen it in several orchards around here, but if there is any remedy for that I wish you would tell me. Also, which is the best time to plow an orchard, in the fall or in the spring?—W. L., Plano.

[If you will read carefully, Professor Lipman's articles on soil conditions, as related to thrift of the plant, which are appearing in these columns from time to time, and especially if you will study the statements by Gordon Surr, in the Pacific Rural Press of March 13 and 20, you will get the idea that yellow leaves are a sign of ill-activity or ill-condition in the soil, which may be the result of several causes, and are incapable of treatment by medicine. Keep reading and thinking about it and you will probably be able to decide intelligently what is wrong in your case. It is true that yellow leaf in winter may be a passing condition. Whether you should plow in spring or in the fall, or both, depends upon your local conditions and the winter policy which you decide to adopt in improving the soil.—Editors.]

The National Oil Engine



Runs On 2½c Fuel

Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

National Steam Pump Company
Upper Sandusky, Ohio.
Address California Distributor, J. C. WIGHT,
4027 Budlong Ave., Los Angeles, Cal.

A 40-ACRE EQUIPPED FARM
in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: with a plow, a harrow and a cultivator, a pumping plant complete, trees and seed.

SPECIAL: Land absolutely above all flood from rivers; titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

THE PRICE is $150.00 per acre with equipment, or $125.00 for the bare land. Terms. I want to show you this specially selected piece of land.

OUR CO-OPERATIVE BUYING-SERVICE will enable you to get any acreage, in certain selected tracts, at strictly wholesale values. You should know about this. Write today.

DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

GIANT WINTER RHUBARB
NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St., . San Francisco

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

APPLES NEED ROOM.

[Written for Pacific Rural Press.]

A great difference between the color, size, quantity, and quality of fruit on one orchard of apples planted twenty-seven feet apart is noticed by R. P. Hunt of Sonoma county over fruit from his other orchard planted twenty-five feet apart. His mother, Mrs. Ida Hunt, has a Gravenstein orchard in which the twenty-year trees are twenty feet apart and the ten-year trees twenty-eight and twenty-four. Mrs. Hunt thinks that even these young trees should be still farther apart because they cannot be allowed to broaden out and grow a large bearing surface per tree if planted too close together.

Mrs. Hunt was the grower and packer of the sweepstake prizes at the San Francisco Apple Show on both the one and five box entries.

In replanting apple trees, Chas. King of the same section emphasizes the digging of a big hole weeks before the tree is to be planted and putting manure into the bottom. He fills it in with top dirt and mixes it well with the manure and then builds up a mound with more top dirt, so that when it settles, the tree will be the same depth as it was in the nursery.

W. P. De Pew of Santa Rosa has a planting board with two holes in the ends and a notch in the middle, as usual, but a removable latch over the notch holds the tree securely so that one man can do the planting alone.

CULTIVATING AND IRRIGATING APRICOTS.

[Written for Pacific Rural Press.]

A good schedule for the cultivation and irrigation of an apricot orchard is laid out by Jack McAlister of the Arrandale Fruit Co., of Santa Clara county.

He has twenty-one acres of apricots on which the first plowing is now progressing rapidly, for the land is already rather dry. It will not be irrigated, unless it becomes necessary for convenience in plowing, until the time named in the schedule. He plows one way each year and harrows immediately in both directions.

The harrows are followed by a roller clod crusher which is different from all others we have seen. It cost twice as much money as the ordinary roller, but Mr. McAlister says it is worth that much more because it never clogs. It consists of two lines of hollow disk rollers fixed securely in a frame so that the rear line of rollers cuts the ridges left by the front ones. The two lines are so close together that the disks almost overlap. They are made of iron and are hollow, having a thickness of about five inches at the eight-inch iron cylinder which runs loosely through their centers. From this cylinder the disks slope on both sides to the edge. They have a total diameter of about fifteen inches. The eight-inch cylindrical axle revolves on a rod about one and one-eighth inches in diameter.

This roller is used twice in different directions before the middle of April, then the orchard is cultivated both ways with a machine having twelve narrow shovels and pulled by two horses.

Irrigates Spring and Fall.—After this cultivation, the checks are thrown up for irrigation so that each tree stands in the center of its own check. Water is applied once for all so that a thorough soaking is given. As soon as the soil is dry enough to crumble nicely, it is harrowed both ways to drag the checks down, then cultivated both ways, so as to leave a good mulch.

By this time it is about the middle of May and no more cultivation or irrigation comes until after the apricots are picked. Too much water will sour-sap even old trees, according to Mr. McAlister, who has not lost any himself, but has seen some of his neighbors lose all their trees from what he believes is this cause. As soon as possible after the crop is picked, checks for irrigation are plowed up and thorough irrigation applied to stimulate the development of fruit buds for a good crop next year. This is late in July and August.

After this irrigation, the checks are harrowed down twice and cultivated twice and volunteer growth of weeds and grass is allowed.

The crop from this orchard for some years has been 150 to 225 tons a year green from the twenty-one acres, five of which are Moorparks, which bear well in alternate years and fair crops between the good ones.

KEEPS FROST POTS OUT UNTIL MAY 10.

To the Editor: Kindly inform me as to the probable number of fire pots necessary to ward off frost in small orchard of 54 trees, their cost, and where they could be procured.—Mrs. J. C. G., Lonoak.

[Answered by Frost Prevention Co., San Francisco.]

[For a small orchard of fifty-four trees at least seventy-five heaters of the two-gallon size should be installed to guarantee full protection against frost. These heaters will cost 27c each f. o. b. your nearest railroad station (freight prepaid).]

[J. McAlister of Santa Clara valley has one one-gallon Bolton pot per four large apricot trees and has not been damaged by frost in the five years he has used them, though they have saved the crop three different times. He uses stove distillate, which is more expensive than crude oil but lights more quickly. All pots are left in the apricot orchard until May 10, at which time they are emptied and stacked under cover, one pot inside the other.

No rust prevention has seemed necessary, probably because the pots get some oil treatment by being set one inside the other in stacking them. Only 100 pots of all used on the 21-acre orchard have had to be discarded on account of holes in the five years of use.—Editors.]

BURLAP ON YOUNG TREES

To the Editor: I have set out an apple orchard and have wrapped them with grain sacks to keep the rabbits from destroying the trees. Will it hurt the trees to leave them on all summer and will the sacks keep the trees from getting sun burnt?—A. H., Garberville.

[Wrapping will not hurt the trees unless the strings are too tight. It is a very good way to prevent sunburn, but it costs more than whitewashing. The rabbits will not bite the burlaps, but they will get after the new growth unless you have headed your trees too high to be desirable from other points of view. —Editor.]

California Garden Flowers,

Trees, Shrubs and Vines.

By Prof. E. J. Wickson.

In this new book the amateur flower grower of the Coast will find just what he wants to know about the care of his garden, with detailed instructions, telling how to get the best results from the soil.

No new book is receiving the endorsement of the authorities that has already been accorded "California Garden Flowers." Here are some of the endorsements:

John W. Gregg of U. C. at Berkeley, says: "The literature dealing with floriculture and landscape gardening for California is extremely scarce, especially that which is in a form to be of assistance to the amateur gardener. We appreciate your contribution because I believe it will materially help in furthering the interests in California Gardening."

Carroll B. Smith, Redlands, says: "There is daily need of just such a book, and I am sure better gardens will follow."

Luther Burbank, Santa Rosa, writes: "This book meets with my hearty approval, as it will be of great use to amateurs, and is also of more or less use to specialists as a reference book. There is a call for this class of books."

W. Vortriede, Sacramento, says: "There is nothing that could have pleased me more in this line. I have been an ardent admirer of Prof. Wickson since 1887, since which time I have been a reader of the Rural Press. I am always glad to recommend the Press and its books, because I know I can do a great deal of good to many Californians."

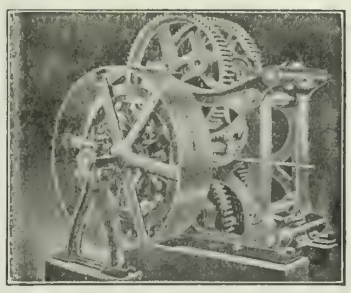
The book contains 260 pages of text; also a dozen full-page plates and other illustrations. It is handsomely bound in cloth with two-color cover.

No plant lover, be he farmer or suburbanite, can afford to be without this book. **The price is $1.50 postpaid.**

The time for your spring work is at hand, and you should have this book to help make your work more successful.

Pacific Rural Press, Publishers

525 Market St., San Francisco.



Pomona
DEEP WELL
Pumps

For deep lifts, as well as shallow lifts combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface.

No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

Write for Catalogue 104, with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.

BARGAINS IN PUMPS AND ENGINES

We have a stock for immediate delivery, both the Douglass and Myers hand and power pumps. Also a number of the well-known

OLDS' GASOLINE ENGINES,

in sizes from 1½ H. P. to 10 H. P. inclusive. All brand new—No second-hand stock. Let us mail you our Bargain List P.

General Machinery and Supply Co.

Formerly

COMPRESSED AIR & GENERAL MACHINERY COMPANY.

39 Stevenson Street, San Francisco, Cal.

FINEST

NURSERY STOCK

IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN, CALIFORNIA.

Mechanical Power on the Farm.

FARM ELECTRIC LIGHTING COSTS.

[Written for Pacific Rural Press by E. M. Cutting, San Francisco.]

The cost of installing a lighting plant will vary according to the number of lamps on your premises, the number and size of buildings and the distances among them. Take, for instance, a farm house consisting of six or eight rooms, having a creamery 100 feet from the house and two barns and a cow-shed 150 feet beyond the creamery. The most expensive part outside of the electric plant would be the wiring of these buildings. This would cost approximately $50 to $80, including wiring of barn, shed, creamery and house, and including inexpensive but artistic fixtures for your house. The installing of the plant is very simple and inexpensive. This is due to the fact that a complete electric plant is designed to be readily installed and the storage battery comes in portable trays which you can set on a shelf. These are fully charged and ready for immediate service when received. Of course, if the batteries are received unassembled, and if the unit is not compact, the installing expense will be considerably higher, but considering that such is not the case eight to ten dollars will cover the cost of installing the apparatus.

In deciding what the approximate cost will be for a lighting unit for a farm such as outlined above, we will first consider how many lights there will probably be on this farm. Assuming that the farmhouse contains eight rooms it will probably have about sixteen lights. The creamery will require about four lights, in the two barns there will be ten lights and the cow shed two, making a total of thirty-two lamps on the entire premises. In average use there will be approximately three lamps used for two hours each morning in the house, one in the creamery for about two hours and two lights in the barn for two hours, which makes a total of six lamps about two hours in the morning, or twelve lamp hours.

In the evening there will be in use in the house about six lamps in all for about three hours. (There may be a time when there will be a few more than six going, but the average will be about six lights for three hours.) In the barns and cow-shed we find that, although there are a total of about 12 lights, only three of these will be in use for two hours each night. Three lamps for two hours make a total of six lamp hours in use at the barns each night, six lights for three hours making a total of 18 lamp hours in the house each night, making a total of 24 lamp hours. In the morning we find that we would use 12 lamp hours, or a total of 36 lamp hours a day, which the battery must supply.

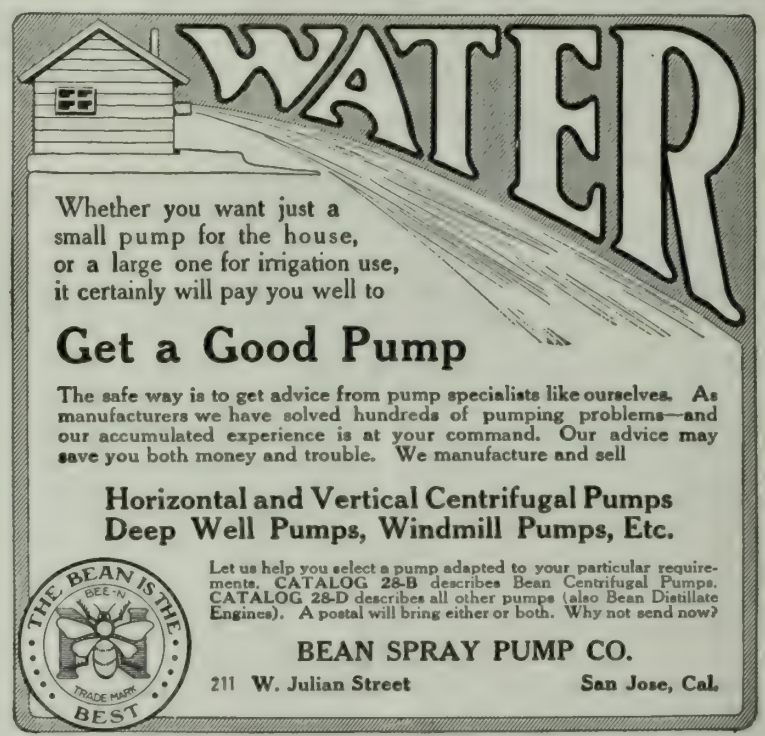
If we wish to charge about twice a week, it will be necessary to have a battery capable of supplying the demand for about three days, and if 36 lamp hours are used for one day, in three days you will use 108 lamp hours. Therefore, the battery must have capacity enough to supply 108 lamp hours on one charge. As batteries are rated by the number of lamps they will supply for five hours, 108 divided by five shows that you will require a 22-light plant. That is, a plant which is rated as being capable to supply 22 lamps for five hours, or 110 lamp hours on one charge of the battery will be of sufficient size to light the above average farm—charging being necessary about twice a week.

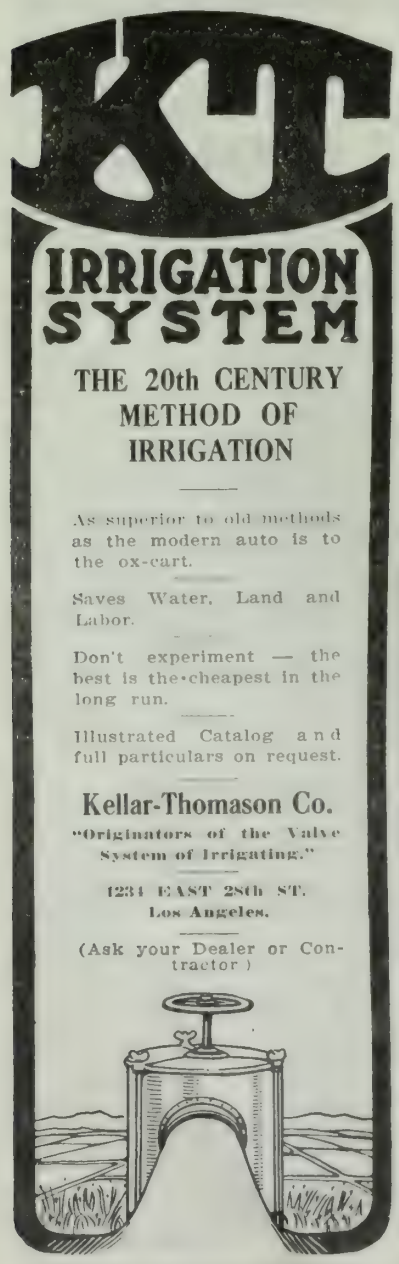
I have before me the cost of equipment necessary for a very good electric plant of standard design, made by one of the most reliable concerns, and I find that the nearest size to this would be one that is rated as being capable of supplying 24 lights for five hours. The cost of this equipment is as follows: 24 cells $192.00; electric dynamo $70.00; switchboard $50.00, total $312.00 for the complete equipment less engine.

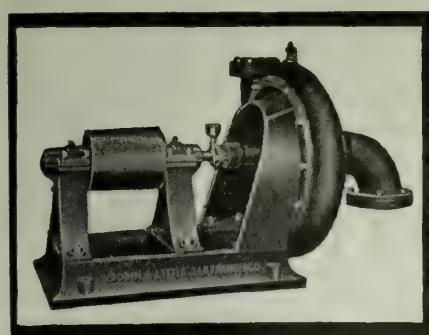
For this plant the manufacturer recommends a two-horse power engine. A good many farmers have an engine of this size or larger doing work on the farm, and providing this engine is of good speed regulation it may be used. If an engine is purchased with the above requirements a two horse power engine will cost anywhere from one hundred and ten to one hundred and fifty dollars. A two-horse power engine can be purchased for a smaller amount than this, but an engine of this size for any less than the above amount would be impractical, because an engine for electric purposes must have good speed regulation. The best is always the most satisfactory in the end.

We will now assume that the above quantity of light is used per day on this farm, and then figure out exactly how much it would cost in dollars and cents to light this farm under these conditions. We found that each day there was consumed approximately 36 lamp hours, which means equivalent to 36 lamps for one hour, or 1 lamp for 36 hours was used per day. This is all figured in the standard 16 c. p. light. To run the dynamo to charge the battery requires 1.6 h. p. for 7 hours. The gasoline engine requires one pint of gasoline to generate one h. p. for an hour and to supply 1.6 h. p. for seven hours requires 1¼ gallons. Gasoline at 12c per gallon would cost 16½ cents to charge the battery.

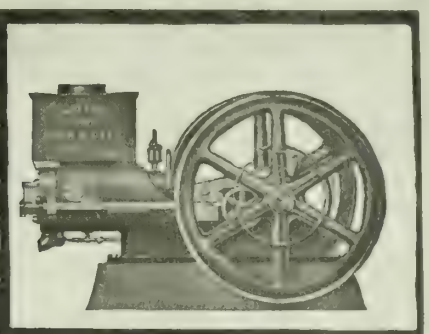
We found that on one charge of the battery you would have light sufficient for three days, so $.056 would







WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.



Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.

be the cost per day. Figuring 30 days to the average month, we find that the cost to light this farm for an entire month would be $1.68. This is a very conservative figure, inasmuch as we do not think that the above farm would use this quantity of light every day, and the reliable makes of engines now on market will consume, in average service, a little less than one pint of gasoline for one horse-power hour.

MOISTENS CARBURETOR AIR.

[Written for Pacific Rural Press.]

Forcing water through the cylinder by way of the carburetor was recently noted in Pacific Rural Press as a way to clean out the carbon.

We have recently seen two different devices which may be applied to any automobile, auto truck, tractor, or gas engine, to force the air to pass through water before going into the carburetor. They keep the dust out of the cylinder, cool the explosive mixture, clean out the carbon, and lessen the friction of the piston on account of the moisture and the cooling effect on the cylinder oil; and the coolness prevents the premature firing of the explosive mixture quite often due to its over warm condition on entering the cylinder.

PREVENTS TRACTOR SLIPPAGE.

[Written for Pacific Rural Press.]

Caring for 75 acres of oranges three to ten years old for the past two years with one man and a Samson tractor, I. J. Booth of Tulare county has reduced the cost of production considerably, although at one time last year the weeds got ahead of him and a little extra help had to be obtained.

Owing to the slipperiness of grass and cover crops, the tractor wheel was found to be slipping when under special strain in plowing. Each wheel of this make tractor is built, to describe them in a general way, with a rim of angle irons diagonally crosswise of the wheel and open spaces between the angle irons. This is the "sieve-grip" feature of the machine.

In plowing tall grass it was found that there were too many angle irons on the wheel, and alternating ones were taken off. This allowed the grass and its roots to protrude between the angles toward the hub to such an extent that there was practically no slippage thereafter.

TWO WELLS WITH ONE PUMP.

[Written for Pacific Rural Press.]

To avoid duplication of pumps and engines for his two artesian wells, Will Weston of Santa Clara county has a 10 h. p. opposed Ostenberg gas engine assembled with a centrifugal pump on an iron-wheeled wagon frame by the Bean Gas Engine Co.

The wells are flowing now, but must be pumped later in the season, especially when but little extra rain falls. A suction pipe is always left in each well so that when the engine-pump outfit is run on to the cement platform close to the well, the suction pipe may be connected with the centrifugal pump and the engine started at once. The pump is 24 inches in diameter with a four-inch outlet.

The starter on the engine is rather unusual. There are no batteries, but the magneto is started by a little clutch which catches on the crank and is held through about a quarter turn. It then slips off with a quick jerk which starts the magneto at the rate of about 1500 revolutions per minute, according to M. B. Gibson, who works for Mr. Weston, though it really doesn't go through more than perhaps an eighth of a revolution. This, however, is enough to get a good spark and the engine continues. The clutch is then tipped out of contact with the frame until needed to start the engine again.

The engine may be adjusted to run 300 to 650 revolutions per minute, but it is now timed for 500. At this speed it burns about three gallons of 6¼-cent distillate per hour and uses 2 quarts lubricating oil per day. When using the pump, a 20-gallon tank is filled with distillate about 8 p. m. and the ditches fixed so that the water will run all right and the outfit left until 6 o'clock in the morning when it is usually refilled, though not yet empty.

Mr. Gibson has noted that the engine uses more fuel during foggy mornings than during the hot summer days. The air intake for the carburetor usually opens under a jacket which surrounds the exhaust, for the sake of pre-heating the air. On hot days, the air may be taken directly from the open. This saves two or three gallons of distillate out of the twenty during the summer months.

An automatic oiler forces the oil down through a glass-fronted oil cup when the engine is running, but none can flow when the engine is standing still.

Mr. Gibson is always careful to keep out of the way of a kick-back when cranking the engine.

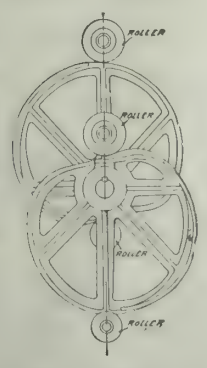
All of the black and purple varieties of raspberries do better if provided with a support or trellis to prevent the canes bending over and dragging the ground.

The highest duty of state and Federal governments is to place agricultural education within the reach of all.

Peach trees are more liable to sunburn than most other fruits. Protect their bark with foliage or whitewash.

One of the World's Greatest Advances in Water Raising machinery.

Perfect Balance

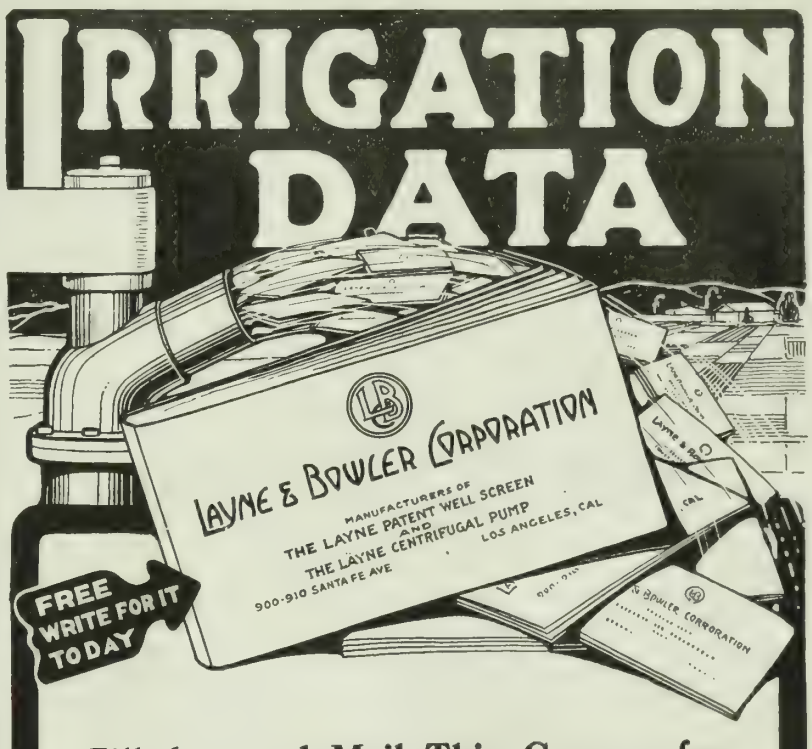


LUITWIELER
Non-Pulsating
Pumping System

Water must be raised in an even flow and pressure, in order to eliminate the real causes of pump troubles—jar and vibration. The famous Luitwieler Cam effects a perfect balance. Write for free booklets.

LUITWIELER PUMPING ENGINE CO.
711-713 N. Main St., Los Angeles
San Francisco Agents:
SIMONDS MACHINERY CO.,
117 New Montgomery Street.

IRRIGATION DATA



Fill Out and Mail This Coupon for Valuable Pump and Irrigation Booklet

LAYNE & BOWLER CORPORATION,
900 Santa Fe Ave., Los Angeles.
Gentlemen:
Without obligation on my part, please send me your Irrigation Booklet No. 25.

Name .....

Street or R. F. D. .....

Town ..... State .....

Install The Layne & Bowler Pump—Produce Cheapest Water.
"See exhibit of pumps at San Francisco Exposition."

Layne & Bowler Corporation
900-910 SANTA FE AVE. LOS ANGELES.

READ-MILLER CO.

From Grain to Alfalfa and Hogs.

[Written for Pacific Rural Press.]

High-priced grain and low-priced pork have been controlling factors in reducing the hog population of this and other states to a remarkable degree during the past few months. As neither are of a permanent nature it is only natural to suppose that before another year has passed the demand for breeding hogs will be keener than it has for years past and that farmers generally will be as anxious to purchase then as they have been to sell in the past.

With the belief that the best time to go into a business is when others are going out, and with the added incentive of increasing the revenue on their 140 acre ranch in Alameda county which was for many years farmed to grain, the Chadbourne ranch in the vicinity of Niles has undergone a wonderful change during the past few months, and one which promises to be of a permanent nature.

The first work performed in transferring the ranch from grain to hogs was water development, that being an all-essential factor in their location for the raising of alfalfa, which in turn is considered an all-important feed for hogs. This was accomplished by sinking a well at the upper corner of the ranch and installing an electrically driven pump, from which enough water has been developed to irrigate the entire ranch.

Next in importance was the raising of suitable feed for the stock. Alfalfa was the first consideration, and accordingly the 70 acres planted will afford generous pasture this season. The balance of the ranch has been planted to grain this year, with the intention of raising all of the finishing as well as growing feed used. This combination of crops will allow raising the stock primarily on alfalfa pasture and finishing on grain; and will allow an independent feed supply. In the absence of these feeds at present, alfalfa meal, middlings, and ground barley are being used as the principal feeds for the brood sows and spring litters.

Good Shelter for Brood Sows.—To consume all of the feed raised on 140 acres of land requires a large number of brood sows and they in turn require good housing and careful attention at farrowing time. To meet these requirements some 65 grade sows were purchased last fall and a modern farrowing house erected. By modern is not meant an elaborate expense, although furnishing accommodations for so many brood sows naturally means a good sized investment in buildings.

This building is constructed of rough 1x12 boards and covered with a galvanized iron roof, which extends beyond the pens proper, affording shelter for a feeding alley which runs directly in front of the pens. Thus it allows easy access to the feeding troughs which run along the front of the pens. These troughs are made of concrete, as is the floor, the latter having a gradual slope to the outside edge of the building. To prevent loss of pigs at farrowing time wooden platforms are laid in each pen to keep the sows off the hard concrete.

Panel partitions divide the pens, the side of the building where the feeding alley runs being open to allow generous light and ventilation. This, however, will also be enclosed as soon as more pens are required. A similar row of pens has been started at one end of the alley way, and more will be built when the need arises.

Outside runways are provided, a heavy wire fence being used for division fences. Water is piped to every fourth pen; and by using a hose each pen is easily and regularly served with fresh water.

It is planned to run the sows and pigs on the alfalfa pasture at most times of the year, the farrowing house being used only at farrowing times and until the pigs are old enough to wean.

That proper care at farrowing time is profitable has been demonstrated this spring, the average for all sows farrowing up to the time of our visit being a trifle over seven pigs. Considering the fact that the sows doing this were picked up hurriedly and were bred when purchased, the owners naturally expect to do better than this after they have time to select their sows and breed up with the two registered Duroc Jersey boars which they have purchased for herd sires.

While the undertaking is new, the success so far indicates that there is room for many thousand head of swine on land which is now being farmed to other crops not nearly so remunerative as pork.

COLTS ON COW'S MILK.

To the Editor: Could you tell me how to raise a colt on cow's milk from birth, how much milk, and other ingredients to use? I have a good mare with foal that can not nurse her colts on account of bad udder. Her colt last year was strong and healthy, but died from scours when about three days old.—J. F. K., Elko, Nev.

[In such cases the cow's milk must be modified and care must be exercised not to give too much at one time. To a pint of fresh milk add half a teacupful of lime water, in which has been dissolved a dessertspoonful of white granulated sugar. Warm the mixture to blood heat. Let the foal have half a teacupful every hour at first. As the foal grows older, this amount should be increased and the frequency of the feeding decreased, first to twelve, then to nine, six, and, lastly, to four times per day. This requires patience and takes time, but must be done. The object is to feed the foal all he will drink, and to feed him so frequently that he will not require much at a time.

As soon as the foal is old enough, he should be taught to eat grain. He will begin to munch in the hay and grain at ten days to two weeks of age, and should be encouraged to eat. A small handful of bran or oatmeal, to which a little brown sugar has been added, is good to get the foal in the habit of eating grain. A mixture consisting of half bran and half oatmeal by volume, makes a very saitsfactory food for the sucking colt. The youngster should be given all of this mixture that he will consume with a relish.

If it is necessary to feed milk after the colt is two months of age, skimmed milk should be substituted for fresh cow's milk. This should be always given when sweet. If the colt is troubled with constipation, add a little oilmeal to the grain ration. This meal can be fed with profit to growing colts, as it furnishes a large portion of muscle-forming and bone-forming food.—Editors.]

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using

W. DAVIS & SONS'
Horse Collars

"Felt-Face".....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."
The "Feltface" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.
It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.
Very truly, W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

The Registered Hackney Stallion
Lord Lovelace No. 1665
will make the season of 1915 at the Woodland Hackney Stud near Woodland.
Mares will be properly cared for at reasonable rates, but at risk of owner only.
The English hackney gives quality and action to animals desired for saddle or harness, and their dispositons are uniformly kind and intelligent.
A full sister of LORD LOVELACE was awarded a championship medal at the California State Fair 1914, at Sacramento.
Service with return privilege, $25.00.
For further particulars call or address
R. E. DRESSER,
Manager Woodland Hackney Stud,
Yolo, California,
or EDGAR J. DEPUE, Owner,
818 Merchants' Exchange, San Francisco.

Milking Machines
3 Sizes and Power.
See our exhibit at the Exposition, or write for pamphlet giving full particulars.
A. F. STEINER,
Block 1, Agricultural Palace,
P. P. I. E. San Francisco

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

Durocs Cholera Immuned
and
GUERNSEY CATTLE
Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

STAR
Barn Equipment
Stalls, Stanchions and Litter Carriers
Star Barn Equipment is absolutely in a class by itself because of patented time and labor-saving features not found elsewhere.
Star Stalls and Stanchions are built in UNITS — stalls grow with herds. Keeps animals lined up to gutter by new and vastly more practical method—instantly adjustable to all cow-sizes—more comfort for cows—less work for men.
STAR LITTER AND FEED CARRIERS are speediest, easiest raising and lowering and most durable labor savers on market. Proved by hundreds of tests. Roller Bearing throughout. Swinging Room clears barnyard of all obstructions.
FREE Our instructive catalog explaining all. Let us send it.
Write your name here.
Name .....
Address .....
No. of cows.....
Clip out and send today
Pacific Dairy Machinery Co.
Dairy Outfitters.
56 and 58 Clay St., San Francisco

Swineland
TAMWORTH'S DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal

Forest Service Aids Stockmen.

(Continued from page 417.)

proved that a fence could be built which was proof against all kinds of predatory animals except bear, and that sheep grazing loose required two-thirds the area used by sheep which were herded; besides, the sheep in the pasture kept in better condition than those which were herded and the lambs weighed about 8 pounds more than lambs of the same grade and age from bands grazed outside under herd.

The above results indicated a waste of about 50 per cent of the forage under the herding system, and studies and experiments were begun to find out how this loss might be overcome. The most practicable solution has been found in the adoption of what is commonly known as the loose-herding and bedding-out system. This means simply allowing the sheep to graze naturally during the day with the least possible amount of driving or herding together into close bands, and bedding where night overtakes them. In this way the damage from constant trailing back and forth to the same bed ground is eliminated. The adoption of this plan has, in many instances, enabled the stockmen to raise lambs which weighed 5 pounds more than the lambs raised under the old close-herding system.

Reseeding the range, both by artificial and natural means, was gone into extensively and experiments conducted in a great many different localities. It was found that artificial reseeding offered a reasonable chance of success only on the better portions of the range, and more particularly on the mountain meadows, and that for improvement on the bulk of the National Forest range natural reseeding of the native plants and grasses must be depended upon. It was also found that a better stand of new grass was secured on areas which were grazed after the seed had been sown than on areas from which the stock were excluded, thus proving that the range could be vegetated faster in use than in idleness.

This led to the adoption on many of the National Forest ranges of what is called deferred grazing, which means simply keeping the stock off of a certain portion of the range each year until after the seed crop has matured and then by placing the stock upon it not only utilizing the mature feed but also assisting in planting the seed for future forage crops. By this method the entire range may be reseeded naturally every four or five years and its grazing capacity increased without removal of the stock or decrease in their number.

The carrying out of the plans for improvement in range conditions and better management of stock which have already been inaugurated will increase the grazing capacity of the ranges fully 15 per cent within a reasonable number of years, and there is no doubt but that other knowledge will be gained which will point the way to still greater advancement.

FREE-MARTIN EWES?

To the Editor: Following up a question of another querist, if a ewe has twin lambs, one a ram and the other a ewe, will the ewe be sterile the same as in a similar case with calves? If I save my ewe twins and breed them to bucks that are also twins, will I be able to develop in time a breed of sheep that will always be twins?—Reader, Dixon.

[You need have no fear of twin lambs not breeding, although there are, of course, both ewes and rams which are sterile, the same as with all other kinds of livestock. This is not due to their being twins, however. As for developing the twin habit, presumably you could make some headway if you could work at it about 100 years. Does any reader know anything about it?—Editors.]

CALVES HAVE COLD.

To the Editor: I have a horse affected with eczema and would like to know a treatment. I have also lost two calves. They caught cold which settled in their throat and made it very painful for them to swallow or breathe; also had fever. —F. C. F., Stratford.

[Put your horse on a laxative diet and give Fowler's Solution of arsenic in half ounce doses twice daily for a month. For calves affected as you describe, apply mustard liniment to the throat daily, rubbing in well. Give internally the following: fluid extract nux vomica, 1 ounce; fluid extract belladonna, one-half ounce; fluid extract ginger, 2 ounces; aromatic spirits of ammonia, 8 ounces, and water enough to make a pint. Dose: one ounce twice a day in one ounce of water.]

BLOODY MURRAIN.

I would like to have you answer in your query columns what Bloody Murine is, how it acts, what the cause is, and the cure.—Subscriber, Bolinas.

[Bloody Murrain is an old name, not used at present, for anthrax. It acts as an acute septicaemic and is caused by the germs bacillus anthracis. There is no cure. Prevention is the only means of combating this disease, which consists of vaccination before the period or time at which it usually breaks out.]

SICK CATS.

To the Editor: Can you tell me what to do for the cats? They get sick for a week or so, and then die. They don't eat anything.—B. R. H., La Grange.

[Give one-half drachm kamala and follow in twelve hours with two teaspoonfuls olive oil.]

Without good roads, there can be no development that will be permanent and enduring.

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Large Shipment of

Water Pipe

Received by Los Angeles Pipe Firm.

300,000 Feet Ready for Immediate Shipment.

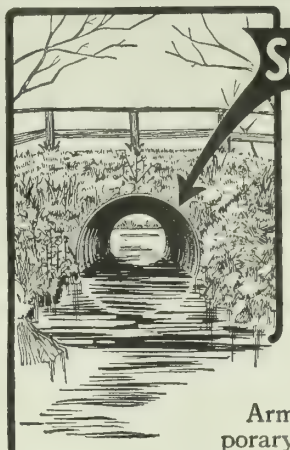
The Adams Pipe Works of Los Angeles, which recently changed management, announces they have just received one of the largest shipments of Water Pipe received by any one firm in a single week. All sizes are included and all pipe absolutely guaranteed. Special prices on various sizes as follows: Riveted Dipped Pipe: 10-inch, 30c; 4-inch, 12c. Sandard Pipe: 8-inch, 45c; 6-inch, 35c; 5-inch, 30c; 4-inch, 25c; 3-inch, 15c; 2½-inch, 12½c; 2-inch, 7½c; 1½-inch, 6c; 1¼-inch, 5c; 1-inch, 4c; ½-inch, 2c. Tubing: 2-inch, 8½c. O. D. Casing: 10-inch, 70c; 8-inch, 45c; 4¾-inch, 22c; 4-inch, 17c; 3½-inch, 13½c; 3¼-inch, 13c; 3-inch, 12c.

Mail orders and quotations given prompt attention. Adams Pipe Works, 2025 Bay St., Los Angeles, Cal. Broadway 1264. F-1917. Night and Sunday phone, Vermont 1294.

Redwood Tanks

I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.



Safer and Cheaper than Bridges

THE small bridge on a public highway is often a menace to life and limb. It is a source of constant worry and expense. The heavy traffic to which modern roads are subjected is likely to cause the total collapse of an ordinary bridge, blocking travel and entailing damage suits.

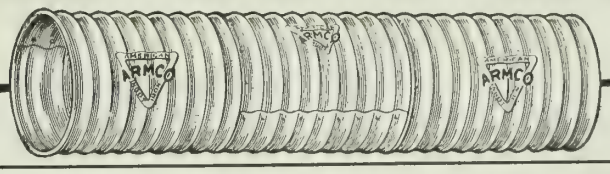
Armco Culverts do away with the use of temporary or uncertain material for culverts and small bridges, cut out the heavy maintenance costs and make travel safe and sure at all seasons and under all conditions. They withstand the floods of spring and the ice of winter. Properly installed they last for immensely long periods without need of repairs or attention.

ARMCO AMERICAN INGOT IRON CULVERTS

resist rust because made of a pure iron, almost wholly free from those foreign substances that cause steel and ordinary iron to rust out and go to pieces. They possess great strength and are tough enough to stand the strain of shifting and settling foundations.

When the drainage problem in your community comes up for consideration, insist on the elimination of troublesome and dangerous bridges and throw the weight of your influence on the side of Armco Culverts. See the Triangle Brand on every section.

There is a manufacturer in your vicinity. Write him or THE ARMCO CULVERT PUBLICITY BUREAU, Cincinnati, Ohio



"Jackson MADE"

"Jackson-Made" pumps are long-lived pumps. They do the work they were designed for—better, for a longer period, at a less cost, than other makes.

Jackson "Heavy Duty" direct connected Vertical Pumps are pumps that you can forget—they will never forget you. Any time you want water just throw in the switch and your "Jackson" will deliver the maximum quantity—it will need no attention after installation because no matter how much the head may vary, the *Jackson Patented Balancing Device* automatically takes care of the pressure.

These pumps are economical in the use of current to such an extent that this, combined with the saving in repairs soon pays the cost of installation.

Write for Catalog No. 47H

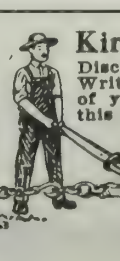
If you need a pump you need a "Jackson."

Our expert engineers will aid you to select what is best for your use. There is no charge for this service.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL

Special $2.50 discount on the first 100.

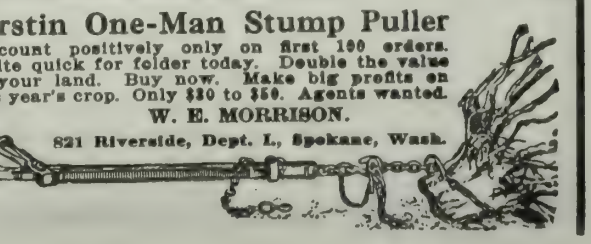


Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

821 Riverside, Dept. L, Spokane, Wash.



With the Live Stock Men.

DAIRYING.

Dairymen of Napa county met on March 27 to organize a cow testing association.

One hundred and sixty acres in Sutter county has been purchased by Harry K. Flowers of Idaho. The purchaser plans to enter the dairy and alfalfa business.

A sweet cream plant is to be built in Angiola, Tulare county, by a Los Angeles company for the purpose of pasteurizing the 35 cans per day of cream that is shipped from Angiola to Los Angeles.

The dairymen on the west side of the San Joaquin are planning to form a co-operative creamery to handle their product instead of marketing it through San Francisco creameries. Thirty-six dairymen have already been signed up and 2724 cows listed. The plant proposed will cost $40,000.

Soledad, Monterey county, is to have a new creamery known as the Soledad Creamery Company. The stockholders met on March 22, elected directors and officers, and adopted tentative by-laws. Two hundred shares of stock will be issued, of which over one hundred have already been subscribed for.

According to an announcement made by the Holstein-Friesian Association, advance registry department, the Holstein-Friesian cow Finderne Pride Johanna Rue 121083, has broken the world's record for butter fat production, having produced in seven consecutive days 22.525 pounds of fat from 484.3 pounds milk. She is owned by The Somerset Holstein Breeders' Company of Somerville, N. J.

CATTLE AND SHEEP.

E. R. Robinson of Sutter county recently sold twenty-seven steers to Jess Noia of Newcastle.

A three-year-old Holstein bull, Creamcup Fidessas Cornucopia, was recently sold for $1000 by M. Holdridge of Modesto to the Carnation Stock Farm at Oconomowoe, Wis., the home of Carnation milk.

At the recent annual meeting of the Minnesota Live Stock Breeders' Association, it was decided that in the future "Bred in Minnesota" is to be written across the face of every pedigree certificate of live stock bred in that State.

K. W. Abbott of Milpitas reports the following sales for March: Ida of Bloom 4th to Geo. E. Wapple, Marysville; Baron Romeanna De Kol to Eugene Murphy, Milpitas; Captain Electa Bloom to Cottle Bros., Edenvale; and Roma Colantha Victor to Odd Fellows' Home, Saratoga.

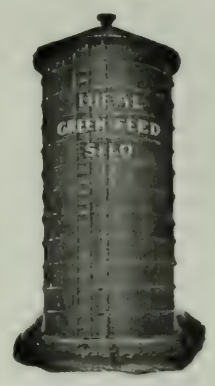
MISCELLANEOUS.

A stock sale and exhibit is to be held in connection with the Butte County Spring Exposition in Chico.

Chas. Coe and Paul Alexander of Merced recently purchased a tract of farm and grazing land consisting of 600 acres in El Dorado county. They have fourteen head of fine horses, all under five years of age.

Portland Union Stock Yards' receipts for the week ending March 25 are as follows: 1654 cattle; 2144 hogs; and 1778 sheep. Top steers brought $7.75; hog values declined from ten to twenty cents; and sheep prices continued to climb, shearlings selling at $7.75, and shorn ewes at $6.00.

An Ideal Green Feed Silo



is not merely a tank or a barnyard building, but is A THOROUGHLY PRACTICAL PIECE OF DAIRY EQUIPMENT.

OVER TWENTY YEARS OF PRACTICAL EXPERIENCE in silo building has enabled us to overcome the difficulties in silo construction and to build a silo that will return to you as good ensilage every pound of good feed you put into it.

To experiment will be expensive for you. Why not profit by the experience of over 20,000 users of the

IDEAL GREEN FEED SILO

and order yours now.

It Will Pay for Itself the First Season

Write for Special Silo Catalog B.

De Laval Dairy Supply Co.

"Everything for the Dairy."

SAN FRANCISCO, SEATTLE.

The UNITED STATES

The "ONLY" Cream Separator

The **ONLY** cream separator with a skimming device of **Nickel Silver non-rusting** sections.

The **ONLY** cream separator adapted for **mechanical cleaning.**

The **ONLY** cream separator with a **non-rusting guarantee.**

The **ONLY** cream separator with a **rust-less bowl chamber liner.**

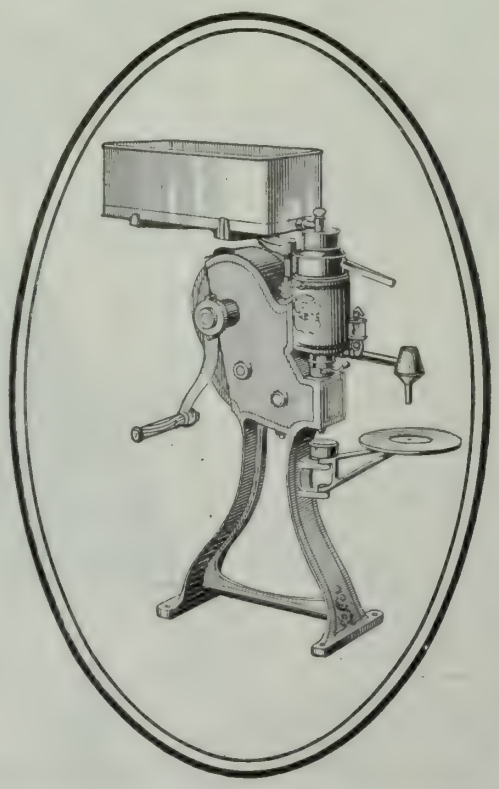
The **ONLY** cream separator with a neck-bearing **adjustable while running.**

The **ONLY** cream separator with **medium** sized gears, all enclosed and all running in oil.

The **ONLY** cream separator from whose bowl **all** the cream can be recovered or "flushed."

The **ONLY** well known cream separator that skims **Nature's way**—cream rising to top, skim-milk settling to bottom.

The **ONLY** cream separator to which the crank can be attached **on either side.**



The **ONLY** cream separator to win a **World's Record** for **closest** skimming.

The **ONLY** cream separator on which **crank may remain** when operating by pulley on opposite side.

The **ONLY** cream separator that can produce **thick** cream and skim **clean** at the same time.

The **U. S.** Interlocking Sectional Type **differs vastly** from the disc or any other separator construction. It is the modern product of **new** and **better** ideas and is manufactured under the latest cream separator patents. **Antiquated, abandoned principles** of **construction** having **no place** in its **make-up.**

If you want a cream separator the **women folks can run** and **take care** of **with pleasure,** investigate the U. S. Local agents will bring one out and demonstrate it. No obligation to buy.

Vermont Farm Machine Co.

BELLOWS FALLS, VT.

Portland, Oregon, Chicago, Ill.
Salt Lake City, Utah. Oakland, Cal.

EXPOSITION LIVESTOCK NOTES.

The view herd of Berkshire swine at the Panama-Pacific Exposition which is in charge of John F. Meyers, representative for the American Berkshire Swine Breeders' Association, is gradually being increased from California herds. In the course of the next week or two, Mr. Meyers expects to have a good-sized and representative showing of that breed. Those who have or will contribute stock for this herd are the Whitehall Estates Co., Stey-Brea Stock Farm, Oak Grove Dairy Farm, A. B. Humphreys, and J. L. Gish. Other members of the association in Oregon. Washington, and California are expected to contribute stock until such time as breeders from the East now quarantined on account of the foot and mouth disease can do their share toward advancing the breed.

The only exhibit of dairy cattle now on the grounds is the one owned by the Carnation Stock Farms, who have over 100 head of high grade and purebred Holsteins. This concern has two herds of purebred Holsteins, one at Oconomowoc, Wis., and the other at Seattle, Wash. The herd now on the grounds is being maintained primarily for the purpose of supplying milk to the condensary which is operated in the Carnation Milk company's exhibit. M. H. Tichenor, general manager of the herds, is now on a trip to the Seattle farm and expects to bring back with him a choice lot of purebred animals.

On account of the foot and mouth disease California breeders and importers of draft horses will furnish the major portion of such animals for the exposition view herds. The Wm. McLaughlin Importing Company will have a representative showing of Percherons on the grounds in another week's time, and the Blackhawk Stock Ranch of San Mateo county expect to contribute a fine bunch of Shires shortly.

HOLSTEIN SALE.

We have received the following communication from Mr. Jas. W. McAlister, Jr., of Chino: "In connection with the sale to be held at Ascot Park, May 12, I wish to say that I believe it will be the greatest event of Holstein history on the Coast. There will be more large record cows than at any sale previously held in the West, including a cow with a record of 29 pounds and one with a record of 28 pounds of butter fat in seven days.

"They are truly a lot of splendid animals and include daughters and granddaughters of many of the greatest sires of the breed. A noteworthy feature of this sale is, that many of the cows and heifers are bred to the son of the famous Tilly Alcartra, the only cow to make 30,000 pounds of milk in one year.

"An especially attractive lot of bulls are offered at this sale, including sons of many of the greatest bulls of the breed. McAlister & Son, having recently purchased the well known Merci Ranch herd near Modesto, are offering their herd bulls for sale, which are second to none in the country."

The cow that is allowed to fall off in her milk flow is seldom made to regain it at a profit.

Live Stock Directory

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

KENILWORTH—At Stud—a thoroughbred with a wonderful track record and as a great sire. Special rates for saddle mares. Send for folder. Bugeia Bros., Novato, Calif.

FOR SALE—Large-boned, purebred mammoth Jacks. Best of breeding. Prices and terms reasonable. Satisfaction guaranteed. J. A. Dickinson, Fresno, Cal.

FOR SALE—Several choice Shetland ponies. Zach Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. O. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

HOLSTEIN BULL CALVES—Sired by King Pontiac Netherland Segis, son of King of the Pontiac, Dam K. S. P. Netherland, 24 lb., 3 years old, daughter of King Segis Pontiac. Ernest Otto McClure, R. 2, Modesto, Cal.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

HOLSTEINS—Mr. Breeder and Dairyman: I am offering the best bred bull in Stanislaus county, Pontiac breeding and out of the great cow Brinka de Kol. Also some good grade heifers bred to one of the best bulls in the county. J. A. Pelanda, Salida, Cal.

FOR SALE—Reg. Holstein-Freisian bull calves, sired by a grandson of King of the Pontiacs. Write for prices and pedigrees. E. A. Clausen, 1139 Devisadero St., San Francisco, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

REGISTERED HOLSTEIN FRIESIAN CATTLE and Duroc Jersey Hogs. W. H. Ginn & Son, Corcoran, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

FOR SALE—Jersey bull 10 months old. Box 51, Rural Press.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

SWINE.

O. I. C. Swine—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

QUALITY BERKSHIRES—Boas, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

FOR SALE

20 HEAD OF REGISTERED TWO-YEAR-OLD

Hereford Bulls

WM. M. CARRUTHERS,

218 Hearst Building, San Francisco

POLAND-CHINA HOGS

THE BROWNING STOCK FARM

LARGE TYPE

YOUNG STOCK FOR SALE. BOTH SEXES.

W. H. Browning, Prop. Woodland, Cal.

Short Horn Bulls

20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,

H. L. MURPHY, PERKINS, CALIF.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by **Iowa Wonder,** who is a son of **A. Wonder,** the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

WE HAVE A FEW full-blood Duroc Jersey Boars just ready for service. Papers go with the animal. Address Geo. F. Wood, Ceres, Calif.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. B. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

REGISTERED DUROC-JERSEYS from Eastern stock. Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM Registered Berkshires. Price on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED DUROCS—Fine young boars. November farrow. Thorp, R. 6, Stockton.

REOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS. R. B. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type. Prize-winning stock. S. F. Williams, Chico.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

REGISTERED DUROC-JERSEYS—T. H. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall. Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electic car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

COL. JACK Thoroughly trained in sales work on registered cattle and hogs. A fast worker in the ring; an able judge, and well fitted to be your auctioneer. Has an extensive acquaintanceship on the Pacific Coast; gets face value on your animal; works on the usual terms; cries any farm sale, and can be found at 513 Exchange Building, Los Angeles, Cal.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

FOR SALE

The Registered Holstein Bull

Lord Asa, No. 117335.

Because we have his heifers and require another sire.

He was sired by

SIR COLANTHA JULIANA.

Dam, QUEEN OF HOPLAND.

He is three years old, big, and breeds big, and is otherwise a perfect animal. Full pedigree and other particulars on request.

R. E. DRESSER, Mgr.

WOODLAND HACKNEY STUD,

Yolo, California,

or EDGAR J. DE PUE, Owner.

818 Merchants' Exchange, San Francisco

STOCK MEN. ATTENTION

3200 A. open grassy range. Low hills. **600 A. level valley land.** Plenty **water.** Good Imps. All fenced. Well located. Carrying now over **500 head.** $13.50 per acre.

1250 A. open range. Fenced. Well watered. **A good ranch.** $11.00 per acre.

480 A. Beautiful farm. **Hogs, Cattle, Olives,** etc. Fine **living stream irrigating** 100 acres. All under cheap irrigation system.

300 A. Perfect Olive Land. Considerable **Alfalfa.** Bldgs and fence. Price $20,000; $5,000 down.

W. W. WILLIAMS,

110 Sutter St., San Francisco.

BARGAIN IN DUROC JERSEYS

I am overstocked and will book orders on weanling pigs at extremely low prices. Highest quality. Smooth and perfect in build. Best of blood lines. Many of Grand Champion breeding. Variety of breeding and sexes unrelated. Here is your chance to stock up at very little over cost of grades. Safe delivery guaranteed. Pay after you get them. Write now.

C. C. ROBBINS, DODGE CENTER, MINN.

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.

10-dose pkge. Blackleg Pills $1.00

50-dose pkge. Blackleg Pills 4.00

Use any injector, but Cutter's best.

The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.

THE CUTTER LABORATORY, Berkeley, California.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

PIGS LAME.

To the Editor: I have a bunch of pigs weighing about 45 pounds apiece and some of them got lame in their hind feet. They seem to walk on the back part of their feet with the toes sticking up off of the ground. Then in a few days later the ankles get scabby. Am feeding barley and skimmed milk, free range pasture of alfalfa, also run on land that has lots of Russian thistle on it. The hoofs turn a reddish purple, like a mashed thumb nail, before they get lame. I notice some today with their noses peeling off, but they still have good appetites. Can you tell me what ails them and what to do for them?—J. S. Caruthers.

[Your pigs have foot rot caused by the organism bacillus necrophorus, which lives in mud and water. Put animals in dry surroundings. Make a trough deep enough so that when standing in it, the affected parts of the feet will be covered. Make animals stand in this containing a 2½ per cent cresol solution for five or ten minutes. Take a swab and wipe off their noses with this solution. Afterwards apply pine tar to the affected parts.]

TUBERCULOSIS.

To the Editor: I have a cow that is apparently in poor health as her hair looks bad and she is in poor flesh. She is a heavy milker on green feed, but does not milk long on dry feed. She has a running at the nose of a thin, watery substance, but does not cough.—J. E. B., Modesto.

[Have this cow tested for tuberculosis by a graduate veterinarian. If she reacts, dispose of her, as there is no cure for tuberculosis. If she does not react, give her the following tonic: Powdered nux vomica, one ounce; powdered gentian, two ounces; powdered iron sulphate, one ounce; powdered potassium nitrate, one ounce; powdered ginger, one ounce; powdered fenugreek, two ounces. Give one ounce of this mixture in feed twice daily.]

HORSE ITCHES.

To the Editor: I have a seven-year-old black mare that of late backs up to posts or trees to scratch herself and she has rubbed nearly half of the hair off of her tail. Has she got the mange, and what can I do for her? Also please tell me how I can rid my cows of wood ticks.—L. W. B., Placerville.

[Your horse has mange. Wash her off thoroughly with a 2 per cent liquor cresolis compositus solution warmed to body heat. Afterwards apply at ten-day intervals for three or four times, the following: oil tar, one ounce; oil cajuput, one ounce; flowers sulphur, one ounce, and neutral oil enough to make one quart.]

SWOLLEN UDDER.

To the Editor: I have a cow which is due to calve about the middle of April. I have been trying to put her dry for two weeks and her udder is swollen. I milk once a day and the milk comes out in lumps and strings. Her udder is very hot and feverish. She has had milk fever twice at calving time before. Any information how to stop this swelling and prevent the milk fever will be appreciated.—E. S. W., Winton.

[Apply camphor liniment U. S. P. to the udder twice daily. Give your cow spirits of camphor internally in half ounce doses twice daily. A very light diet for a period of two weeks before calving has a tendency to prevent milk fever.]

LUMPY BAG.

To the Editor: What ails my cow? In the first place, a few boils started on the udder, then in the upper part of one teat, or the lower point of the udder where the milk passes into the teat there came a lump, and after three or four milkings it was impossible to get any milk from the teat. Then I used a milk tube in that teat for about one week. Now the soreness and swelling has disappeared and the teat and udder seem in good condition. About one week after the trouble began, cheesy lumps would sometimes clog the milk tube and strainer, but this did not last long. Now the milk looks natural and cream raises good. (The milk from that teat is always kept separate.) But when the cream is pushed back, the milk is dark or bluish and watery. Could there be a bloody condition in the milk from that teat that is not noticeable? Is there any treatment for the case? The cow is in good health and a good eater.—G. O. B., Modesto.

[Your cow has an infectious mammitis and is evidently recovering. Milk at times contains blood in imperceptible quantities. Give your cow potassium iodide in two drachm doses twice a day for one week. The potassium iodide can be dissolved in the drinking water.]

INFECTIOUS ABORTION.

To the Editor: On Feb. 5th, 1915, I bred one of my cows, a large, healthy animal some seven or eight years old, to what was considered the best bull in the community, being a young, healthy animal. I have since learned diseased cows (abortion) were bred to this bull some months before my cow was bred. Will this affect my cow? If so, what treatment should I use? I am anxious not only for this cow, but am afraid she will affect the others.—O. A. C., Escalon.

[This will very probably affect your cow. Give her one ounce methylene blue every day for six days, then discontinue for six days, and begin again, giving one ounce every other day until six more doses have been given. You need not worry about your other cows unless she aborts, when it will be advisable to give each cow in the herd the above treatment. It would, however, be advisable to isolate this animal until she delivers her calf safely.]

WOUND ON HOG'S LEG.

To the Editor: I have a yearling hog that gave out in one front leg two weeks ago. Some days she moves around and feeds; others she lies around. When she walks, she holds up one leg. I noticed on inside of leg about the knee two natural looking holes that seem to keep moist from some cause.—J. M. R., Sebastopol.

[Wash leg off thoroughly with warm soap and water and examine to see if there is a foreign body, such as a nail or splinter, lodged in it. Paint affected part daily with tincture of iodine. Give internally one dose of 4 ounces epsom salts.]

GROWTH ON HORSE'S FOOT.

To the Editor: Some time ago I wrote you in reference to a horse with a bad case of thrush, and Dr. Boyd prescribed formaldehyde, which relieved him wonderfully, and I thought he was cured. I find he has ham-like growths growing out of the frog behind on each foot, and when I work him, he becomes quite tender-footed. Is there anything I can do for it?—S. L. W., Hughson.

[You have used your formaldehyde too strong. Get some butter of antimony and paint on growths every two or three days until they disappear.]

ABSOLUTE DISPERSION SALE

of the
P. F. SCHUMACHER HERD
Recently Tuberculin Tested.

75—Registered Holsteins—75

Ascot Park, Los Angeles, May 12, 1915

This is the greatest event of Holstein history of the Pacific Coast. There will be more high record cows sold in this sale than in any sale previously held in the West, including a cow with a record of 29 lbs. and one with a record of 28 lbs. of butter in 7 days. Daughters and granddaughters of such famous sires as Pietertje Hengerveld Segis; Rag Apple Korndyke 8th, the $25,000 bull, Sir Fayne Concordia and others of equal note.

Cows and heifers in calf to the son of the great dairy cow, TILLY ALCARTRA, the only cow to make over 30,000 lbs. milk in one year. What will their calves be worth?

Bulls! Bulls! Bulls!

McAlister & Son, having purchased the famous Merci ranch herd of Modesto, are consigning their entire lot of herd bulls, consisting of a son of King Segis Pontiac Emperor, senior herd sire of the A. W. Morris & Sons herd and out of a 20-lb. daughter of Juliana King of Riverside. A son of King Pontiac Artis, formerly herd sire of Stevens Bros. Co. of New York and out of a good record daughter of Prince Hengerveld De Kol. A son of Pontiac Hengerveld Parthenia, the $9000 son of Hengerveld De Kol. A number of other high-class bulls and bull calves will also be sold.

YOUR OPPORTUNITY

It will be many months before you can buy at your own price such high-class cattle! Don't let this wonderful opportunity slip!

TERMS: $500 and under cash; over $500 one-third cash, balance in three equal payments in three, six and nine months, with note and approved security and 8 per cent interest. Five per cent discount for all cash on time sums.

For catalog address
JAMES W. McALISTER, JR., Sales Manager.
Chino, Calif.

COL. BEN A. RHOADES, Auctioneer,
1505 South Main St., Los Angeles, Calif.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

The California Breeders Second Annual Jersey Consignment Sale

Will be held at

MODESTO, on MAY 4, 1915

80—Head for Sale—80

These are no culls, but a magnificent selection of registered Jersey Cattle from some of the best blood in the State, many PRIZE WINNERS—and exceptional PRODUCERS and excellent offering of young stock.

ALL ANIMALS FULLY GUARANTEED.

CONSIGNORS:

C. N. Odell, Modesto.
D. Larsen, Stevinson.
Dr. L. J. Belknap, San Jose.
F. B. Wulff, Modesto
Dr. S. Z. Peoples, Petaluma.
D. Wall, Modesto.
Mrs. A. E. Melander, Stevinson.

and many others.

For free catalogue and particulars, address
G. O. HILLIER Sales Manager.
2106 Telegraph Ave., Oakland.

B. A. RHOADES, Auctioneer,
Los Angeles, Calif.

We are also going to sell 60 HEAD of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

Pure Bred Herd in Five Years.

[Written for Pacific Rural Press.]

That improvement of dairy cattle depends largely upon the foundation cows and the future sires is evidenced by the experience of J. W. Benoit of Stanislaus county, who from a small but choice herd of cows a few years ago, has built up a herd of heavy producers in a remarkably short time.

From a start made with a few head of old cows about five years ago, Mr. Benoit now has 30 purebred Holsteins most of which are young animals, and many of whom have made high yearly and monthly records. At the beginning, Mr. Benoit recognized the value of official testing, not only basing his early purchases of cows and sires on this point, but also continuing the work with the heifers as they freshened. As a result of this work, a few outstanding individuals have been developed, among which is the cow, Avondare Cloverdale 3d. whose yearly record was 753.42 pounds of butter and 17,437.3 pounds of milk.

El Prado Wayne Colantha at Age of Six Months.

During the last month of this test, she produced 850.3 pounds of milk and 42.83 pounds of butter. During this time she was with calf and was also dehorned which probably lowered her records somewhat.

Another fine, young cow of the herd is Benteta Electa Netherland with an A. R. O. record of 18.02 pounds of butter and 486.6 of milk in seven days at three years of age.

Owing to the fact that most of the animals in this herd are backed by strong A. O. R. records, it is thought that the young heifers coming on will do particularly well in official tests.

In order that the future herd may be even better than the present one, Mr. Benoit has recently added the bull, El Prado Wayne Colantha, which is a beautiful animal, having very straight lines and an extra big middle, and which weighed at the age of one year, one thousand pounds. The dam of this bull is Edith Mandel Wayne whose seven-day record is 30.00 pounds of butter and whose thirty-day record is 111.95 pounds of butter. His sire is Colantha Sir Pontiac Aggie. The breeding of this bull on both sides is of exceptional merit, and in crossing him with the Pontiac heifers already on the ranch, Mr. Benoit expects the heifers to make a combination hard to equal.

The example shown by the experience with this herd indicates that the possibilities of purebred breeding do not end with men having large capital; as Mr. Benoit was formerly a small tenant dairyman in the Stanislaus district, and owes his rise in cattle breeding to the fact that he has continually kept after better bred and higher producing stock.

EGGS FOR CALF INDIGESTION.

[Written for Pacific Rural Press.]

We found S. C. Dalby one night in February near Newman, Stanislaus county, feeding a sick calf. The calf was not much sick any more, except his nose was running a little, but Mr. Dalby said he had been so sick that there did not seem any possibility that he would pull through.

The calf was born out in the field eight days before and had been out in the rain three days before he was found. At that time he was so weak he could not stand up and was not able to take milk. He had probably gotten an overdose of the first milk from his mother, and it was two days after he was found, until he could keep any milk on his stomach.

"For a good many years I have used eggs successfully in cases even where the bowels passed nothing but blood, so I fed him about a half a dozen eggs at a time every three or four hours for a day or two, then reduced the number as well as the frequency until to-night I have given him two eggs beaten up in the milk feed."

Mr. Dalby had fed the eggs simply by breaking one end and putting it in the calf's mouth. The calf soon learned to suck them greedily.

But there were complications in the case, for a day or two after the calf was found, he developed a cough and his nose was stopped up and running so that he had to keep his mouth open to breathe, and it looked like the last days for the calf. To counteract this severe cold, Mr. Dalby gave some whisky in water.

At this time, too, the calf was able to drink milk, diluted with about one-third as much water, from a bottle. About a pint was fed every three or four hours. With the combination of eggs, whisky, and diluted milk, the calf was feeling almost frisky and gave every promise of pulling through.

MILK FOR HOGS.

To the Editor: I would like you to tell me which kind of milk, sour or sweet, should be fed to hogs, and if they derive more good from the sour milk; also if it is safe to feed the first milk, after a cow calves, to hogs.—V. M. Concord.

[The difference in the results obtained from feeding sweet milk and sour is so small that not much can be claimed in favor of one over the other. It is oftentimes difficult to so arrange the supply of milk that it can always be fed sweet, and for that reason it is advisable in many instances to feed it sour. The cow's first milk or colostrum is not apt to be harmful to hogs in the quantities that any ordinary dairyman would have. The only objection to its use is its richness, which like that of any whole milk is apt to cause a disarrangement of the hog's system on account of its butterfat content, if fed continually.—Editors.]

"Best on the Surface of the Earth"

"American" Surface Irrigation Pipe

The pipe with the original double-locked turned seam—stronger—more durable—more convenient—more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character.

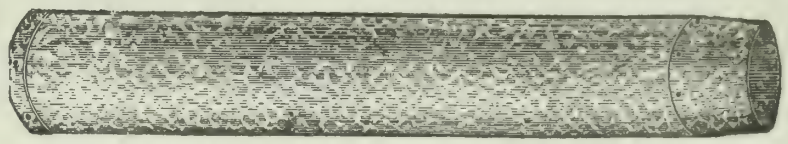
In lengths 10 feet 6 inches.

Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.

American Steel Pipe & Tank Co.

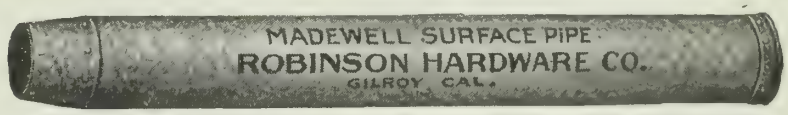
354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CAL.

Branch: 1228 H St., Fresno.



Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.



LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints This feature found only on

Madewell Surface Pipe

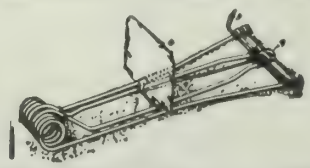
You want all the water delivered to the end of the pipe—and Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.

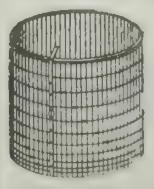
Box V, Gilroy, California.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO; Blake, Moffitt & Towne, Los Angeles; Blake, McFall & Co., Portland, Oregon

THOMAS E. QUISENBERRY has been appointed superintendent of the Poultry Exhibition at the Panama-Pacific International Exposition. We approve of his appointment and are extending all possible encouragement and assistance to help him make this show a pronounced success. This has led many to ask us why a man from Missouri was selected for this office when we have in California a number of poultrymen who are doubtless equally intelligent; that have the advantage of as many, or more, years of experience, and who possess sound business ability in as full a degree.

Stopping the $7,000,000 Loss.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Association of California.]

The state of Missouri maintains the most complete and generously supported Department of Poultry of all the states of the Union. While it is under the authority of an executive board of six members who live in various parts of Missouri, and an advisory committee, consisting of three state officials, the Governor, Dean of the Agricultural College, and Secretary of Agriculture, T. E. Quisenberry, under the title of Director, practically regulates and manages this extensive state institution. Among the divisions included in this department are a poultry experiment station and farm; egg laying contests; annual state poultry show at St. Louis; experiments by individuals co-operating with the state poultry officials, and several other educational features. As immediate assistants who carry on the detail work, Mr. Quisenberry has the exclusive services of a superintendent, a professor, and a doctor, leaving him free to transform the results of scientific investigation and experiment into "practical poultry farmer knowledge," and by its distribution, he keeps in sympathetic touch with the actual poultry producers of the state.

If California had similarly fostered the poultry industry in the past, some one or more of our own citizens would have had the opportunity to gain the same wide experience that Missouri has afforded Mr. Quisenberry, and a Californian would have received the coveted honor. However, let it be understood that we thoroughly appreciate Mr. Quisenberry's ability and cordially welcome him to our State.

On receipt of notice of his appointment, this Federation sent him a letter of congratulation in which was included the following paragraph:

"In this Federation is unified the welfare of all California poultry interests, including individuals, or associations of fanciers, utility or market producers, as well as handlers of poultry produce and supplies. We are, therefore, particularly pleased because we are assured that you are not only capable of appreciating the importance of these branches, but you have in the past successfully demonstrated your ability to properly stage exhibits of the entire line of this industry in a manner calculated to do justice to all, and to educate the public, while also furnishing them with entertainment."

We also sent a letter to Mr. D. O. Lively, Chief of the Live Stock Department of the Exposition, thanking him for agreeing to a plan for putting the poultry show matters completely in Mr. Quisenberry's hands. In reply, Mr. Lively made the following statements:

"You may be sure that I will give Mr. Quisenberry every facility and every opportunity to work out in his own way the success of what I confidently expect will be the greatest poultry show the world has ever given. He will have a good start, for the reason that I have been successful in securing appropriations from fourteen states to be used in paying premiums, and special expenses on poultry.

"At the beginning I appointed a Poultry Advisory Committee in each state, and have kept these committees keyed up to do special work with regard to the Poultry Show. Where such committees were not active, I personally insisted that a part of the state's appropriations should be set aside for poultry.

"In selecting the Superintendent, I looked over the entire field with a great deal of care. I attended poultry shows from Massachusetts to the Missouri River. I talked with poultry exhibitors, editors of poultry papers, and the active membership of the American Poultry Association. In selecting Mr. Quisenberry, I believe that I secured the best man in the United States. He is methodical, capable, has a wonderful capacity for details, is a man of high ideals and rigid honesty. All that now remains is for the poultrymen, especially those of California, to give him the support that he and the Exposition Show deserves.

All classes of poultrymen should be interested in this show. Mr. Quisenberry is most widely known as an expert in the utility branch of the business, and we anticipate a novel and instructive department covering this feature of the show, as well as a large and beautifully arranged exhibition of fanciers' thoroughbred fowls.

IF CALIFORNIA had similarly fostered the poultry industry in the past, some one or more of our own citizens would have had the opportunity to gain the same wide experience that Missouri has afforded Mr. Quisenberry, and a Californian would have received the coveted honor.

However, we wish all California poultry raisers to give him a royal welcome and afford him every assistance. As he will arrive in California several months before the date of the Poultry Show, we are endeavoring to arrange to have Mr. Quisenberry visit various parts of the State shortly after his arrival. Active poultrymen of all sections are requested to discuss and arrange for such a visit from him and mail invitations to the Federated Poultry Association, 525 Market St., San Francisco.

HIGH VENTILATION FOR HENS.

To the Editor: In your issue of March 20 I notice an article, "Cheapest Poultry Houses Best," and in that connection wish to make the following suggestion: I have found by experience that the hens will feel more comfortable if all the sides of the henhouse are made tight (except the door), and the roosts put down low, all cracks left tight, and plenty of ventilation allowed through the top of the house. In this way, the hens will have no cause to pack together in order to keep warm and there is no chance for them to take cold. L. A. Ginger,

Livermore.

California Poultry Practice. $1 postpaid. Pacific Rural Press.

Pioneer Roofing

"The roofing that covers California."

Pioneer Roofing is sun-proof, rain-proof, warp-proof, and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."

WRITE US for samples and prices—or ask your dealer.

Pioneer Paper Co.

Manufacturers,

247-251 SO. LOS ANGELES ST., LOS ANGELES.

Get the Best for your chicks

Coulson's Poultry Food

Special Chick Food

Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

California Poultry Practice

By Susan Swaysgood.

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

FREE BOOK

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

F. F. SMITH & CO.,

1006 J Street, Sacramento.

PROFESSIONAL DIRECTORY.

SYMMES, MEANS AND CHANDLER

AGRICULTURAL ENGINEERS

Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.

58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER

CONSULTING ENGINEERS AND AGRICULTURISTS

Hearst Building, San Francisco.

Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.

Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG

AGRICULTURAL ENGINEERS AND CHEMISTS.

Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.

SOIL SURVEYS. CERTIFICATION OF LAND.

California Fruit Building, Sacramento, California.

SOIL LABORATORY

Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.

CURTIS & TOMPKINS

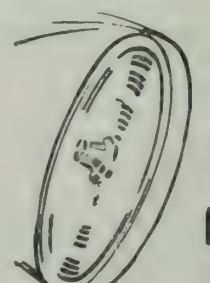
Agricultural and Industrial Chemists.

108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.

444 Market St., San Francisco

CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.



Even if it contained no ground mica

MICA AXLE GREASE

would still be the best axle grease you could buy. But the mica makes it even better. Mica resists heat and is a good lubricant also. Keeps the spindles cool and slippery. No worn boxes. Dealers everywhere.

Standard Oil Company (California) San Francisco

Poultry for Profit.

[Written for PACIFIC RURAL PRESS by Susan Swaysgood, Pomona.]

CARING FOR LITTLE DUCKLINGS.

The most important point about little ducklings is to keep them dry. The natural instinct of a duck is to get into water; but for the domesticated duckling this is a case of race suicide. With ducks in a natural state it may be different, but I hardly think so, for Nature is so lavish in numbers that she allows for great losses.

Feed Often.—Like chicks, baby ducks need warmth but they do not need such particular care about overfeeding. In fact, the trouble is that most people underfeed ducks. They don't need a great deal to eat at one time, but they do need it often. Give them a good, dry bed, a fair amount of warmth, and plenty of proper feed, and little ducklings soon grow into big fellows.

Warm Water to Drink.—The use of cold water applies to both inside and outside a duckling. For the first ten days give ducklings warm water to drink, and give it in a vessel that they can put their beak in up to the eyes, but not get in with their feet. This is absolutely necessary if you want success with ducks. Cold water is given sometimes, I know, but it is at a big risk for it nearly always results in stunting the growth or in producing cramps.

I may be reiterating some of these things, but as we have new readers all the time it will be new to some of them, and it won't hurt anyone to be told some things over again. Another thing to remember is the animal food. You can increase up to 15 per cent without any harm if you make the increase slowly, and the ducklings will grow that much faster. Don't forget the green feed; it will save the feed bills and make better ducklings and chicks than all expensive feed.

Charcoal Good.—Keep a little charcoal handy so the ducklings can have a little in the feed and the chicks can pick a little to suit themselves. Charcoal absorbs foul gases, regulates the bowels, and is an all around good thing in its place. Sometimes little chicks get an abnormal taste for it, and if that occurs, just remove it for a while, for after all, burned wood is not very nourishing. Chicks will always help themselves to grit, but ducklings should have a little sharp sand or grit mixed in every feed that is given. This applies to all kinds of ducklings; some people have an idea that Indian Runner ducklings need different treatment, but they do not. What is good for one, is good for all.

Feeding and Fattening Does.—What is best to feed does when they have their young? What is best to fatten them on? My does feed well and are thriving, but they are thin. I only leave six young with a doe. How many should I leave?—J. J. J.

[Feed them milk and a little rolled oats, bran, green feed, and any kind of vegetables. Some breeders feed bread and milk for a few days, and a doe does much better if given a little milk. If they feed well and are thriving, I would let well enough alone and never mind about getting them fat. However, plenty of rolled oats will fatten them. You are leaving just about the right number. Six is better than more because the doe can nurse them and keep them in good condition.]

Red Laced Cornish.—A subscriber asks for name and address of someone who wrote an article on the "Red Laced Cornish" some time last October. Will the writer of the article kindly send in his name?

Turkey Heads Blue and Swelled.—My turkeys are affected in the eyes, which swell, turn blue around them, then the head swells and becomes blue also. Is it swellhead?—J. B. K.

[The fact of the eyes and head turning blue bothers me. Real swellhead turns red and the head is very hot to the touch, because it is an inflammatory trouble. It may be that the blue is the color change in the turkeys. At any rate I would give them a few drops of aconite and bryonia in the drinking water and bathe the heads in a diluted mixture of peroxide and witch hazel. If the head, or swelling, is hot, then it surely is swellhead and your turkeys have got cold some way. Give them a little Epsom salts in a little moist mash to carry the cold off.]

VALUABLE WORK ON POULTRY RAISING.

The Pacific Rural Press has published a valuable poultry book from the pen of Mrs. Swaysgood. The book is concise and clear, dealing with all phases of the poultry industry as it applies to California and is entitled "California Poultry Practice." It is valuable as showing the relative values of the several breeds of fowls as egg producers and general purpose fowls and gives the reader some of the fundamental principles of poultry for profit. —Manteca Irrigation Bulletin.

MISCELLANEOUS NOTES..

At a recent meeting of the Sacramento Grange it was proposed to appoint a county agent to work in connection with the county horticultural commissioner in the study of soils in order to be able to inform newcomers what crops to plant. Although no definite action was taken, it is expected that the appointment will take place at the next meeting.

The Inland Waterways Congress was held in San Francisco on March 23, 24, and 25. The membership of the Executive Committee has been increased from twenty-five to thirty-six, and the following officers and committees have been elected for the coming year: President, Isador Jacobs, San Francisco; 1st Vice-President, M. E. Dittmar, Redding; 2nd Vice-President, Willis Booth, Los Angeles county; 3rd Vice-President, Mrs. E. G. Greene of Stanford University; 4th Vice-President, John Fairweather, Fresno; Treasurer, J. L. Craig, Stockton; Executive Secretary, David H. Walker, San Francisco; Secretary, Craigie Sharp, Oakland; and Chairman of Executive Committee, D. L. Beard; Santa Clara. It was decided to co-operate with the International Irrigation Congress and hold a joint meeting of the two associations in Fresno in September, 1915. The regular semi-annual meeting of the Inland Waterways Association will be held in Los Angeles after the joint meeting in Fresno.

Co-operation between practical farmers and proficient business men will eliminate ignorance and prejudice.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

BUFF LEGHORNS EXCLUSIVELY—Trapnested prize-winners at Petaluma eight regular prizes and special silver cup. Eggs $1.25 per 15; $6 per 100; 95 per cent fertile. Chix, $12 per 100. Write for price list of special matings and chix of other varieties. Golden Feather Poultry Yards and Hatchery, Amos Bowler, R. 5, Petaluma, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S C Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

GET your day old White Leghorn chicks from Empire Hatchery, Empire, Cal. Strong healthy chicks from vigorous parent stock, selected and bred for heavy laying. $9.50 per 100; $90 per 1000. Beegle and Cullen, Props.

HATCHING EGGS—Any quantity any time. Rhode Island Reds, White Leghorns, $4 per 100; $35 per 1000. All from good layers. Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

RED ROSE FARM—S. C. R. I. Reds. Eggs and baby chicks. Fancy and utility. Order now for early hatches. Eggs now in incubation. A few choice cocks and cockerels for sale. B. C. Quessenberry, Lodi, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE PLYMOUTH ROCKS and White Leghorn. Pure-bred stock. Exhibition and winter layers. Big hatch due March 25th. Write us. Pleasant View Farm, Box 291, Pleasanton, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred, Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

BABY CHICKS—Single Comb White Leghorns. Selected stock. With a capacity of 25,000. Can fill orders on short notice. Carl Stange, 1408 Silver Ave., San Francisco.

SELECTED—Single-comb White Leghorn eggs for hatching that will improve your flock. All hens, 220 egg type. $1.50 for 15 eggs; $8 per 100. Jay Maxwell, Madera, Cal.

DAY-OLD CHICKS from my healthy, vigorous, heavy-laying, free range stock of S. C. White Leghorns. Price, $7.00 per hundred. H. P. Hansen, R. 4, Box 117, Petaluma, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

EGGS FOR HATCHING A SPECIALTY.—2-year-old S. C. White Leghorn Hoganized hens mated to Hoganized one-year-old cocks. Price for March and April, $5 per 100; $45 per 1000. Pine Tree Poultry Farm, Los Gatos.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

FOR SALE—200 White Leghorn yearling hens and a few males. Also chicks any age—White Leghorns or White Rocks. Shipped on approval. All pure-bred stock. Pleasant View Farm, Box 291, Pleasanton, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn selected stock, $5 per 100; $40 per 1000. Order now No baby chicks.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

FOR SALE—Last of March and April delivery. White and Brown Leghorn baby chicks from selected thoroughbred stock. Rose Hill Poultry Farm, Turlock, Cal.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock. $3.00 per setting Thornton L. Green, San Mateo, Calif.

ORPINGTONS—Buff and White Black Minorcas Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

WHITE WYANDOTTES — Eggs—stock. Baby chicks Electric hatched. All varieties. Send for prices Thos. McGuire, Petaluma, Cal.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. E. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15. Cockerels $7.50 and $10. Nellie Presher, 3107 22nd Ave, Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G W Suits 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BARRED ROCKS ONLY Eggs for hatching, $5 per 100, and chicks $12 per 100 in April. G. S. Hawley, Madera, Cal.

PEARL GUINEA EGGS—$1 per 13 Indian Runner Duck Eggs, $1 per 13. Mrs. Kate Lambert, Box 93, Newark, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

A FEW thoroughbred English White Leghorn Cocks. David Rueck, R. 4, Box 53F, San Jose, Cal.

BLACK LANGSHANS—Eggs, $1.25 per 15. William Johnson, Napa, Cal.

TURKEYS, DUCKS AND GEESE.

TURKEYS—Bourbon Red, White Holland, Mammoth Black and the new Blue (Slate). In separate, wire-covered yards. Range alternately. Hardy, early maturing. Don't care to roam far away. Eggs $5 per dozen. Mrs. B. Hocking, Guasti, Cal.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS.—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS. Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHESANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

The Home Circle.

A CHILD'S THOUGHT.

By Oliver Penmark

A little child upon the sands,
Beneath a sapphire sky,
Holding up her dimpled hands
While on the quiet beach she stands,
As though she fain would try
To clasp the fleecy clouds that pass
So high above the wondering lass.

"I am so small a maid," said she;
"The sky and clouds are far,—
And farther still the stars must be,
So far their lights I cannot see,—
I wonder where they are!
All are so far above my reach,
I'll just play here upon the beach."

THE LEMONADE-STAND.

"How's business today?" Uucle Jack asked as he stopped in front of the lemonade stand under the big maple-tree on the Blake lawn.

"Not a bit good," replied Bobby, with a hasty glance at the row of clean glasses. "Not one single person has wanted to buy lemonade this morning."

"Guess we won't earn money enough to go camping with the Boy Scouts if we stay here till Thanksgiving," added Billy, with a sigh. "But don't you want to try our lemonade, Uncle Jack? It's good, and there's a cooky to go with every glass."

"Of course I'll try it," was Uncle Jack's hearty reply. "And don't you boys get discouraged yet, for somebody'll be sure to stop here before noon. This is first-rate stuff, and the cookies are all right. Here's a nickel"— But Uncle Jack didn't finish, for Bobby was saying gravely, "No, Uncle Jack, we don't want any pay. Business is business, you know, and we're to furnish you with all the lemonade you want and run all your errands for you in return for the lemons and sugar that come from your store. That's our bargain."

"All right, then," Uncle Jack said, as he turned to leave. "There'll be some errands to do tonight. Good luck to you both, and I reckon you'll need some more lemons before tomorrow."

It was very cool and comfortable there under the big maple tree on the front lawn. Tony, the scissors-grinder, thought so as he came slowly down the street, and he wished that he might put down his machine and the little bundle of old umbrellas and rest awhile; but he couldn't afford to buy cookies and lemonade today, for his father was sick, and there were little brothers and sisters at home who needed shoes and stockings, to say nothing of bread. So he only looked longingly across the street as he stopped to rest a minute. Some boys seemed to have everything, while he had very little except brothers and sisters.

"There's the scissors-grinder's boy," whispered Billy to Bobby. "And my, but doesn't he look tired and warm?"

"Why can't he buy some lemonade, then?" asked Bobby, in a low tone. "Guess his father must be sick, or else he wouldn't be around alone with that heavy machine. Maybe he can't afford to buy. Say, Billy, let's"—

"Say, Bobby, let's treat him." Billy and Bobby spoke almost at the same time, while Bobby added, "We won't get much money that way, but sometimes there are things better than money, mother says,"

So Tony Turrano, the scissors-grinder's boy, soon found himself seated in the lawn-swing while Bobby and Billy stood close by offering him glasses of ice-cold lemonade and big sugar cookies. A half-hour later he was trudging along the street whistling as he went. And he was thinking, "What a good world this is, after all!"

Billy and Bobby watched him until he turned the corner. Then they washed the glass he had used, and replenished the plate of cookies.

"Look quick, Billy!" Bobby cried, when they had begun to feel completely discouraged. "Who are all those folks coming now? Why, the road seems full of them. And, Billy Blake, they're every one of them looking this way. Just suppose they should come here! Wouldn't it be great?"

Bobby didn't expect Billy to answer, for the big boys and little boys were soon crowding around the lemonade stand, and all were demanding cookies and lemonade.

"Whew!" said Billy, when the last cooky had been eaten, and the last boy had gone hurrying away.

"Just look at that pile of pennies and nickels and dimes," said Bobby. "Now we'll have to run down to the store for more lemons. That was the Rixville Baseball Nine and all the fans, but how did they ever think to come this way? Why, they always go round the other road. You don't suppose Tony told them, do you?"

"Perhaps he's brought us luck at last," Billy suggested as he looked at the row of empty glases. "Anyway, I guess we can go camping, after all, if business keeps up like this." Then Billy began to whistle for the first time that day.

And the whistle grew louder and louder each morning during that warm summer week, for business was good. Not every one who drank the ice-cold lemonade and ate the sugar cookies added to the pile of nickels and pennies, for there was Joe, the lame peanut-man, who trundled his heavy cart up and down the street and tried to support his big family of children; he wasn't asked to pay. Neither was the little old lady who sold buttons and needles, nor several other people who passed by. Still the little pile of money grew larger and larger, until Bobby and Billy felt very sure of the camping trip.

"But money isn't everything, is it?" asked Billy, as they counted the week's earnings.

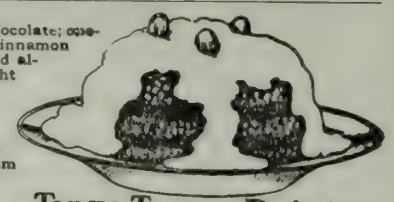
"Sure not," replied Bobby. "There's all the fun we had, too, and the new friends we made, and the folks that didn't look so tired after they'd tasted our lemonade. Let's do it again."

"Yes, let's," agreed Billy.

And they did.—By Alice Annette Larkin, in Sunday School Times.

"Never mind, dear!" I said to my little girl, who refused to give one of her dolls to a child who had none. "Never mind! Perhaps some day you will be a poor little girl yourself, and then you will know what it is to have no toys." "Yes, mother," she sobbed, "I have thought of that; and that's the reason I want to save all my things."—Youth's Companion.

Two level tablespoonfuls Ghirardelli's Ground Chocolate; one-third cup sago; one cupful water; one piece stick cinnamon one-half cup chopped citron; one-half cup chopped almonds; one-half cupful sugar. Soak sago over night and drain next morning; put in a double boiler with water and boil until thick; add cinnamon and citron and cook thirty minutes; remove cinnamon and add almonds, sugar and chocolate. Remove from fire as soon as sugar is dissolved and set away to cool. Serve with cream flavored.

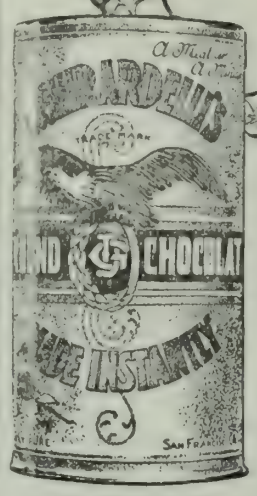


Topsy Turvy Dainty

To insure success in the making of this dainty as well as numerous other delightful desserts be sure to use

Ghirardelli's
Ground Chocolate

There is an improvement in the family health as soon as Ghirardelli's Ground Chocolate enters the kitchen.



You can, without much trouble or expense, serve the most nutritious and beneficial of daily beverages, with the aid of Ghirardelli's Ground Chocolate.

Order a tin from your Grocer today.

D. GHIRARDELLI CO.
San Francisco Since 1852 California

STILETTO
Saws

Can be had in twenty-three different designs and patterns—each one is absolutely the best saw that can be made for the purpose.

Every saw carrying this trade-mark is properly set when you buy it and will cut sharp and true.

You take no risk when you buy a STILETTO tool—it is fully guaranteed.

STILETTO goods sold everywhere—if you can't get them, write us.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL

STILETTO
REG. U.S. PAT. OFF.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

APHORISMS.

To avoid unkind criticism: say nothing, be nothing, do nothing.

Individuals at work are safe—and a nation is only safe when its people are employed.—Hubbard.

"That which makes or unmakes a nation is the quiet, peaceful, productive life of the people."

Times are changing and just as surely as anything in the future may be, the farmer who fails to conform to the changes, to practice intensive and scientific farming, will be forced out of business. The handwriting on the wall is plain.

Too often the man with a small farm thinks it is impossible for him to have an up-to-date, progressive farm. Not so. Many of the truly model farms of the country are small farms. In fact it is easier for a small place to reflect the personality of the owner than it is for a large one.

The whole fabric of American greatness rests upon the American farmer, and unless he lays the foundation for progress and development we cannot escape retrogression and decay. The producers of a nation are its source of strength, and the farmer is the greatest of all producers.

The Tagliche Rundschau tells this story about Senator Root, who, when he was Secretary of State, had a small colored messenger. At first the lad was very respectful to everybody. Mr. Root asked him where the wastebasket was, and the boy replied that Mr. Riley had taken it. "Who is Mr. Riley?" asked the secretary, only to find that it was "Pete." A little later he asked who left the window open, and the answer came, "Mr. Lantz has been washing windows." "Look here, my boy," said Mr. Root, "don't call everybody mister; use their first names. I can't tell who you mean." In the course of an hour, the boy opened the door, and called, "Say, Elihu, there's a fat guy outside who wants to speak to you." The "fat guy" was President Taft. The Tagliche Rundschau does not report what the Secretary said next.

If, for any reason, the red bricks in your fireplace become discolored or have white spots on them, rub them full of linseed oil, giving them all they will absorb. You will find that with a few applications the spots will disappear.

Laces, plumes and woolen articles may be cleaned in the following manner: "Put a cupful of corn meal, half a cupful of white flour and three tablespoonfuls of powdered borax into a paper bag, and shake the article to be cleaned about in this until all evidence of soil is removed, then shake free from the mixture."

Meat Salad.—Chop one cupful of cold lamb, chicken, veal or fish. Chop one small onion and two hard boiled eggs. Cut one head of lettuce into long, narrow strips; mix all thoroughly. Season with oil, mustard and vinegar. The mixture may be tossed with a mayonnaise dressing made as for sliced tomatoes, in which case the dressing of oil, mustard and vinegar, is omitted. Serve in crisp cups of lettuce leaves and garnish with a crest of whipped cream, slightly flavored and colored with a bit of the mayonnaise.

Brown Betty.—Spread the bottom of a well-buttered baking dish with a layer of bread crumbs well browned. Add lumps of butter, then a layer of well-sweetened chopped apples, a slight sprinkling of salt and nutmeg, more lumps of butter, layer of crumbs, alternating with layers of apples until the dish is filled. Have the top layer of crumbs and butter. Bake covered for half an hour, then remove cover and brown. If you wish to elaborate, you may add seeded raisins, currants and chopped nuts. Serve hot, with hard sauce.

Bran for Matting.—Instead of salt water some housewives use bran for cleaning matting. A bag of cheesecloth is filled with bran; this is moistened from time to time, and the matting scrubbed with it. After the bran wash the matting is wiped off with a fresh cloth dipped in salt water.

Bias Bands.—A necessary thing to know in handling clothes having diagonal weaves is in cutting bias bands. Fold the cloth over on the left hand corner, as it lays on the table, as though you were going to get a true bias line to cut on. It will be seen that the diagonal lines in a way, run parallel with the bias edge, although they are not true. And the bias band will not look like a true one, no matter how accurately it may be measured and cut. Now make a true bias across the right hand corner of the cloth. In this instance the diagonal lines will run at right angles to the edge, and the result will be a ship-shape and good looking bias band.

Consequently in cutting bias bands from any material having a diagonal line a true bias is necessary in the first place and in addition it must be cut from the end that allows the diagonal lines to run at right angles to the cut edge. This is called a "choice" bias. Crepe, of course, comes under this rule.

The teacher was instructing the class in the rudiments of the English language. "John," she said, "make a sentence using the word 'indisposition.'" John, who was evidently of a pugilistic turn of mind, assumed an aggressive pose,, and announced, "When yous want to fight, you stands in dis position."—Youth's Companion.

SUCH A LANGUAGE.

"I cannot understand ze Engleeshe language," said the desperate Frenchman. "I learn how to pronounce ze word 'hydrophobia,' and zen I learn zat ze doctors pronounce it 'fatal.'"—Tit-Bits.

Cleaning with Benzine.—Suits need to be frequently looked over, and if there are any spots from grease or dirt, remove them with benzine. This is a splendid cleanser, and should be rubbed in thoroughly with a clean, white muslin cloth. Do not begin by rubbing directly on the spot, but a little below and around it first, and then gradually work up to the spot itself to prevent forming a ring around it. After the suit has been thoroughly cleaned, careful pressing will make it look like new. If the skirt is plaited, lay each plait in place and baste in position.

Before laying the skirt on the ironing board, hook the waistband and keep the skirt and plaits in a straight line from the bottom of the skirt, as you press, to prevent the skirt from stretching. Dampen a clean white muslin cloth, lay it on the cloth and press every portion of the skirt and coat with a moderately hot iron until dry.

A sleeve board on which to press a sleeve is best, although if you have not one, roll a Turkish towel the full length and draw through the sleeve and press over this. In removing the basting cut the threads at each stitch to prevent wrinkling the material.—Lucy Fales.

A CONCLUSIVE ARRANGEMENT.

"We're mighty particular about table manners when we take summer boarders," said Farmer Corntossel.

"Have you succeeded in regulating them?"

"To a certain extent. We were so afraid somebody would eat pie with his knife that we decided there wouldn't be any pie."—Washington Star.

On a quiet street, the Rue de Grenelle, in the center of the Latin quarter in Paris, the National Horticultural Society of France has established headquarters and holds its floral exhibitions. This was the chosen seat of the Sixth International Congress of Free Christians and Other Religious Liberals, or "Congress of Religious Progress," as it preferred to call itself.

"I understand that you have a new motor-car." "Yes." "Do you drive it yourself?" "Nobody drives it. We coax it."—Washington Star.

"Will you please tell me where I can see the candelabra?" "All the canned goods is on the next floor," replied the new clerk.—Harper's Magazine.

Ants in the Pantry?

Do Not Suffer from This Annoyance Any Longer.

Many women suffer all kinds of annoyance from a house overrun with ants, believing there is no relief available, because they have tried various remedies without success.

All such women will be interested to know that certain and quick relief from this annoying pest is now at their disposal. A baker and candy-maker in Los Angeles—driven almost to distraction by a store overrun with ants—prepared a paste which seems to have almost super natural powers in dealing with these aggravating insects. It rid his entire shop of ants in one day; indeed, so successful did it prove that it was deemed advisable to place it upon the market for general use, in order to supply the widespread demand which was almost immediately created.

It is put up under the name of Kellogg's Ant Paste and can be obtained at all good druggists. Try a package today, and your ant troubles will be a thing of the past.

MANLESS LAND for the LANDLESS MAN

2,000,000 Acres

of Good Land Along the

Western Pacific Railway

IN CALIFORNIA, NEVADA and UTAH

Opportunities for The Man of Modest Means As Well as the Capitalist

EVERY SECTION HOLDS OUT A WELCOME

Write for Copies Our "Opportunities" and "Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH, Asst. General Pass. Agent. San Francisco, Cal.

SILVRON PUTS ON SILVER Send 10c (at our risk) for Trial Bottle of SILVRON, the Silver Polish that cleans, polishes and PLATES WITH STERLING SILVER. Send 10c. stamps or silver *today*. DARISA CO., 157 Cedar St., N.Y. BIG PROFITS FOR AGENTS

WANTED A MAN

Rawleigh's

To retail Rawleigh Products, town and country. Some good old vacant territories. Largest and best line. One of the oldest and largest companies in the world. Six Factories and Branches. All Products supplied from new Pacific Coast Branch. Quick Service. Low Freight. We want only industrious men capable of earning $100 and up per month and expenses. Must have means for starting expenses and furnish Contract signed by 2 responsible men. Address W. T. Rawleigh Company, Oakland, Cal., giving age, occupation and references.

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates From All Points Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 874.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENTS PATENT AGENCY 711 Crocker Bldg., S. F.

Circular containing 100 mechanical movements mailed free.

The Markets.

(Grain quotations are for round lots delivered.)

San Francisco, Mar. 31, 1915.

WHEAT.

The eastern market shows a little firmer tone at the moment, due to renewed export inquiry. Scarcity of ships, however, prevents any recovery in the north, and local prices are barely steady, with some further decline in forty-fold and northern red.

Cal. Club, ctl	$2.35@2.40
Forty-fold	2.40@2.45
Northern Bluestem	2.40@2.45
Northern Club	2.35@2.40
Northern Red	2.37½@2.40

BARLEY.

There has been a little interest in futures at reduced prices, but trading is not heavy, and the spot market is very quiet, with little business except for small jobbing sales of feed, at a slight decline from last week's figure.

Choice feed, per ctl	1.27½@1.32½

OATS.

Values are unchanged since last week, but show little strength, as there is very little demand and supplies appear to be ample in both the lines quoted. The Government is in the market for a large lot for the Philippines, which will probably be bought in the north.

Red Feed	$1.55@1.60
White	1.85@1.90

CORN.

The demand is much lighter than it was a month or two ago, owing to the easing of other grains and the greater abundance of many varieties of feed. Values, however, are pretty well maintained as last quoted.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80

BEANS.

The current movement continues rather light, and prices locally have again been marked down a little, though most holders are maintaining a firm attitude, and there seems to be no real weakness in the situation. In fact, the shipments of beans from California in February were well ahead of the previous year, and stocks in most lines are said to be lighter than usual at this season, with little available from foreign sources. Some of the leading dealers believe that the 1914 crop will be entirely cleaned up before the new crop comes in, and look for high prices toward the end of the season. Limas are firmly held, and stocks in consuming markets are getting very low. No garbanzas are coming in here at present, but they are nominally valued at about $7 per ctl.

(On Wharf.)

Bayos Cal., per ctl.	$5.10@5.20
Blackeyes	5.50@5.65
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	4.90@5.00
Large Whites	4.75@4.90
Pink	4.00@4.10
Limas	5.25@5.35
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

Local values are unchanged and largely nominal, with little demand for the lines quoted and no heavy offerings.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @ 3½
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

There is very little change to report, aside from a decrease in arrivals for the last week, probably due to the rain. Local business remains very quiet, and there is little indication of revival in the near future. Fancy grades of wheat and red oat hay are about the only lines for which there is any ready market, while most of the offerings in the country are of very ordinary quality. Offerings of alfalfa here are larger, and while it is moving fairly well it has been impossible to get any quotable advance. The Government is again in the market for 4,000 tons for the Philippines and Hawaii.

(Prices per ton, carload lots, on track, San Francisco)

No. 1 Wheat, per ton	$9.00@10.00
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30@45c

FEEDSTUFFS.

Business continues very quiet in nearly all lines, with prices tending downward. Rolled barley and rolled oats are quoted lower this week.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	28.00@29.00
Rolled Oats	33.00@34.00

VEGETABLES.

Considering the increasing supplies in most lines, prices are keeping up fairly well. Offerings of asparagus in particular are increasing, arrivals being reported at 8,000 boxes on one day this week, but the "grass" continues to move freely at good prices, a few of the best lots bringing $1.75 per box. Of course with such arrivals there is a surplus for the canners, who have been paying $1 or slightly over. Peas are coming in well, but desirable stock is well maintained. Strawberry rhubarb from Alameda county is now quite plentiful, and has practically shut out the crimson winter variety from other points, as practically nothing sells over $1 per box. Good repacked tomatoes are held at stiff prices. Celery is in very strong demand, and sells off readily at full prices, with fancy lots bringing up to $3; and prices for lettuce also hold up well, though offerings from the south have been large.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 @50 c
No. 2	30 @35 c
Asparagus, box	$1.25@1.75
Peas, lb	5 @ 7c
Peppers, bell, lb., large	10 @12½c
Tomatoes, repack'd crate	4.00@5.00
Celery, crate	2.00@2.50
Rhubarb, box, Strawberry	65c@1.00
Lettuce, crate	.75@1.25
Cucumbers, doz	.90 @1.10
Eggplant, Southern, lb	.15 @30 c

POTATOES AND ONIONS.

Delta stock shows a little wider range, fancy repicked lots being held at $1.40 to $1.60, while ordinary stock will seldom bring over $1.25. A few new potatoes are appearing, but are held at stiff prices. Onions are still easy, with a decline at the inside quotation, and storage stocks are moving slowly. Imperial Bermudas are appearing in the southern markets.

(Wholesale prices, San Francisco.)

Potatoes, Oregon, ctl	$1.50@1.75
Salinas, ctl	1.40@.150
River Burbanks, ctl	1.00@1.60
New Potatoes, lb	6c
Sweet Potatoes, ctl	2.25@2.50
Onions, yellow sack	60c@1.00
Garlic, per lb	.17 @20 c

POULTRY.

The market is gradually picking up, with somewhat lighter arrivals of eastern stock, and prices on several lines show more firmness. Both small and large hens are quotably higher, and the best lots of squabs sell up to $4. Belgian hares also bring a better price.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	.17 @19 c
do, dressed	.18 @21 c
Broilers, small	.30 @34 c
Fryers	.20 @21 c
Hens, extra, per lb	.20 @21 c
Small Hens, per lb	.20 @21 c
Young Roosters, per lb	.18 @20 c
Squabs, per doz	$2.50@4.00
Geese, per pair	3.00@3.50
Ducks, lb	.16@20c
Belgian Hares	9@10c

BUTTER.

Prices have shown no change whatever for the past week. Arrivals from all nearby points, as well as from the north coast, are heavy, but there has so far been a ready demand at the curent prices for all offerings. Some Siberian butter has appeared, grading about even with seconds.

(S. F. Dairy Exchange prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	23	23	23	23
Prime	22½	22½	22½	22½	22½	22½
Firsts	21½	21½	21½	21½	21½	21½

EGGS.

Extras started the week with a little advance, but this market was already considerably higher than Los Angeles, and increasing arrivals brought back the old figure. Prices are maintained by storage operations.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	21	21	21	22	21	21
Sel. Pul.	18	18	18	18½	18½	18½

CHEESE.

Supplies in all lines are very heavy, and for the last few weeks it has been difficult to clean up the current arrivals. Flats are quoted ½c lower.

(S. F. Dairy Exchange prices on flats and Y. A.'s)

Fancy California Flats, per lb	11½c
Monterey Cheese	11@12c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	23	23	23	23	23	22
Eggs	18	19	19	19	19	20
Cal. Cheese	14	14	14	14	12	11½
Flats	14½	14½	14½	14½	12	11½

DECIDUOUS FRUITS.

A good many strawberries have appeared during the week, including some very nice stock from both southern and nearby points. Arrivals at the moment, however, are in poor shape owing to the rain, and move rather slowly, with prices tending downward. Apples are neglected and weak in value.

(Wholesale prices, San Francisco)

Strawberries, Southern, crate	$1.00@1.75
Apples, Newtown Pippins	40@80c
Belleflowers	25@50c
Baldwin	50@75c

DRIED FRUITS.

The dried fruit market remains rather slow and without much feature, as buyers through the east have so far shown little interest, while offerings in growers' hands, except in peaches, are very light. Packers also find their stocks running low, but there are a good many odds and ends that they are anxious to clean up, which probably accounts for the slightly concessionary attitude as to prices noted in some lines. As for evaporated apples, there is less demand than a while ago, while the fresh fruit is very cheap, and there is talk of evaporating a lot of the surplus storage fruit. There are practically no apricots left in growers' hands, and only a few scattered holdings of prunes, which should bring better prices before the season is over. Apricots promise not over 75 per cent for the new crop; but the prune crop is uncertain, and future sales at low prices mean little. Peaches are moving only in a very small way, and will hardly bring over 3½c at the outside. The raisin situation is even more completely under the control of the Associated than before, and there is no question of a cleanup of the last crop at firm prices. The New York Journal of Commerce says: While there is continued inquiry for future California prunes from buyers at this end, little business results, as the latter are not disposed to meet the stronger views of shippers, as indi-

Removal Notice!

After April 1, 1915, our offices will be in the Insurance Building, California and Battery Streets, San Francisco, California.

California Almond Growers Exchange.

California Farms Orchards Dairies

For Sale Rent or Exchange

LAND FOR SALE.

FARM OWNERS—ask for special rates in this department.

OVERLOOKED AND COVERED UP Government Land near [illegible] scattered out and put on good County Sectional Maps. You have heard of others getting remarkable overlooked bargains. YOU R TURN NOW to get [illegible] of government and Cos. Lands. State [illegible] County Sectional Maps with BARGAINS PLAINLY MARKED, $2.50, any County. Personal checks [illegible]. Write Joseph Gleck, Searcher of State and U. S. Records, 1541 K St., Sacramento.

26¼ ACRES in Santa Clara Valley, near Saratoga, mostly in young prunes and apricots; some bearing prunes; one acre in citrus. Pumping plant, plenty of water. Fine building site, view and climate unsurpassed. New barn, poultry houses and cabin. ¾ mile from steam and electric cars; 1½ hours to San Francisco. Full particulars from Owner, care Pacific Rural Press.

250 ACRES NEAR SONOMA CITY, large portion level (now in crop), balance rolling, fine pasture, some wood, well, never failing spring, etc. This is a particularly good location (42 miles from S. F.) for a whole milk dairy. Price, $12,500, on very easy terms. R. C. Waller, 625 Market St., San Francisco.

CALIFORNIA LAND—Money-making little farms. High class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F.

A BARGAIN—10½ acres orchard in bearing, 4 years old. Fine location 1½ miles from Hughson on Santa Fe. Six miles from Turlock. Ten miles from Modesto. Good terms. Address Turlock Nursery, Turlock, Cal.

FOR SALE—Three mountain ranches in Calaveras county. Apply A. M. Davis, Esmeralda, Cal.

238 ACRES—Mendocino county; 1 mile from R. R.; 200 a. level valley, loam soil; 180 a. cultivated, abundant water; 5 a. in young orchard, fenced against pest, [illegible] barn, chicken houses, horses, cattle, hogs, chickens and all wagons, tools, implements, etc. $17,000. D. E. BESECKER, 101 Post St., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, hog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97, Salinas, Cal.

FOR SALE—20 acres of best sandy loam land. 18 acres in alfalfa, four room house, good barn, cream house and good well, all fenced. Near good school, abundance of water. 4½ miles of Modesto. Address: Route 1, Box 30, Modesto, Cal.

20 ACRE DAIRY FARM, house, barns, outbuildings, 18 acres alfalfa, family orchard, 15 good dairy cows, one registered Jersey bull, 14 young stock. Will sell with or without stock. Write for terms and price. R. R. 1, Box 13, Orland, Cal.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

FOR SALE—40-acre ranch. 34 acres alfalfa, remainder in grain. Good buildings, fences, good soil, abundance of water. Fruit and shade trees. For particulars, write to John Walter, Dos Palos, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

cated in telegrams received here within the past two or three days. Representatives of prominent packers declare that bids of less than a 4c f. o. b. four-size bulk basis on assortments covering 40s to 60s for early October shipment will not be accepted, while most buyers' views are not above 3½c.

While trade in spot prunes of both California and Northwestern origin continues slow, there is less pressure to sell, and it is considered to be doubtful now that any holder would be willing to shade the inside quotations on the several sizes. The demand for Northwestern Italians and also Californias from the East Side is reported to be far below normal, the approach of the spring Jewish holidays seeming to have had little influence upon it so far.

Similarly the spring demand for loose muscatel raisins from that quarter is unusually light, while the ordinary distributing trade appears to be buying these grades and also seeded stock sparingly.

There is no demand to speak of from the trade at this end for forward shipment apricots or peaches and spot trade is still light, though with the approach of warmer weather holders are hopeful of a better movement. Consequently they are disposed to keep prices closely up to the present basis.

Evap. Apples, 1914	5 @ 5½c
Apricots, 1914	6 @ 8½c
Figs: White, 1914	3 @ 3½c
Black	2½ @ 2¾c
Calimyrna	5 @ 6 c
Prunes, 4-size basis, '14	5 @ 5½c
Peaches	3 @ 3½c
Pears	6 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

Citrus fruit shipments from southern California for the season up to and including March 28th, were 14,736 cars. Shipments have been going out at the rate of over 200 cars daily, mostly under ice.

The eastern auctions have been higher for oranges and no change on lemons during the past week. At New York on Monday, March 29th, forty-nine cars of oranges were auctioned and prices averaged from $1.35 up to $3 per box. Lemons brought $2.15 to $2.60. Twenty-four cars were sold at Boston the same day at prices averaging from $1.75 to $2.50 per box. Other auction points paid about the same prices as the above. Chicago averaged from $1.90 to $2.40. Floridas brought $2, with but little fruit on the market.

Oranges are moving off very well in the San Francisco market, with prices standing as before. Ordinary lots of grapefruit are offered more freely, causing a slight cut in the inside price, though fancy stock is well maintained.

(Wholesale prices, San Francisco)

Oranges, navel, box	$1.00 @ 2.10
Tangerines, small box	75c @ 1.75
Grapefruit, seedless, bx	1.25 @ 2.00
Fancy	2.50 @ 3.50
Lemons, box	1.50 @ 2.50

NUTS.

The Almond Association is now about cleaned out, and a few scattered sales have been made in other quarters, though there is no very urgent demand at the moment, especially for mixed or ungraded goods, and prices are quoted a little lower than for some time past. Walnuts are quiet, but there is a fair demand for fancy grades, which are scarce.

(Prices f. o. b. San Francisco.)

Almonds, 1914 crop:	
IXL	14½c
Ne Plus Ultra	13½c
Drakes	12½c
Texas Prolific	12½c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½ @ 14 c
Manchurian	7 @ 9 c

HONEY.

Values show no further change. Some business is being done at the recent decline, but the movement is not sufficient to reduce holdings very rapidly, especially of the ordinary grades.

(Prices on cars, San Francisco.)

Water White, comb	10 @ 12 c
Light Amber	8 @ 10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

No quotable change has been made since last week. Beef cattle continue rather easy, with liberal offerings of heavy beef cattle, though a better demand is expected soon. Hogs are also in sufficient supply, while sheep and lambs are coming in slowly and prices are firmly maintained.

(Prices at Butchertown, S. F.)

Steers, No. 1	7 @ 7¼c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1	6 @ 6½c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 6 c
Calves: Light	9 @ 9½c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7¼c
100 to 225 lbs	7½ @ 7¾c
Prime Wethers	7 @ 7½c
Ewes	6 @ 6½c
Yearling Lambs	7¾ @ 8 c
Suckling lambs	8 @ 9 c

DRESSED MEATS.

Steers	10¾ @ 11½c
Veal, large	13½ @ 14 c
Small	15 @ 15½c
Prime Wethers	13 @ 14 c
Ewes	11½ @ 12 c
Yearling Lambs	14 @ 15 c
Suckling Lambs	16 @ 17 c
Hogs	12 @ 12½c

WOOL.

Only one sale of any consequence has been reported so far. That was made to an eastern buyer, at a price said to be above the present value, and buyers are now holding off in expectation of lower prices, while growers have not materially changed their views. Predictions of lower prices are based on the large importations of Australian wool, a large amount of which is being shipped east from here.

Spring clip, San Joaquin, lb... 20¼c

HORSES.

There seems to be no urgent demand in the city, but offerings of heavy drafters and other types best adapted for local use are not excessive, and most shipments to this market are sold out readily at fair prices. There is an increasing demand in the country, and a rather stronger market is expected in the near future.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275 @ 300
Light drafters, 1550 to 1650 lbs.	175 @ 200
Chunks, 1350 to 1500 lbs	150 @ 175
Wagon horses, 1050 to 1350 lbs.	100 @ 140
Green mountain range horses, 950 to 1200 lbs.	50 @ 90
Farm workers	60 @ 75

MULES.

1200 lbs. and up	$225 @ 250
1100 lbs.	200 @ 225
1000 lbs.	150 @ 175
900 lbs.	125 @ 150

HIDES.

Extreme values have prevailed for some time past, but the market has slumped within the last few days, bringing prices back to about the same level as they were some months ago.

(Country hides, delivered S. F.)

Heavy Steers, over 56 lbs	15 @ 15½c
Medium	15 @ 15½c
Light Steers, under 48 lb.	15 c
Heavy Cows, over 50 lb.	15 @ 15½c
Light Cows, 30 to 50 lb.	14½ @ 15 c
Kip	15½ @ 16 c
Veal	18 @ 19 c
Calf	18 @ 19 c
Dry Hides	25½ @ 26½c
Dry Kip, 10 to 15	24½ @ 25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

Fruit and Produce Raisers Take Notice

PARTIES ON RANCHES who are producers of selected choice fruits, vegetables, table poultry, etc., who might be interested in marketing their products direct to consumer on a profitable basis, should Address

F. L. DARROW,

1605 Telegraph Ave., Oakland, Cal.

Publisher's Dep't.

The following excerpt from an editorial in the Breeders' Gazette of Chicago tells of difficulties met with by other papers who are doing business in a legitimate way:

"There are at least "fifty-seven" different varieties of lemons under the guise of farm newspapers being handed the rural districts by gentlemen who are adepts in the game of slipping their necks out of Uncle Sam's noose. Honest competition we do not fear, but much of the competition which The Gazette and other journals of its type try to meet as best they can is not a sort which a cleanly conducted newspaper should have to face. We understand that it is one of the duties of the newly-created Federal Trade Commission to prevent unfair methods of competition, and give all an equal chance at business on a fair footing. A ripe harvest therefore seems to be awaiting the commission in the farm newspaper field."

The Rural Press has the same conditions as the above to overcome in its field. Very few farm journals are conducted along the high plane of service to its subscribers and the betterment of agriculture generally. Many of them are in existence purely as advertising media—the more circulation they can give away the more money they make.

The Rural Press believes that its first duty is to be of service to its subscribers who are agriculturists. If the producers are prosperous the nation will prosper and forge ahead. To issue a sheet that will carry business only to exploit agriculture is not the mission of this or other reputable journals.

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

CLASSIFIED ADVERTISMENTS

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING instruction book free. Explains honey production, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Gill Ave., Nordhoff, Cal.

WANTED.

POSITION WANTED—Ranch Manager, Superintendent or developer, possessing eight years' practical California experience, applying the practical portions of the scientific side of the work of general agriculture and its constructive and engineering features. Credentials. Box 47, Pacific Rural Press.

A SOBER, industrious, reliable middle-aged German wants light work of any kind; wishes to make himself generally useful; all-around handyman and willing worker; good home preferred to big wages. City or country. Box 52, Pacific Rural Press.

WANTED—Position as superintendent. Advertiser has had many years of practical experience in orchards, vineyards, dairy, and alfalfa farming, with all kinds of labor. Reference. Box 241, Modesto, Cal.

WANTED—Man with family to take charge of ranch in Oakdale irrigation district. Alfalfa, young orchard, beans. Address; Box 49, Rural Press.

LANDSCAPE GARDENER Flowers, Fruits, Vegetables. 15 years' experience in California. Wants position, private place, or institution. Box 50, Pacific Rural Press.

FIREMEN, BRAKEMEN WANTED—All railroads, $120 monthly. Experience unnecessary. Railway Association, care Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco

TREES AND NURSERY STOCK.

FOR SALE—Burbank's genuine spineless cactus of the best forage varieties. Large selected slabs in quantities to suit; prices packed F. O. B. cars, Napa, $10 per hundred, $42.50 per five hundred, $75 per thousand. Special prices on lots of five thousand or more. William Watt, Napa, Calif.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

CITRUS TREES Lemons, Grape Fruit, Oranges These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

GENUINE FRANQUETTE GRAFTING WOOD for sale Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

TREES—TREES—Have about 1500 Navels, 1000 Valencias and 500 Eureka Lemons. All buds, carefully selected from best bearing orchards. Having sold ground must move trees at a sacrifice. ½ inch and up, balled f. o. b. at station, Azusa, $25 per hundred. Address J. C. Johnson, Azusa, Cal

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

GENUINE BURBANK Spineless Cactus, improved prolific growing varieties, large slabs, $10 per 100 and $75 per 1000 slabs. Place your orders now. Address DARROW-WINCHESTER CO., 1605 Telegraph Ave., Oakland, Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

WALNUT TREES—Late blight-resisting varieties, grafted and budded on California black and hybrid roots. Eureka, Franquette, Mayette, Neffs, Prolific, Concord and Placentia. Dr. W. W. Fitzgerald, Elks Building, Stockton, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color 17c per pound. F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

CLING PEACHES in quantity, 3 to 4 feet at 15c. Also Lovell and Elberta, 4 to 6 feet at 10c; 3 to 4 feet at 8c. We have a full line of fruit and ornamental trees. Price list free. Turlock Nursery, Turlock, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

SOUDAN GRASS SEED—The wonderful new forage. Reliable seed. Reasonable prices. Responsible grower. T. W. Buell, Krum, Texas.

BURBANK SPINELESS CACTUS—$100 per 1000; $15 per 100, 20c small lots. E. E. Guilbert, R. 4, Turlock, Cal.

BEFORE YOU PLANT OLIVES, cactus or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

RHUBARB—Crimson Winter, $3 per 100, Good, strong, one-year plants. Currier Bulb Co., Seabright, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING. Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept D., 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

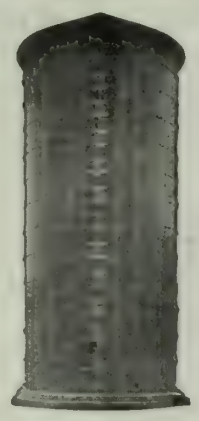
FOR SALE—One model No. 7 Simplex Turbine Separator and all equipments. All in first-class condition. Write Pitcher, Pedrini & Kimball, Occidental, Cal.

WINDMILL FOR SALE—16-ft. Power Aeromotor with 40 foot steel tower. A1 condition. Cheap. Address Ogden Bolton, Jr., Santa Rosa, Cal.

FOR SALE—About 100 tons of choice baled alfalfa hay; also 35 tons of choice red oat hay in the bale. Address Box 57, R. R. 2, Modesto.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS,
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

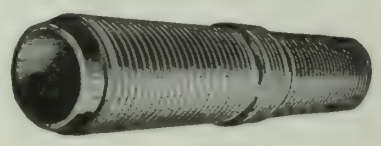
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR
CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

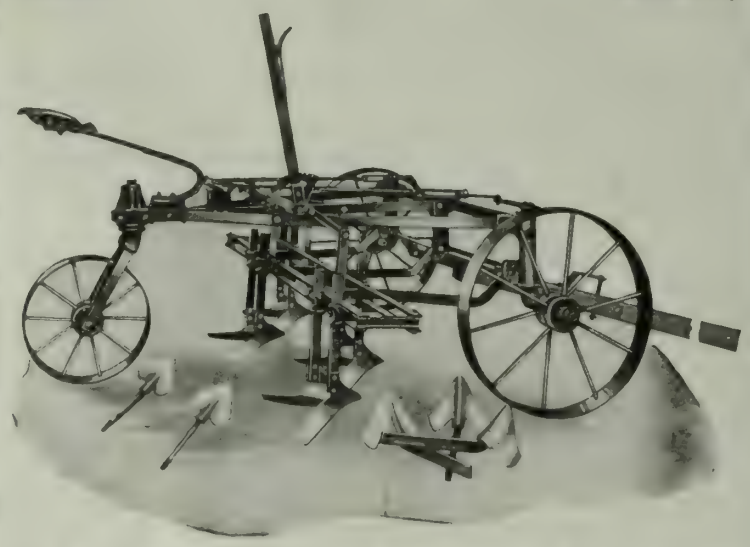
ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

Killefer Beet and Bean Hoe Cultivator

Killefer Quality — Killefer Efficiency



Our 1915 model is made of the best material and is the strongest Beet and Bean Cultivator for sale on the Pacific Coast.

STRONG STATEMENTS?

Yes, they ARE strong and we will back them up in every particular.

The frame is made from one continuous piece of steel, trussed to the main castings, which support the front wheels. With no joints in the entire width of the frame, it is impossible to break or spring in the center and the wheels are always in line and under control.

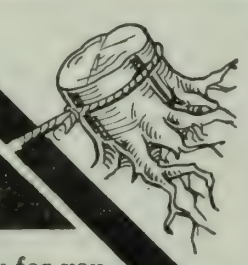
The lower frame or tooth bar is from high carbon steel with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows, and is adjustable to conform to the weight of the driver. The foot control of the front wheel is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns.

An important item for the beet grower is that the sweeps, hoe steels, chisel points and all repair parts are carried in stock. You do not have to wait for them to be sent from the Eastern Manufacturer.

The Killefer Manufacturing Company

2221 SANTA FE AVENUE, LOS ANGELES, CAL.

GET THE STUMPS OUT



and make those idle fields earn money for you

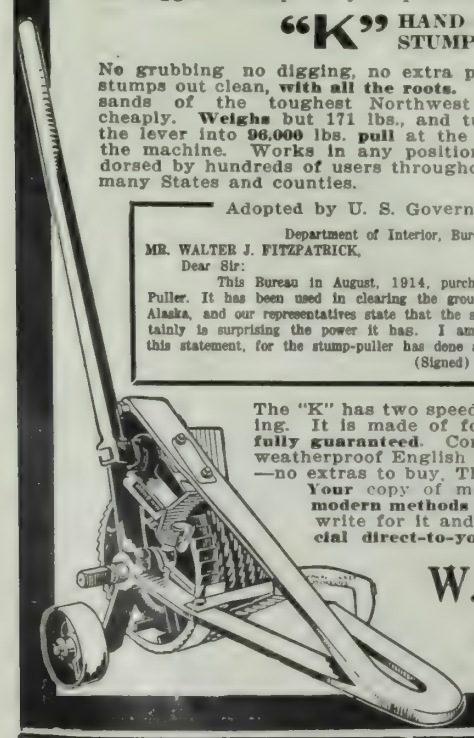
Don't make hard, expensive work of it—get the stumps out in your spare time, without paying for a crew of men or taking your horses away from other work. One man can pull the biggests stumps on your place with a

"K" HAND POWER STUMP PULLER.

No grubbing no digging, no extra pulling—the "K" gets the stumps out clean, **with all the roots.** The "K" has pulled thousands of the toughest Northwest stumps—quickly, easily, cheaply. **Weighs** but 171 lbs., and turns 100 lbs. pressure on the lever into **96,000** lbs. **pull** at the stump. The power is in the machine. Works in any position. Absolutely safe. Endorsed by hundreds of users throughout the U. S., and used by many States and counties.

Adopted by U. S. Government in Alaska.

Department of Interior, Bureau of Education, Alaska Div.
MR. WALTER J. FITZPATRICK, Feb. 27, 1915.
Dear Sir:
This Bureau in August, 1914, purchased one "K" Hand Power Stump Puller. It has been used in clearing the ground at Hydaburg, and at Klawock, Alaska, and our representatives state that the stump puller is a wonder. It certainly is surprising the power it has. I am very pleased to voluntarily make this statement, for the stump-puller has done all that we required of it.
(Signed) H. SINCLAIR, Supply Agent.



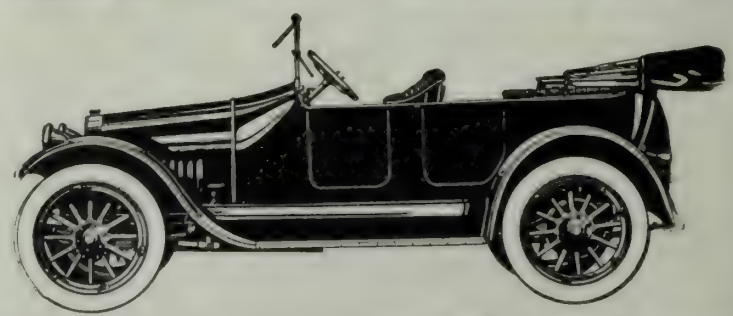
The "K" has two speeds, for light or heavy pulling. It is made of forged Krupp steel, and is **fully guaranteed.** Comes complete with 200 ft. weatherproof English steel cable, ready for work—no extras to buy. The "K" will pay for itself. **Your** copy of my **new big free book** on **modern methods** in **land clearing** is ready—write for it and get the **limited time special direct-to-you prices. Do it today.**

W. J. Fitzpatrick

Box 32, 1926 Second Ave.
SEATTLE, WASH.

Mitchell

Light Four $1250 — Special Six $1895
Light Six $1585 — Six de Luxe $2350



Cars that are the present sensation in the Automobile world. Unequaled in artistic appearance and superior construction.

Osen-McFarland Auto Co., 661 Golden Gate Ave., San Francisco.

"California Garden Flowers"

By E. J. WICKSON — $1.50 Postpaid — PACIFIC RURAL PRESS, Publishers

Vol. LXXXIX—No. 15 Forty-Fifth-Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, April 10, 1915 LOS ANGELES

State Library South F. S. 10-11-14

Plans for Citrus Experiment Station.

[Written for Pacific Rural Press.]

The problems of California orange growers have only recently begun. Until last winter, twenty-five acres at Riverside and two or three small scattered stations in the South, besides what private orchards might be enlisted in the cause, were considered plenty for study of citrus growers' problems. This was especially so on account of the generally recognized intelligent character of the citrus growers, who perform many experiments themselves. However, of late, the problems have become too involved, too widespread and serious, for solution by practical experiments unaided and unguided by scientific planning and scientific laboratory work in connection.

Present Equipment Inadequate. — So there has been a compelling demand for a citrus experiment station with sufficient ground and equipment of its own to solve the problems which are driving many citrus growers out of business and crippling others. The present equipment has been used with all the advantage possible, but its area has been too restricted. To be sure, insects and diseases have been studied wherever they occurred, usually using the laboratory at Whittier as the headquarters. But no diseases, of course, could be brought to the Experiment Station for study because that would endanger all of the experiments now on, many of which require years before definite conclusions may be obtained.

AN ORANGE COUNTY VALENCIA ORCHARD.

This most profitable variety is at home in Orange county, and is the one most generally grown. Their output is in the neighborhood of 5000 carloads of oranges shipped from the winter holidays until October. It is to save and develop such orchards as the one illustrated, for all citrus varieties in proper locations all over California, that the Citrus Experiment Station will devote its increased facilities.

Five investigators have been working on plant diseases, bacterial and fungus, with headquarters at Whittier, and three have been studying insect problems. Whenever new plants are brought to the Experiment Station grounds, they must be inspected by four or five people, fumigated, dipped, etc., and inspected at least once a month until there is absolute certainty that no pest has been imported. The utmost caution is always used even to the defoliation of the trees.

Three Major Experiments at Old Station.—At the Riverside Experiment Station there have been three major lines of experiments. One is in regard to the relative value of the root stocks; another is with fertilizers applied in all of the combinations possible, each plat being separated by one row of trees which was not treated at all; the third major experiment has been on cover crops, though this has had to be carried on largely in open fields. The results which have been attained from these experiments will be published later in the Pacific Rural Press as they are available.

Requires Years to Solve Problems.—The restricted area has handicapped the solution of problems; but the recent legislative appropriation, supplemented by citizens and the city of Riverside, have provided nearly 500 acres and $125,000 for the buildings. Plans are being laid on most elaborate lines for the most exactly controlled citrus experiments in the world on all the problems confronting citrus growers. In carrying out such experiments, it is necessary to own the place permanently so that experiments which require many years may be carried on to satisfactory conclusions. For instance, trees on the fertilized plats at the present station are only eight years old; the first seven years on some of the plots seemed to lead to a certain conclusion in regard to certain combinations of fertilizers, but the last year indicated a probable need of revising these conclusions as the trees grow older. One experiment was started in a private orchard some years ago, but the owner sold out and the experiment had to be dropped, losing the benefit of most of the work done.

All Headquarters at New Station. — The keynote of the newly enlarged Experiment Station, according to Dean H. J. Webber, is to determine the optimum conditions for growing the various types of subtropical fruits, especially citrus. Headquarters of all the scattered stations and experiments on these problems will be concentrated at the new Station on the opposite side of town from the present station, though the present experiments will be continued.

Plans are now being worked on by architects for the buildings; and the grounds are being laid out for irrigation, so that the

(Continued on page 448.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertisng copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., April 6, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.38	39.33	39.52	68°	50°
Red Bluff...	.54	31.64	21.84	70	46
Sacramento.	.04	13.96	17.41	70	48
S. Francisco.	.19	23.62	19.92	70	50
San Jose....	.18	18.90	14.96	72	48
Fresno.....	.02	9.10	8.38	74	46
Indep'nd'nce	.00	2.92	8.29	74	..
S. L. Obispo.	T	23.77	18.29	76	42
Los Angeles.	T	15.35	14.23	82	52
San Diego..	.01	12.94	8.98	70	52

The Week.

The Panama-Pacific Exposition holds to its bright way unceasingly: each day unfolding new attractions to its constantly changing constituency; each night its electric displays disclosing new brilliance on the Golden Gate, beside which it sits supreme. It is evident that the metropolis will lose a gem when its light fades next December, and even in the uttermost parts of the world people are exhorting each other not to let such glories pass without sight of them. Writers for Eastern journals seem to vie with each other in accounts of how deeply the joys of the Exposition may be had by those who know how to deny themselves and others. It is not, they say, a luxury for the rich alone, even if they do blow in in their New York yachts via the Panama canal. It is an Exposition for the education and delight of whosoever will. Personal experience is, of course, what counts in these letters to distant journals, and such is being freely indulged in by the writers to whom we refer. The limit, so far as we have observed to this date, is the correspondent who reached San Francisco with a clean shirt and a five dollar piece and had no trouble staying a week without changing either.

Californians do not take exactly this view of the Exposition, but they are rallying to it and helping it to impress visitors by a perfect maze of celebrations and exhibitions, thus giving a local color and atmosphere without which the creations of the great architects and artists in form and color would be chilly and abstract. The Fair is a concrete demonstration of California life and character, and this heightens the delight in everything else. We are glad to see that this disposition of Californians to concentrate interest and effort at the Fair is increasing. It was a very wise thing which the State Board of Agriculture did the other day, viz.: to omit the State Fair this year and petition the Legislature to amend the State law to enable the Board to distribute prizes and make awards on California's exhibits and displays at the Exposition. It is planned to call that period over which the distribution of the Agricultural Board's awards will extend, State Fair days at the Exposition. The California building, with the best that the State has to exhibit, is the best possible setting for the usual pavilion exhibits and the great live stock outfit will furnish forth our live stock entries in splendid form. It looks to us as though, instead of having no State Fair, we might have the greatest ever in this way.

The Pacific Coast Kind of a King.

We are not quite sure whether the antique sages ever said that a great war is sure to break kings and to make kings. If not, they certainly lost a good chance to get between quotation marks, for it does look as though such a declaration would fit the present potentialities—as it were. However, we do not care much for kings, as such, and do not care if they all go broke; which they will not, probably, for we read the other day of a certain royal bunch which had sent seventeen million dollars to this country to be blown into American real estate and securities for their joint account. They are evidently laying up treasures where royal moth and rust do not corrupt. If they would come to California both the kings and queens might become aldermen and alderwomen—which is more than they are now sure of in Europe. But if the war is to make kings as well as break kings, then we are content also, for the Pacific Coast has helped to fit out a man who is every inch a king—and he has seventy-five inches to qualify on. And this means, that if it comes to measuring men for the general managership of the European Monarchies Consolidated, which may result from this war, then Albert of Belgium has the call on the job. From the American point of view he has the goods for it; and we say this without the hope of getting a touch on his press bureau either. We take particular interest in Al, because the Pacific Coast helped to give him his depth and breadth of view in the humanities; also because in his ordering for the future of Europe he would be sure to remember our canned goods, prunes and dried 'cots. Lest some of our readers may not have had a chance to slap him on the back while he was a Pacific Coaster, we are going to quote a portrait-sketch, which will help them to remember him. It also gives Albert a chance to speak for himself, which is the American essential in candidature. In the course of an interview, a reporter spoke to the king of the affection in which he was held by the Belgian people. The king smilingly said:

"You see my people know me and I know them. I have had advantages few men in my station can ever enjoy. I have traveled freely and mixed with all men, and I know how people live and think. When I was in Seattle and along the Pacific Coast I lived just like any other citizen, and in my own country I have seen for myself and been able to compare the manner of living in our industrial and producing centers. I know what it is to drive an engine and to work in a coal mine. Only those who work can be really happy."

Surely, if the world has any farther use for kings and emperors, Albert is the man who has the thoughts and acts which will last, and he particularly designates the Pacific Coast as the place where he met his awakening.

Labor Distribution in the Middle West.

It looks like a very rational movement which is beginning in the Middle West to handle the migratory harvest labor, humanely and systematically rather than in the old way, which has been by hazard and hardship ever since the central regions became great in grain. The organization, which seems not as yet to have found a name, is composed of the State employment departments and State agricultural boards of the twelve big Western wheat States—Missouri, Kansas, Minnesota, Iowa, Nebraska, Oklahoma, Texas, North Dakota, South Dakota, Wyoming, Colorado, and Montana. The organizers hope to extend the work to every State in the Union. The sole object of the organization is so to mobilize the great industrial army of 100,000 men in the grain-raising States that the movements toward the wheat fields of the country will not in any way interfere with each other, but that the entire force will be concentrated in the districts where men are needed for the work.

The workers will be taken to the Texas fields when the grain begins ripening, early in June. As the harvest extends northward the harvest hands will keep pace with it, and when, late in August, the wheat of Northern North Dakota and Minnesota is ready, the big army of harvesters will be on hand to gather it before the early frosts damage the grain. Theoretically, it is a great idea, and if leadership, and financing are good, it may be a great success.

Rural Credit Warming Up.

Our readers are evidently overcoming their shyness on the subject of rural credit, and are writing up to it like men. When you want something sharp you are advised to kick over a beehive. That is what Mr. La Porte did in our issue of March 27. By a few well-directed kicks he stirred our readers to wide-awakeness, while our exhortations for a couple of years have only lulled them to more complacent snoring. He has brought them to going some; something elsewhere in this issue, something in the next, and so on. We do not care what they think or what they write, if they are only brief and pointed about it. We do not care if they say, as one reader does in this issue, that they want the money straight from the government. If they do not say what they want, they will not get it in that way nor in any other way. And there are other people outside of our parish who are saying something of the same kind. It is telegraphed this week from Washington that government aid to farmers on farm mortgages will be interposed by a group of representatives in opposition to any other plan of rural credits at the next session of Congress. Speaking for this group of Congressmen, Representative Henry of Texas said: "We will fight any proposition from the congressional joint committee on rural credits that does not provide for the two fundamental propositions of government aid and a banking system for the farmers separate and distinct from the federal reserve system. We have polled all the members of the House and count on enough, with the new members, to carry these proposition overwhelmingly. We carried them four to one in the last

House. There is no doubt about the result."

We do not say that we consider these propositions either wise or practicable in this country. We will talk when we get ready; just now we are simply trying to sick the people onto the subject. We will say, however, that practically all European systems of rural credit have government aid in some form, and they all are operated through banks either established or endowed for that purpose and different in point of view and policies from the regular banking institutions under private ownership and capitalization. Now keep on going to it; staccato, as the musicians say, and which means like a stack of cats.

Farms as Public Utilities.

It is of course unfair either to praise or condemn the warring nations of Europe for imperious acts which they may commit under stress of present circumstances, but without doing that it is timely for the American land-owner, who has grown up to believe that he has a right to do what he will with his own so long as he keeps his title clear, to keep thinking of what rights might fade from his view, if he allows himself to drift too far toward nationalistic notions. If he throws himself too far into the Abraham's bosom of government credit, is he not likely to slip down into Abraham's lap of national ownership, and become thereby not a sovereign citizen but a public utility man? That is worth thinking about, for it is the position in which millions of European farmers now find themselves. It is not much of a shock to them because they have always been the playthings of their overlords, but for an American citizen it surely would be fierce. This is the way of it, as described by cable since our last issue: "The Federal Council has voted to adopt measures to insure the cultivation of the parts of East Prussia which were devastated by the Russians. Each land owner will be required to report to the local authorities whether he will be able to plant and cultivate his land. If unable to do so the authorities will undertake the task for the public account, paying for the use of the land or not, as they desire."

We are not criticising the action of the government in this matter: under the present conditions it may be a token of supreme efficiency, and it will give the prisoners something to do, growing crops on privately owned lands for public account, and paying the owner for the use of the land as they may desire. It is exercising the right of eminent domain without fussing with the courts. It is true that we do not have to go to the other side of the world to get a shock for our old belief that the government is best which governs least. It really looks as though a Californian might lose the right to pull on his shirt foreside aft, if he desires to. But while we are thinking about the matter of calling upon the government to do everything for us, it is well to consider even that. Do you desire to operate your farm as a public utility?

Queries and Replies.

Querists must give name and address.

Times for Budding and Grafting.

To the Editor: Please tell me through your columns the proper time to graft and to bud almonds, walnuts, peaches and plums.—F. A. P., Hughson.

The time for budding all deciduous trees is from maturing of good buds on the new wood (which begins with some kinds in June) all through the summer until the sap flow decreases so the bark of the stock does not lift freely. This latter condition may continue until September with some kinds in sufficiently moist soils. The time to graft begins after the fall of the leaves and continues until they start again—the easiest time being just before the buds swell for the new growth. This is a general statement. Particular applications of it to the different kinds of fruits and nuts and the methods which succeed best, are given in detail in "California Fruits and How to Grow Them." Success in budding and grafting consists in knowing all these details and in having learned by experience how to make use of them.

Chestnuts in California.

To the Editor: What about the commercial possibilities of chestnut culture in central California? Are there any large groves in the State, and how does the Japanese chestnut compare with the European? Is the chestnut exacting as to soil? Would light, sandy loam be suitable for their growth?—J. W. D., Aptos.

There may be said to be more possibilities than achievements so far. There are no groves which could be called large. Plantings must be considered scattering and the total acreage exceedingly small. In the foothills of Amador and on the plains of Merced county there are probably more trees than elsewhere, and the Italian people of Amador county have produced most nuts of the so-called Italian or Spanish variety. There is very little demand for chestnuts—just enough to keep the chestnut roasters of the San Francisco street corners busy, seems to measure the demand. The Japanese chestnut is most apt to bear and least valuable when you get it. It is a very large coarse nut, which may be of some value in pork making in the acorn districts. The chestnut trees of vigorous varieties grow well and make handsome trees for shade and ornament in many places, but their bearing is very shy. Maybe they will behave better when they get older. We see at present very little reason to consider the chestnut a commercial proposition.

Oxalis in Lawns.

To the Editor: Please tell me how to eradicate sour grass or oxalis from my lawn, and what the soil needs.—Subscriber, Morgan Hill.

We know no particular way except to keep pulling it out, lifting or loosening the sod with a table fork at each spot so that you get all the roots of the weed when you pull. Theoretically the use of lime is held to be discouraging to the growth of the plant. It will, however, kill the grass if you use too much.

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Concrete Cement

The first cost is the last cost.

CONSERVATION OF IRRIGATING RESOURCES

TIME, WATER and MONEY

is accomplished by the

Armco Iron Flume

(Lennon Type)

It is quickly and easily erected; absolutely water-tight and efficient, and of the **Longest Service Life**, because made from

AMERICAN ARMCO INGOT IRON Armco Iron AMERICAN ARMCO INGOT IRON

Write for the evidence as to the rust-resisting quality of this material and for all particulars of the **Armco Iron Flume.**

CALIFORNIA CORRUGATED CULVERT CO.

417 Leroy St., LOS ANGELES 406 Parker St., BERKELEY

Organizing the San Joaquin for Co-operative Fruit Retailing.

[Written for Pacific Rural Press.]

The success of the Tulare County Growers' Association has been frequently noted in our Agricultural Review columns. The past season they have packed 2500 tons of fruit, beginning with apricots about June 1, and packing both free and cling peaches, and a few special orders of Green Gage plums and Muscat grapes, ending the season about March 1 with olives.

There were about 400 people on the pay-roll at once last summer, receiving about $2500 a week, according to Secretary H. L. Pomeroy.

The association was organized and incorporated on a non-profit basis last May to care for the deciduous fruits of the district between Porterville and Exeter, where there was no local market for canning varieties.

When it became known that the organization was selecting a site for its plant, popular subscription and the city of Porterville provided money for a specially convenient site near the railroad and the city, and on the river bank. Then local people bought $10,000 worth of $100 bonds, $1,000 of which are to be retired annually.

Growers joined on an acreage basis, as noted in Manager Vernon Campbell's communication. With the money so subscribed, a $25,000 cannery was built and equipped, and Mr. Campbell, who owns a cannery in Tulare, was engaged to handle the business.

The first part of the crop had to be canned on the capital subscribed, but with some apricots in the warehouse, the banks loaned money on warehouse receipts, these loans to be repaid before growers should be paid for their fruit.

We publish Mr. Campbell's letters regarding the organization and the cost of producing and marketing the canned fruit, as well as the bill now before the Legislature, which Mr. Campbell feels will be a great help in solving the intrastate marketing problems for the farmers of California.

A Growers' Canned Fruit Organization.—With reference to our organization methods, none but growers can become members. Eleven directors are elected, from which three are selected as an Executive Committee who have direct charge of the business. The committee may be called at any time by the president. The Board of Directors meets as a body quarterly during the year. The general management of the business so far as standardization of packing, purchasing of supplies, marketing of products and financing is concerned, is in the hands of the central organization.

Acreage Ratio for Finance.—For the purpose of equipping the plants, the growers either pay in cash or give their notes for $35 per acre, covering each acre to be served. Ten dollars of this money goes to the central organization as a permanent Capital Fund.

Generally the growers give their notes payable out of the first returns from the crop. The member may withdraw during April of any year. In the event of withdrawal he is repaid $25 per acre covering the amount of his investment in the plant.

A sinking fund is provided amounting to 5 per cent a year until the sum of $65 per acre is accumulated. This money goes into the "Association Fund," which is handled by the central organization, being used for packing purposes and for advances to the growers on their fruits. Each member receives returns according to the quality of his product, which variety of product being carefully graded, the grower is paid all that is received for his fruit less the cost of manufacturing and marketing.

We need an organization in the Sacramento valley to furnish pears and cherries and some lines of vegetables. This is a big undertaking and we do not expect to reach the goal for several years, but it is certain we will eventually accomplish our purpose. **Vernon Campbell,**
Mgr. Tulare Co. Growers' Ass'n.

Growers Can Can and Retail Fruit.

To the Editor: I acknowledge receipt of your favor of the 18th. I am perfectly willing to give you any information you desire regarding the Tulare County Growers' Ass'n. and its purposes, but my time being entirely taken up with the work, I prefer not to write an article.

Any effort which your magazine may make toward furthering this co-operative movement will, of course, be greatly appreciated by those who have put their shoulder to the wheel in the effort to make it a success.

As you are aware, the great problem before the California fruit grower is the one of marketing. It is costing two or three times as much to market California fruits as the grower is receiving for the finished product. There are many co-operative organizations of growers throughout the State handling different products through their own packing houses, but this is the first strictly co-operative canning association in this State of which we have any knowledge.

Canned Fruit f. o. b. Cost $80 Ton.—This year there will be four, possibly five, co-operative plants in operation and working under one central organization which is called the California Growers' Association. Our ultimate aim is to solve the marketing problem. At present the average cost of a ton of fruit canned, laid aboard car, is something like $80 figuring the fruit worth $20.00 per ton. The housewife in the east pays between $275 and $300 for the same ton of fruit.

The goal for which we are working is elimination of the greater portion of this waste, giving the grower more for his product and cutting the cost to the consumer. We wish to establish co-operative canning plants throughout various districts of the State with the idea of giving us a full line of all varieties of fruits and vegetables and berries grown in California.

California Retail Stores East.—When we have these plants well established and can supply a large pack of goods of various lines we wish to combine our fruits with those of other co-operative associations handling different products, forming a central selling organization which will establish California retail stores throughout the United States, confining our efforts in the beginning to one State or section of the country until we have worked out the problems in connection with distribution, gradually extending our territory until we cover the whole country.

> **"AT PRESENT the average cost of a ton of fruit, canned, laid aboard car, is something like $80, figuring the fruit worth $20 per ton to the grower. The housewife in the East pays between $275 and $300 for the same ton of fruit. The goal for which we are working is elimination of waste, giving the grower more for his product."**

The matter can be worked out without disturbing our present distributing system. If it would be possible for the Federal government or the states to distribute food products in the manner as outlined by the Senate bill 341, the producer would not be under the necessity of solving this marketing problem. We are working for this bill and we trust it will be passed, as it will assist in the State of California. But as the larger portion of our products must be sold outside of this State, it will be necessary for us to go ahead with the organization and marketing plan just outlined.

I have been in the canning business over twenty years and during the greater portion of that time I have been marketing the goods. I have, of course, been studying this problem for many years and there appears to me to be absolutely no solution except along the lines I have suggested.

CANNED FRUIT COSTS EAST.

[We give below extracts from a letter written by Mr. Campbell to Senator W. E. Brown of Los Angeles in regard to the bill introduced by him to relieve present marketing wastes.—Ed.]

"As you are aware, I have been in the canning business about 20 years and am consequently quite familiar with the evils of the distributive system of canned foods. The following is a fair analysis of the waste of the present system. The farmer receives $15.00 to $20.00 per ton for canning peaches while the consumer pays the grocer $288.00 for the same ton of fruit. A portion of this difference is, of course, a legitimate cost.

Items	Production Cost	Waste in distribution
(1) Cost of one ton of fruit	$20.00	
(2) Cost of canning one ton, including cost of cans, labor, interest and administrative cost.....	60.00	
(3) Canners' profit (goods sold to jobbers at $1.20 doz. less 7%.)		$ 9.28
(4) Commission to brokers 5%....		4.80
(5) Freight east 85c per 100 lbs. Partly waste, rates too high)....	21.08	
(6) Jobbers' profit (sold at $2.10 doz., $168.00 on ton less cost $115.16)		52.84
(7) Local freight from jobbers to retailer at 25c per 100 lbs.....		6.20
(8) Retailers' profit at 30c per can, 960 cans (cost to retailer, $174.20)		113.80
	$101.08	$186.92

Necessary costs, $101.08. Profits in distribution. $186.92.

"A portion of the freight charges East can be figured as a legitimate part of the productive cost, as necessary service is rendered in the transportation of the goods from the factory to the consumer. However, as the roads are now applying for a rate of 50c from the coast to Atlantic points, it is evident that an 85c rate is too high. Deducting this overcharge of freight, approximately $95.00 represents the actual value of this ton of fruit as it is prepared for use and delivered to the consumer. At least 2-3 of the cost to the consumer could be saved on this item by your system of municipal warehouses and distributing stations.

"This seems to me to be a most opportune time to carry forward the legislation proposed in Senate Bill 341. The producers are fairly well organized into associations and will be only too willing and ready to take advantage of the opoprtunity to sell their products direct to the consumer. It would seem to me it would be well to work with producers' associations in order to better regulate the standardization and marketing of all classes of products."

State to Become Commission Merchant.

Senate Bill No. 341, mentioned by Mr. Campbell above, proposes to establish a "State Marketing Commission" of five men to serve six-year terms at salaries of $6,000 each. The Commission will have offices at San Francisco and Los Angeles and will undertake to sell on commission whatever agricultural produce, or the finished goods made from agricultural produce, may be grown or handled in the State, and consigned to it on commission.

There will be receiving and distributing stations at whatever interior towns seem to need such. Its Bureau of Information and Correspondence to gather and give out statistics and information on all subjects relating to the production, harvesting, storing, preserving, packing, marketing, especially distributing, of all farm products will co-operate with the State College of Agriculture.

One duty of the Commission will be to organize a system of packing or to establish grades and standards in every line of produce and to enforce such standards with all the material handled by it.

A State brand or label will be used on all products packed by the Commission and heavy penalties inflicted

on others who use or imitate that brand.

Two hundred thousand dollars is appropriated to start the actual carrying on of the business, and this will be repaid from the commissions charged during the first few years of operation. Thereafter, commissions will be figured solely to make the system self-supporting.

Weekly, monthly, and annual reports will be made to the governor showing all transactions in detail. Commission merchants of the large cities are up in arms, with able fighting men and plenty of money, to oppose this bill in the legislature.

NITRATE OF SODA ON PRUNES.

To the Editor: Would nitrate of soda help prune trees if they do not grow as they should? If so, how should it be applied? Is there anything better for the purpose?—H. T., San Martin.

[It is too late for you to apply the nitrate unless you can soak it into the ground by irrigation or get some more late rains. Two hundred pounds per acre would not hurt the trees, and if you can soak it into the ground perhaps that is the best that you can do now. On your soil at San Martin, you need a melilotus or purple vetch cover crop to be sown next September, if you have water; or just about the time of the first rains, if you have not. This will supply both humus and nitrogen which your trees probably lack. A free use of stable manure will reach the same ends. The trouble may also be in lack of, or improper, pruning, in regard to which we would refer you to the article in Pacific Rural Press Jan. 2.—Editors.]

GOOD STAND BUR CLOVER.

[Written for Pacific Rural Press.]

To sow bur clover in the bur and get a good stand is quite a trick. Ed. Ames of Placer county has solved the problem by feeding bur clover mixed with other volunteer hay, to his horses. The horses do not eat the burs, but leave them cleaned of the hay in the bottom of the manger. They are then mixed with the manure and applied to the orchard, where they germinate and provide a good stand for a cover crop.

Mr. Ames, however, avoids re-sowing where the bur clover is already growing by setting the plow over so that the share does not cut quite to the land side of the previous furrow. This allows tufts of clover to remain above ground and ripen their seed. This is not so hard to do, since often on this decomposed granite soil of the Placer county hillsides, the clover grows 18 inches tall before plowing, which may be delayed as long as desirable, because it is ditch-irrigated at a fixed charge per season.

PASTURING SUDAN GRASS.

To the Editor: I would like to know if Sudan grass can be pastured with cattle and hogs when grass is growing?—G. W. F., Glenn.

[Probably less desirable than pasturing alfalfa, and for the same reasons—trampling the roots and eating the tops too short.—Editors.]

Spraying Grape Leaf Hopper.

[Extracts from University of California Bulletin by Prof. H. J. Quayle.]

Distribution. — The grape leafhopper occurs in numbers sufficient to be a pest only in the Sacramento, San Joaquin and Imperial valleys.

Seasonal History.—The grape leafhopper passes the winter as an adult insect.

The young hoppers or nymphs begin to hatch about May 1 in the Fresno section, a little later in the Lodi and Stockton sections, and two or three weeks earlier in the Imperial Valley. The eggs require eight to twelve days to hatch, and eighteen days are required to bring the young to maturity. About one hundred eggs are laid by each female. The young of the first generation begin appearing in May, and the young of the second generation begin appearing late in June. There are thus two generations of the hopper in a season.

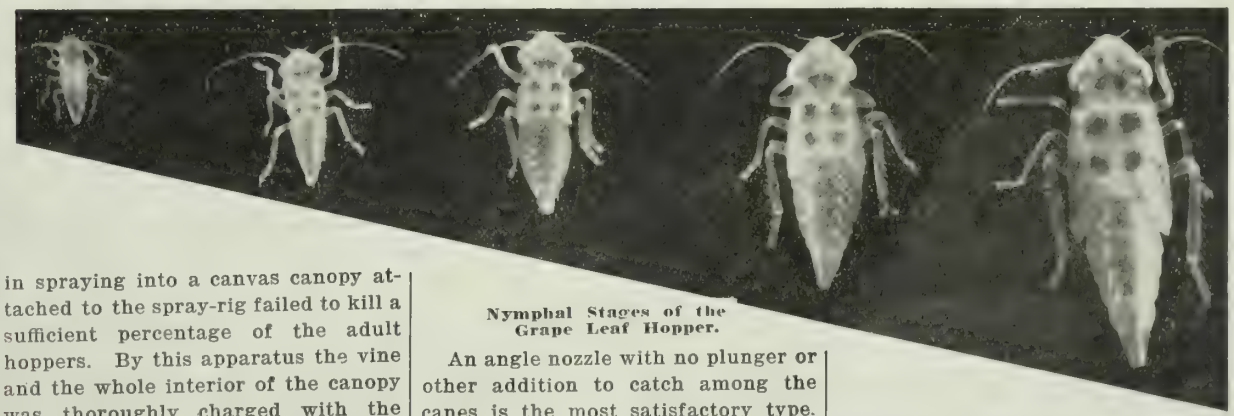
Experiments carried on last spring in spraying into a canvas canopy attached to the spray-rig failed to kill a sufficient percentage of the adult hoppers. By this apparatus the vine and the whole interior of the canopy was thoroughly charged with the spray, but the winged hoppers proved to be too resistant to any of the materials that could be used with safety to the vine. In view of these objections to the control of the adult hoppers, spraying for the young or nymphs was carried on later in the season.

Spraying for the Nymphs or Young.—The young are very readily killed by a proper spray. The chief difficulty is to get the spray on the under side of all the leaves where the hoppers are, and there is the further objection that many of the eggs which are within the tissues of the leaf, as well as the adults, which are also present, are not affected by the spray. In spite of these drawbacks, however, spraying for the nymphs will pay when the hoppers are excessively abundant.

Spray Materials.—A number of different sprays were tested. The spray found most efficient in killing the young, as well as most neutral to the grape foliage and berry, was blackleaf 40 per cent, 1 pint, and soap in the following amounts: liquid, ⅓ gallon, or hard soap, 2 pounds; water, 200 gallons. If liquid soap can be procured, it obviates the necessity of heating. The hard soap, preferably whale-oil, is cut in thin slices and dissolved in hot water. Where soap is added to the blackleaf the spray carries and spreads better, but too much soap would cause spotting of the berries.

Power Sprayer for Grape Leaf Hopper.

Equipment.—A power sprayer is very desirable for hopper spraying, though if the acreage be small a hand pump will suffice. Whatever kind of spray outfit is used, it will be found convenient to take several rows at a time; and to do this an extension of the hose above the vines is necessary.



Nymphal Stages of the Grape Leaf Hopper.

An angle nozzle with no plunger or other addition to catch among the canes is the most satisfactory type. One of these nozzles, or two, if desired, is attached to a rod but four feet long. The ordinary eight or ten foot rods for orchard spraying can not be used with satisfaction in a vineyard.

Application. — Since the young hoppers are on the under side of the leaves entirely, the spray must be directed from below. It is not necessary to spray the upper sides of the leaves. The spray will kill no more hoppers than are hit so that the results will depend upon the thoroughness with which the application is made.

Time of Application.—One of the most important factors in hopper spraying is the time of application. If the spray is applied too early, too many eggs which have not yet hatched will escape because the spray cannot reach them; if too late, many young will have become adult winged hoppers which cannot be killed, and these will later deposit their full quota of eggs.

For the Fresno section in average years, the time for hopper spraying will be from May 20 to about June 10. The criterion to go by for each year and locality is to begin spraying as soon as some of the nymphs are in their last stage. The wing-pads, the projections extending down the sides of the body, are shown to be of considerable length in this stage. They extend to the fourth ring of the abdomen. After five days in this stage, they emerge with fully developed wings. Such hoppers with fully developed wings cannot be killed by the spray.

[Prof. Quayle goes on to show that with a power sprayer and four nozzles, 4,500 large vines per day may be sprayed at a cost of about $3.30 per acre for labor and material according to details of actual tests named.—Ed.]

MOISTURE IN SANDY ORCHARD.

[Written for Pacific Rural Press.]

The secret of success in fruit growing is a small acreage well cared for, with personal attention to details, such as are being overlooked now by the majority of fruit growers, and are making the difference between profit and loss, according to Mrs. Ida Hunt of Sonoma county. Among these details is frequent cultivation.

She has lately begun to grow a cover crop of vetch which was inoculated with nitrogen and broadcasted on a well-prepared soil in October before the rains and harrowed in with a light broadcasted application of lime. The sandy soil in which her orchard is located is plowed deep, and cultivated very frequently with a spike-tooth harrow until the trees are so loaded that she cannot get close to their trunks any more.

Though no irrigation is practiced, in the dry year of 1913 moist ground could be found by digging a hole in the soil. This could not have been done if Mrs. Hunt had left her ground lie twelve to fourteen days after plowing, or cultivation, as many people do, because there would have been excessive evaporation.

Seedlings from nine promising varieties of dates are being grown at the Yuma Experiment Station. A recent report on their frost resistance shows that about two-thirds of the seedlings had less than half of the leaf surface injured by a temperature of 16 degrees in January, 1913, and the rest lived through, though they were more seriously damaged.

Agricultural Review.

CITRUS AND SEMI-TROPICAL.

The recent National Orange Show at San Bernardino netted a profit of $3,633.12 which will be set aside and used to finance next year the Sixth Annual Orange Show.

The navel orange season is nearing a close. Last week the Riverside district made the heaviest shipments for the season, 177 cars of oranges and six cars of lemons.

From the orchard of A. W. Dunnack of Orange county, 2702 boxes of lemons were picked from five and a half acres in the last two months, and from indications, Mr. Dunnack expects to pick equally as many lemons during April as he did during February and March.

DECIDUOUS FRUITS.

The California Cured Fruit Exchange members now have only seven or eight cars of peaches on hand and three or four cars of prunes aside from those of one local Ass'n which not long ago refused to sell at 6¾ cents. They are offered now at 5¼ cents.

Prune prices have dropped owing to the favorable crop conditions. G. A. Bolster, sales manager of the California Cured Fruit Exchange, says that the prospects all over the State up to April 5 are for so good a crop that it is becoming necessary for the dealers to unload. This they are doing by sacrificing prices. A slightly lighter demand is noticeable in the markets, too. Unless unfavorable conditions of the crop arise, prices will probably not go higher.

Reports from the principal apricot producing sections indicate that the crop will be less than normal. Wm. Wood of Los Angeles county, however, has observed that the trees had a good bloom and unless unfavorable conditions arise there will be a good crop in his section. In Santa Clara county, F. C. Willson recently made a trip through the apricot districts and reports that everywhere the setting is spotted, from light to very light crops still sticking. This includes Blenheims, Moorparks, and Hemskirks. Also rotting due to the late rains. In Ventura county, Horticultural Commissioner A. A. Brock estimates the present condition at 75 per cent of normal, due to very severe east winds during blooming time. Some sections will have 85 to 90 per cent, while others will have as low as 50 to 60. For the Vaca valley, we noted last week that conditions so far had been favorable. A letter from D. D. Sharp of Riverside says: "At the present time apricot prospects look good, in fact I do not know how it would be possible to look better for a full crop."

OLIVES AND NUTS.

W. H. Graham of Wheatland recently purchased 12,000 olive trees to plant on his 1000 acres in the Mission Colony.

A large acreage, 3600 acres in all, is reported to have been planted to almonds in the Arbuckle and College City sections of Colusa county.

After the celebration of California Olive Day on March 31, fifty persons connected with the industry met and took initial steps toward the formation of the California Ripe Olive Association. J. J. Avis of San Francisco was elected president. In all, 2500 ripe olive boosters joined the new association. It was decided also to make California Ripe Olive Day an annual event.

GRAPES AND SMALL FRUITS.

The change in the weather has delayed the strawberry crop in the Lodi section, but shipments are expected to commence within a few days.

The Assembly passed on April 5 the Hawson bill requiring packers of seeded raisins to label their products with the names of the varieties of grapes used. The bill now goes to the Senate and if passed there and signed by the Governor, will not go into effect until 1916, so that jobbers who have large supplies of raisins on hand will have ample time to dispose of them before that time and will not be obliged to have them all reprinted.

Refinery gasoline—every drop. Not a mixture. Keeps your engine "steady." Dealers everywhere.

Standard Oil Company (California) San Francisco

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING instruction book free. Explains honey production, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Gill Ave., Nordhoff, Cal.

WANTED.

WANTED -Responsible representative in each county. New combination—12 tools in 1. Sells at sight to farmers, teamsters, contractors, etc. Weight 24 pounds. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. Easy work. Big profits. One agent's profit $45.50 in one day. Another, $1,000 in December, 1914. We start you. Write today for Big Color Plate. Quick action secures exclusive sale. Harrab Mfg. Co., Box M, Bloomfield, Ind.

POSITION WANTED—Ranch Manager, Superintendent or developer, possessing eight years' practical California experience, applying the practical portions of the scientific side of the work of general agriculture and its constructive and engineering features. Credentials. Box 47, Pacific Rural Press.

FIREMEN, BRAKEMEN WANTED—All railroads, $120 monthly. Experience unnecessary. Railway Association, care Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

FOR SALE—Burbank's genuine spineless cactus of the best forage varieties. Large selected slabs in quantities to suit; prices packed F. O. B. cars, Napa, $10 per hundred, $42.50 per five hundred, $75 per thousand. Special prices on lots of five thousand or more. William Watt, Napa, Calif.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

GENUINE BURBANK Spineless Cactus, improved prolific growing varieties, large slabs, $10 per 100 and $75 per 1000 slabs. Place your orders now. Address DARROW-WINCHESTER CO., 1605 Telegraph Ave., Oakland Cal.

MELON SEED—from selected Melons. Black Seeded Chillian, 85 cents; Red Seeded Chillian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier Cal.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color. 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

BURKANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

SOUDAN GRASS SEED—The wonderful new forage. Reliable seed. Reasonable prices. Responsible grower. T. W. Buell, Krum, Texas.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

BEFORE YOU PLANT OLIVES, cactus or rhubarb, send for my free booklet. Bishop's Nursery, Highland, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING.—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

WINDMILL FOR SALE—16-ft. Power Aeromotor with 40 foot steel tower. A1 condition. Cheap. Address Ogden Bolton, Jr., Santa Rosa, Cal.

FOR SALE—About 100 tons of choice baled alfalfa hay; also 35 tons of choice red oat hay in the bale. Address Box 57, R. R. 2, Modesto.

THOROUGHBRED SCOTTISH STAGHOUND puppies, best dogs for deer or coyotes. Cragwood Kennels, Palo Alto, Cal.

LAND FOR SALE.

FARM OWNERS—ask for special rates in this department.

26¼ ACRES in Santa Clara Valley, near Saratoga, mostly in young prunes and apricots; some bearing prunes; one acre in citrus. Pumping plant, plenty of water. Fine building site, view and climate unsurpassed. New barn, poultry houses and cabin. ¾ mile from steam and electric cars; 1½ hours to San Francisco. Full particulars from Owner, care Pacific Rural Press.

FOR SALE at a bargain—20 acres of land at Greenfield, where we grow the prize apples. About 7 acres in orchard, mostly apples 7 years old; about 7 in alfalfa; balance suitable for fruit or alfalfa. Good drilled well, some buildings. Cheapest water system in State owned by colony. For particulars write or call on Ernest Thayer, Greenfield, Cal.

238 ACRES—Mendocino county; 1 mile from R. R.; 200 a. level valley, loam soil; 180 a. cultivated, abundant water; 35 a. a young orchard; fenced rabbit proof, 8-room house, barn, chicken houses, horses, cattle, hogs, chickens and all wagons, tools, implements, etc. $17,000. D. E. BESECKER, 256 Russ Bldg., San Francisco.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, bog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97, Salinas, Cal.

FOR SALE—20 acres of best sandy loam land. 18 acres in alfalfa, four room house, good barn, cream house and good well, all fenced. Near good school, abundance of water. 4½ miles of Modesto. Address Route 1, Box 30, Modesto, Cal.

CALIFORNIA LAND—Money-making little farms. High class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

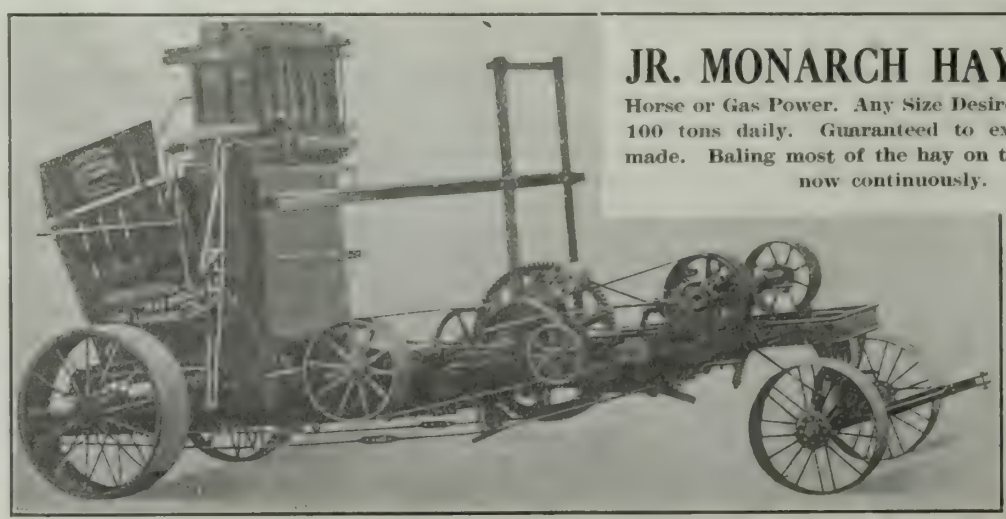
FOR SALE—40-acre ranch. 34 acres alfalfa, remainder in grain. Good buildings, fences, good soil, abundance of water. Fruit and shade trees. For particulars, write to John Walter, Dos Palos, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply, J. H. Glide, Dixon, Cal.

FOR SALE—Three mountain ranches in Calaveras county. Apply A. M. Davis, Esmeralda, Cal.

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

GRAIN AND FIELD CROPS.

It is estimated that a half a million dollars' worth of asparagus will be shipped to eastern points from the Sacramento valley this spring.

A state quarantine guardian to protect California potato growers from the tuber moth is about to be appointed by State Horticultural Commissioner A. J. Cook.

Growers in Santa Barbara county are preparing to begin lima bean planting the latter part of this month. It is reported that the acreage will be largely increased this year.

District 1000, Nicolaus, Sutter county, is free from seepage or overflow water for the first time in its history, and the planting of wheat, corn, barley and beans is well under way. Reclamation work on this district commenced four years ago and is about completed. It is estimated that over 33,000 acres have been reclaimed.

A State potato contest has been started, as announced by State Horticultural Commissioner A. J. Cook. The State will give $100 to the farmer, male or female, who can produce the best acre of potatoes during the coming season. The rules of the contest in part are that only soil where potatoes have never been grown before can be used, or soil that is known to be free from germs, and detailed accounts of the operations from the start to the finish must be kept by the contestants.

Receipts of hay in San Francisco, according to Scott, Magner & Miller, for the past week were about the same as the preceding week—about 2150 tons. There are very few changes to note in the market. Quite a lot of alfalfa is arriving from the interior. Most of this has been purchased for export and has been brought to this city to be double compressed and is to be shipped to Australia the first of May, one shipload having been sold by the above firm for this purpose. It is to be hoped more trade in this line will follow, but as yet nothing is definite.

MISCELLANEOUS.

Word has been received that a $50,000 show will be staged by the Fresno District Fair this fall.

M. Bogigian of Boston has recently purchased 160 acres near Reedley which he intends to turn into an experiment farm, later hoping to make it one of the show places of Fresno county.

One of our veteran subscribers from Lassen county writes that he has just completed seeding his grain and that Honey Lake Valley is dryer than he has ever seen it at this time of the year. He further states that both early grain and grass are looking fine, and the stock are in good shape as the winter has been an easy one. They are hoping for rain, and if they get sufficient there will be a fair grain crop, but hay and alfalfa will be light, as there is not enough moisture in the ground to make a full crop.

A plan is on foot in Yuba and Sutter counties, which has been indorsed by the growers, to have the fruit shipped from these sections labeled as having been grown there. Growers will have their own individual designs and labels which will state from which district the fruit came.

It is estimated that between 600 and 700 acres have been planted to almonds in Oakdale this spring.

Two Japanese from Oakland have leased 200 acres near Oakdale, Stanislaus county, where a crop of rice will be planted as soon as the land is in readiness.

Tangerine stock (citrus nobilis) is the most resistant to citrus canker, the new disease which has been worrying southeastern growers, but has not yet been found in California, according to W. M. Mertz of the Citrus Experiment Station.

It has been formally announced that the California State Fair will not be held this year.

The annual stock parade of the University Farm at Davis on April 23 is to be thrown open to entries by any owner of stock in the State.

Portland Union Stock Yards' receipts for the week ending April 1 are as follows: Cattle, 2021; hogs, 1863, and sheep, 2599. Top hogs sold for $7.40; lambs are quoted at $9.25; ewes at $7.00.

Exterminate Squirrels
GOPHERS,
PRAIRIE DOGS, BORERS, ANTS,
ROOT APHIS, ETC.

USE
Carbon Bisulphide
It is absolutely effective, and leaves no injurious effect if inhaled while handling.
Wheeler, Reynolds & Stauffer
624 CALIFORNIA STREET,
San Francisco, California

SULPHUR
Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.
Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.
SAN FRANCISCO SULPHUR CO.
424 California St., San Francisco, Cal.

Ideal Gopher Trap
Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always bold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.
E. J. CHUBBUCK COMPANY, Dept. B.
731 Market St., San Francisco, Cal.

Spring Rains Prolong Planting Season
Fruit Trees, Grape Vines, Etc., still in good condition.
No better time or season for planting.
ORNAMENTALS.
Splendid stock.
Landscape gardening a specialty.
Leonard Coates Nursery Co.
MORGAN HILL, CALIF.

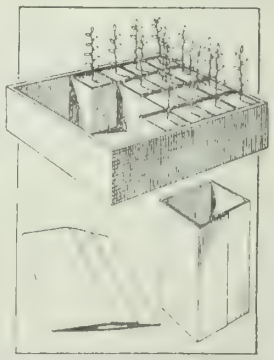
CITRUS TREES

Grown by
TEAGUE
—in the Largest Citrus Nurseries in the World.
are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.
Citrus Trees Exclusively
We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.
Place your order early while a good stock is to be had. Get in touch with us.
Send 25 Cents Today
for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.
Quotations Gladly Given
free upon request. Ask for prices and suggestions.
San Dimas Citrus Nurseries INC
ESTABLISHED 1890 BY R.M. TEAGUE
San Dimas, Cal. U.S.A.

Choice Ornamental Evergreen Trees and Shrubs
Fine specimen plants can be supplied either balled or established in tubs and boxes; also in our new cement tubs. Ask us for our new list of these fine plants for immediate effects.
OLIVES
Our new "Bulletin on the Olive" gives valuable information about this industry. It is free for the asking. Bear in mind that we have a fine assortment of these trees still to offer. Our prices are right.
CITRUS TREES
If you have not already arranged for your citrus trees this season we can offer you the finest stock on the Pacific Coast. Our assortment is complete in varieties and sizes. Write for our special quotations.
PAID UP CAPITAL $200,000
FANCHER CREEK NURSERIES
GEO. C. ROEDING: PRES. AND MGR.
Box 18 Fresno, California

Bee Keepers Supplies
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco

Perforated Tree Protectors
The only Perforated Protector made, practically a small lath house about each tree.
Prevents sunburn, rabbits, squirrels, barking by sand storms and cultivation.
Easy to put on and cheaper than gunny sacks.
COLLAPSIBLE PLANTING POTS
Why not raise your early
TOMATO, CABBAGE, CHILI and EGG PLANTS
For home use or for market? Do you know that you can start
CUCUMBER, CANTALOUPES, MELONS
of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market? Write for samples and prices of both Pots and Protectors. State which you are interested in.
THE EXPAN PROTECTOR CO.,
935 E. Central Ave., Redlands, Cal.



FINEST
NURSERY STOCK
IN CALIFORNIA
20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to
TUSTIN PACKING CO.
TUSTIN, CALIFORNIA.

Avocado Trees **Sensible Prices**
We are now filling orders with the finest 3-year-old stock ever offered. Our trees are 4 to 6 feet and stocky. This stock has been grown in the open entirely, and has never been sheltered. Our varieties are mainly the Taft. We also have the Dickey and several of the Sinaloa varieties. Single specimen trees $3.50 each. We invite correspondence from those planting acreage.
Hockridge Nurseries, Inc.
REDLANDS, CALIFORNIA.

Paris Green for Codling Moth.

[Written for Pacific Rural Press.]

There is a prosperous pear growing district on adobe land at the southern end of San Francisco bay where the growers have worked out some of their own problems, using their own methods, and not saying much.

Among the pioneers who are still in the pear-growing business, and who is still working what is said to be the largest Bartlett pear orchard in Santa Clara county, is G. M. Brown. He has seventy-seven and a half acres of Bartletts; and a considerable acreage of Alexander apples, so that his apple crop is between 2 and 3 thousand boxes. Year before last, the pear crop was 785 tons, but last year the hot spell in March seemed to prevent the setting of fruit all over that section and Mr. Brown's crop was only 465 tons of very prime fruit. The development of fruit buds last fall and the blossoming this spring make Mr. Brown optimistic for a thousand tons this year.

A dozen years ago, folks in that neighborhood were using Paris green to prevent the codling moth. To prevent the Paris green from burning the trees, they were mixing it with whale-oil soap made by A. Block, one of the largest pioneer growers in that section and sold at fifty cents per gallon.

Happened to Find Lime Antidote.—But there were certain troubles, and Mr. Brown was not content to use the old methods blindly, so it happened that one day while he was pioneering in the combination of sprays, he mixed some bluestone and Paris green together. It made a terrible rumpus. The mixture boiled like mad. There happened to be a bucket of water nearby in which some lime had been dissolved, and Mr. Brown dumped this into the boiling mixture. It cooled down immediately, and he jumped to the conclusion that lime mixed with Paris green and bluestone would neutralize its burning effects on the trees. This proved to be true in his case, as it had at an early time in other sections, so that now practically all of the pear and apple growers in that district use Paris green and lime for the first codling moth spray. It was a day or so after Mr. Brown made his lime-Paris-green-bluestone experiment that he saw the maker of the whale-oil soap and he told him that five cents worth of good lime was as good as fifty cents worth of his whale-oil soap, and so convinced Mr. Block that he at once ordered a carload of lime.

Mr. Brown's formula for mixing his first codling moth spray is: one-fourth pound Paris green, six pounds Roche Harbor lime per fifty gallons of water.

Arsenate for Second Spray.—Both pears and apples are treated alike in regard to the codling moth, although the apples are sprayed when the petals have just dropped, while the pears are allowed to set their fruit in a well-defined way, and many leaves are out when the first spray is applied. About three weeks later a second spray is applied; made for the past three years of arsenate of lead and water without lime. This was used because, as Mr. Brown expresses it, it is a cleaner spray, although a little more dangerous especially if there is any free arsenic in it, and if the weather should suddenly became unfavorable. Last year the cannery with which he has a five year contract, found a little fault on account of slight burning of fruit, so Paris green and lime will be used for both sprays this year.

The second spray is applied simply to catch whatever worms may have evaded the first one. Out of his crop there is practically never a worm on either the pears or the apples. Even the last picking of pears is clean, though there are many worms usually coming out at that time on late apples in the same vicinity. He lays the immunity of the pears to something in their skin which the worms do not like. His opinion on this is strengthened by the fact that his son grafted Bellflowers onto a few of the Alexander trees a long time ago, and the Bellflowers were inspected after the Alexander crop had been shipped. They were green and free from worms, but two weeks later, they were full of them. Late apples in this district certainly need at least two or three more sprayings on account of the favorable effect on worms of the warm fall weather.

Spray After August.—The last spraying applied by H. Richard of the same section on his orchard of Smith Cider, Newton Pippin, Bellflower, White Winter Pearmain apples and Buerre Hardy, Bartlett, and Clairgeau pears was applied last August 1, and half of his apples were wormy.

Very few of the pears were wormy and Mr. Richard credits the immunity of the pears to the rougher skin which probably holds the spraying material longer. He uses two and a half pounds of the arsenate of lead per fifty gallons of water, spraying the apples when the petals fall and again a month later. He gives them three sprayings in the season. By his experience of last fall, he believes they ought to get four.

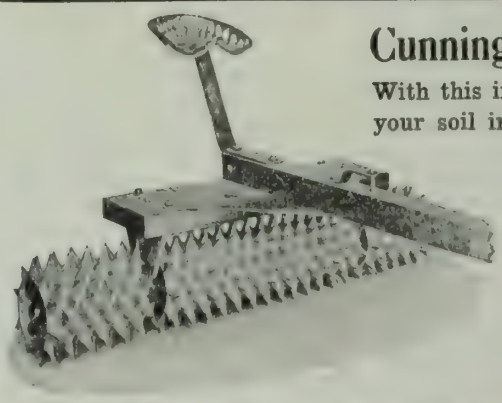
PLANS FOR CITRUS EXPERIMENT STATION.

(Continued from page 441.)

elaborate experiments, some of which will take at least a generation to work out to definite conclusions.

Meanwhile, other experiments will be carried on in older orchards and practical suggestions will be given both from the older orchards and from the new Station from time to time as they seem warranted.

Oranges, lemons, and grapefruit will be used in practically every experiment to be carried out on the new Station grounds. The biggest of these experiments in area will be that to determine the best methods, amounts, seasons, and frequency of



Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground High Grade
Shield Brand
Phosphate Rock
The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

SEED No doubt the early rains and mild winter are causing you to think about SPRING PLANTING.
Ask for a Free copy of our 1915 Catalog and Hints on Gardening. It will help you to make up a list of your wants.
MORRIS & SNOW SEED CO.,
439 South Main Street. Los Angeles, California.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

CAMPBELL
IRRIGATION
We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Turbo-Irrigator, and the new Automatic Oscillator for overhead pipes.
J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.

OLIVE TREES
Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.
THEODORE PAYNE,
345 S. MAIN ST., LOS ANGELES, CAL.

applying fertilizers, cultivation, and irrigation. Fifty acres will be laid out in small plots for the fertilizing experiments alone. All three fruits will be used in equal number on each of the fertilizer plats.

To Grow All Citrus Varieties in the World.—A work to fire the imagination is the one proposed by Dean Webber: to collect and grow every variety of citrus fruit in the world until they know the characteristics of all. Knowing them, however, will not be enough; the Dean hopes to monograph all of the citrus varieties, describing their characteristics and needs, as well as their value—truly a grand contribution to the world's available knowledge. On the present Station grounds, they have already 250 varieties besides numerous seedlings, already planted in nursery rows as collected, on all kinds of stocks, and, of course securely labeled. Some of these have been brought by A. D. Shamel from Brazil and other citrus producing countries. Among many other varieties shown by W. M. Mertz as he cut buds from them for the variety experiment mentioned above, were eight varieties of citranges. These fruits, while not agreeable for eating fresh, are fine for soft drinks, and the trees have shown considerable promise as useful stocks, especially in sections where there is difficulty in raising citrus fruits. They are a cross between a hardy trifoliate and a sweet orange. All of the citranges have trifoliate leaves and have a hardy growth, though the fruit does not seem much more resistant to frost than common varieties. Three varieties of seedless limes and a number of oranges and pomeloes were brought by Dean Webber from the Hawaiian Islands last August.

Many seedlings of grapefruit and tangerines are also in the nursery rows, having been grown in an effort to provide grapefruits which will thrive in California and equal the quality and price of the Florida grapefruit. Larger tangerines are sought, and some of the new varieties grown here are very promising. Seventy named varieties of citrus fruit and forty un-named have been brought from Florida. Many have been picked up in the swamps of Florida and Cuba by Prof. H. S. Fawcett who made a trip for that purpose last spring.

A lemon bud sport from the Chase orchard at Corona which has variegated leaves and fruit with whitish markings is being grown; also about forty trees of a new orange, called Lu Gim Gong, which is heralded as being about to revolutionize the industry on account of its ability to keep well on the tree for three or four years. Buds of this variety will perhaps be available for distribution to responsible growers next spring.

Shaddocks of various shapes from round to pear shaped with rinds sometimes an inch thick are on trial, to find out their value as ornamentals and as citrus stocks.

The Dean has a navel orange bud sport on which the skin is ribbed or ridged from stem to blossom end with a sort of warty growth. Though the fruit is of poor quality, the Dean remarked that the ribbing would make a fine trade mark if such an orange could be produced of good quality.

Who Knows How to Cultivate?—There is a feeling growing throughout the South that too much cultivation is indulged in the citrus orchards, which exposes the soil to too much sun, heat, light, and air which disturbs the beneficial bacteria which make plant food available, and it also burns out the humus more or less. On this account, a special cultivation experiment will be planned to find the comparative value of shallow and deep cultivation, with and without frequent and infrequent irrigation applied in furrows, basins, overhead, and by sub-irrigation methods, at all the different seasons of the year, and in different quantities. Part of the experiment will consist in comparing the value of different mulches with no cultivation at all. The relative value of disk, plow, shovel, and weed cutter cultivation, and tractor and horse power will also be studied in a systematic way. Irrigation experiments by all the known methods will be used from the beginning with young trees to see the effect on tree growth, fruit growth, fruit quality, and the life of the trees. Overhead irrigation is now being used on three orchards in the State, and all of the owners of these orchards seem to believe that it is the best system.

Pruning Gains Favor.—Pruning experiments both on the Station and on private orchards also will in due season give practically certain knowledge as to the type of pruning best suited to lemons, whether oranges should have any pruning at all, and if so, how severe. Such experiments will be conducted at the same time on old private orchards.

Will Experiment on Old Orchards, Too.—Preliminary tests on all these lines are being inaugurated in a 24-year-old unproductive mottle-leaved grove near Riverside.

It is hoped that similar tests to the ones mentioned for citrus fruit may be carried on ultimately for all subtropical fruits, though the time and money are now too limited.

A department of soil physics and plant physiology will probably have been organized before the Station is moved to the new grounds, since they will be started as soon as suitable men may be found who will undertake the work.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.
Orders Now Being Booked.
Write for prices and particulars.
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.

Armstrong Nurseries
ESTABLISHED 1889

Lowest Available Prices on
Olive Orange Lemon and Pomelo TREES
OF HIGHEST QUALITY

Mission and Manzanillo Olive Trees

Navel, Navelencia and Valencia Orange Trees

Write, or Wire for Lowest Prices

Owing to my present low prices you cannot afford to postpone your planting another year—thereby losing an entire season's growth—and no doubt pay a higher price for your trees—as prices were never lower and the quality of my trees is the highest obtainable.

Get out your pencil and do a little figuring—

then write or wire me for present low prices, stating number, size and variety of trees wanted. Can make shipment within twenty-four hours after receipt of your order.

All shipments guaranteed to arrive in first-class condition.

Olive or Citrus Trees may be planted safely up to June 1st

JOHN S. ARMSTRONG, Proprietor
406 Euclid Ave.
Ontario California

Eureka and Villa-Franca Lemon Trees

Marsh Seedless Grape-Fruit, Tangerine, Mandarin, Lime and Kumquat Trees

Mechanical Power on the Farm.

TRUCK PERMITS PROMPT SHIPPING.

[Written for Pacific Rural Press.]

"We usually carry three tons on our Kelly truck of one and a half tons' capacity," says J. McAlister of the Arrandale Fruit Co.

The truck enables Mr. McAlister to ship his fruit much more frequently and to get much prompter service. The nearest railroad station is Santa Clara, but not enough freight trains stop there, so the truck hauls the fruit about three times as far to San Jose, about one hundred boxes per load.

The return trip is often used to bring home lumber and supplies. A new hog house was built last fall, and besides using the truck for lumber, he hauled about 75 yards of gravel for concrete, two yards per load, weighing 2200 pounds per yard.

Not only are many kinds of fruit grown on the ranch, but hay also, and this is hauled to market on the truck.

NIGHT AND DAY PLOWING.

One of our subscribers, in excusing himself for lack of promptness answering a letter, writes: "Your letter received some days ago, but have really been unfit to answer it at the time I should. The land is drying very rapidly and we are running a caterpillar, plowing night and day."

TRACTOR COMBINES OPERATIONS.

To the Editor: In response to your letter, we have engines pulling gopher plows for sub-drainage, subsoiling, plowing, harrowing, disking, seeding; and some doing it all in one operation; engines freighting, hauling rock, lumber, cotton, wheat, barley, etc.; engines pulling combined harvesters, some pulling pumps on the belt.

Oakland. C. L. Best.

---delighted!

You will be delighted with

The Commercial Engine

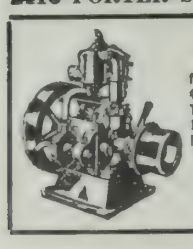
Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.

2416 PORTER ST., Los Angeles



CUSHMAN Gasoline Engine

for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.

Light Weight.

Write for Catalog THOMAS R. BROWNE, Stockton, Cal.

MAGNETOS ON IRRIGATION ENGINES.

[Written for Pacific Rural Press.]

An 8 h. p. gas engine pumps the irrigation water for a vineyard belonging to J. H. Lushbough of Tulare county. A feature of this engine which is quite common in this section is a magneto to furnish the spark. The magneto is set on a platform in front of the fly-wheel so that it is run by the contact of a bevel wheel on its axis with the rotating fly-wheel of the engine. Of course, the start is to be made with a spark from batteries.

The same system is used on another outfit near Exeter where a 12 h. p. "Field" engine pumps water for alfalfa. The magneto here is set on a board sawed at home and bolted to an iron frame held in front of a 4½ foot fly-wheel by bolts through the cylinder case. Half a dozen dry batteries and coil are used to start it. The centrifugal pump is in a pit 20 feet deep and is connected directly with the engine by a belt which runs through a trench sloped for the purpose to the bottom of the pit.

PUMPS FROM ARTESIAN WELL.

[Written for Pacific Rural Press.]

Though the artesian wells at the southern end of San Francisco Bay are now capped down and spurt through every leak, as they did in the days of long ago, the recent dry years caused an influx of gas engines and pumps, because the water level dropped below the surface.

Among the engine buyers is C. A. Phelps, the owner of two flowing wells, one of which is the oldest in the valley. When it was put in, it roared so that neighbors a half a mile away could hear it; but owing to the drouth the pressure became greatly diminished and Mr. Phelps put in a hydraulic ram to lift the water into a six thousand gallon tank thirty feet high. By and by the pressure became so low that he had to install a 4 h. p. Samson engine and a small centrifugal pump two years ago. The convenience of the engine fixed the habit upon him so that even now it is used because he likes to have pressure in the house and plenty of water to irrigate his alfalfa.

"I never had many troubles," said Mr. Phelps, "all I had were in the first year when I was learning to operate the engine. Once I had to get the service man out because the spark points got out of shape. Another time the batteries wore out, but I have learned all these tricks and have no troubles now."

EARLY DISKING BY TRACTOR.

[Written for Pacific Rural Press.]

Preventing cracks in adobe soil in Santa Clara county before he could get around to plow the land, and thus avoiding evaporation and baking, is practiced by G. M. Brown. He has a little Yuba orchard tractor which pulls along easily a disk of thirty-two wheels, and tears up the surface soil at the rate of ten acres per day. His son drives the tractor and delights in running the end disks dangerously near the trees. The beauty of this tractor is that if he should run too close, there is no

We Do Not

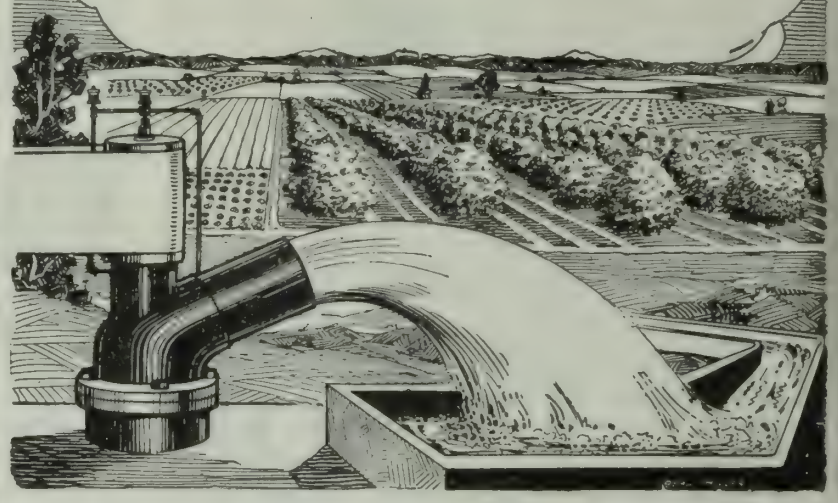
Merely Claim the

LAYNE & BOWLER

Pump is the best, all-round practical Irrigation pump, but we PROVE it. Write for booklet No. 25. It tells all about this trouble-saving Pump. See our large exhibit at the San Francisco Exposition.

Layne & Bowler Corporation

900 Santa Fe Ave., Los Angeles.



The KROGH Vertical Pumps

New Type Vertical.

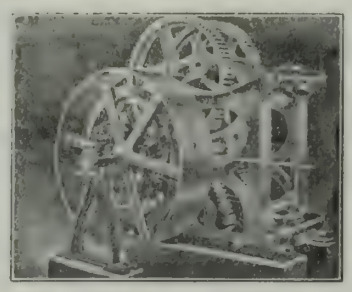
Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.

SAN FRANCISCO, LOS ANGELES



Pomona

DEEP WELL

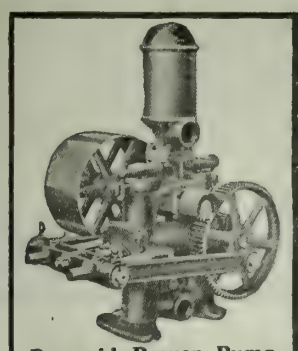
Pumps

For deep lifts, as well as shallow lifts combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

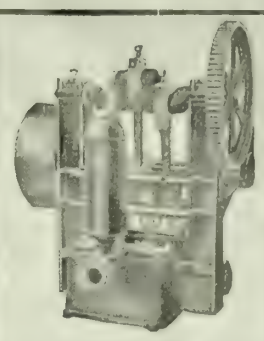
Write for Catalogue 104, with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.


Pyramid Power Pump

WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEM
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
GASOLINE ENGINES
Send for our large No. 36 Catalogue Mailed Free.
Inquire of your Local Dealer for full particulars.


Goulds Triplex Pump

need to wait for the guide wheel to turn him away. By the time it could act, the disks would be barking the trees. The track on one side is simply accelerated by throwing in the clutch; and the turn is made very quickly. The turns at the ends of the rows are made as short as the disk can follow.

Lock Seamed
No Solder — — No Rivets

Simple construction is NECESSARY in irrigation pipe. Simplicity means strength.

Ames-Irvin Irrigation Pipe

is constructed without solder or rivets. Nothing but the sheet of metal itself is used. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Special machinery does the work.

When finished the seam is simple, solid and strong. There are no rivet holes in the steel—it can't leak. Ames-Irwin - lock - seamed irrigation pipe won first prizes against all competitors at the Sacramento State Fair in 1913 and at the Fresno and San Jose county fairs in 1912.

Send for Booklet.

It tells all about irrigation pipe and its construction. After reading it your judgment will tell you which to buy. Get it—today.

Ames-Irvin Company
8th and Irwin Sts., San Francisco

MANURE SPREADER HAULS BEETS.

Investigations have proven that the depreciation for the manure spreader is approximately 11.67 per cent annually. Owing to the fact that this machine is required to carry a by-product which contains more or less moisture, a part of the depreciation is undoubtedly due to the decay of the wood in the framework. If this and similar pieces could be utilized to a greater extent they should last almost as long, and in doing the additional work the yearly charge in connection with operation could be met more fully or completely. Ordinarily the manure spreader is in use at seasons of the year when the field work is not demanding attention. While the harvest is in progress it will be found idle; hence, it is available for other work.

In districts where field roots such as mangels, sugar beets, or turnips are grown, the manure spreader may serve as a wagon in transferring the crop from the field to the root cellar or pit. A simple adjustment will enable the operator to save considerable time, as well as the task of unloading with the aid of a shovel. The cylinder or spreader is first removed from the end of the box and a suitable end board is set in place, the latter being held by an iron bar or rod. When the load is taken to the cellar, the end board can be lifted out readily and the roots may be rolled into the trap door merely by putting on the crank which connects with the apron shaft and turning by hand until the entire lot has been discharged.—Farm Management Monthly, U. S. D. A.

WATER THE EARTH through "AMERICAN" SURFACE IRRIGATION PIPE

Increase your production 50 to 100% each year by using a surface irrigation system. AMERICAN Surface Irrigation Pipe lasts you a lifetime and does not have to be renewed each year. NO RIVETS. Double locked turned and soldered seam that never leaks. Write for illustrated catalog and irrigation circular.

American Steel Pipe & Tank Co.
354-55-56 Pacific Electric Bldg., Los Angeles
Branch, 1228 "H" Street, Fresno

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

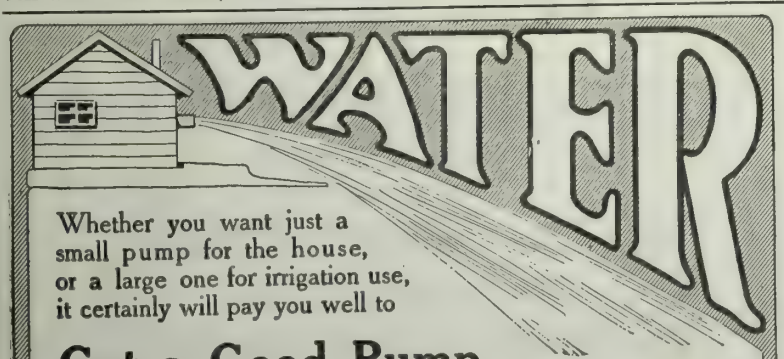
MADEWELL SURFACE PIPE
ROBINSON HARDWARE CO.
GILROY, CAL.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—the Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.



Whether you want just a small pump for the house, or a large one for irrigation use, it certainly will pay you well to

Get a Good Pump

The safe way is to get advice from pump specialists like ourselves. As manufacturers we have solved hundreds of pumping problems—and our accumulated experience is at your command. Our advice may save you both money and trouble. We manufacture and sell

Horizontal and Vertical Centrifugal Pumps
Deep Well Pumps, Windmill Pumps, Etc.

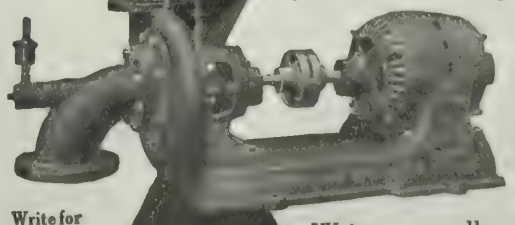
Let us help you select a pump adapted to your particular requirements. CATALOG 28-B describes Bean Centrifugal Pumps. CATALOG 28-D describes all other pumps (also Bean Distillate Engines). A postal will bring either or both. Why not send now?

THE BEAN IS THE BEST — BEE-N TRADE MARK

BEAN SPRAY PUMP CO.
211 W. Julian Street San Jose, Cal.

"Jackson MADE"

The pump you buy should raise the maximum quantity at the lowest cost per gallon, run constantly without repairs and with the minimum attention. "Jackson-Made" Pumps not only do this, but they are Self Payers because their saving in power and repairs will pay their first cost in a very few months.



There is a "Jackson-Made" Pump that will do the work you require at lower cost than other makes.

Write for Catalog No. 47A

Write us, tell us your pumping problem—our expert engineers, without cost to you, will help you.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

Unemployed Approved Farm Plan.

[Written for Pacific Rural Press by C. H. Dwinelle, Santa Rosa, Cal.]

When Dennis Kearney harrangued the multitude of the unemployed in the sand lots near the City Hall, in San Francisco, so many years ago, the outlook was not cheering. Dennis declared that wages for common labor were down to fifty cents a day, and that it was all the fault of capital. We won't turn back to try to decide as to who was really to blame for such a state of affairs, but will tell what it led a man with considerable capital to do for labor.

Mr. R. G. Sneath had a large tract of rolling land in the northern part of San Mateo county, just south of San Francisco. He was using it for a dairy farm. Right past his gate ran the main county road, on which the unemployed tramped both ways, some toward the city, and others from it, seeking work, and few there were that found it.

Mr. Sneath would have liked to employ them all at the wages which ruled in those days on dairy farms, but really he could not. He was full-handed, and only when a regular hand left could he take on another in his dairy business.

But when Dennis shouted that wages were down to fifty cents that set Sneath to thinking. There were many things that might be done on his farm to increase its productiveness. There was much brush that might be grubbed out, and replaced by good grasses, as he had proved in a small way. There were areas where loose stones covered too much of the surface. They might be removed and used for road making or in buildings. High up, near the back line, was a considerable swamp, with soil "as rich as mud" if the water could only be drained off.

And that same water might be piped to irrigate land at a lower level. These were but samples of things which he, as a good farmer, saw as desirable. He had figured on the cost at "going wages," say a dollar a day and board, and found that it was not good business to make such an outlay. But if the dollar were cut in half that would make a big difference.

He could afford that, but he did not want to suggest it. It would look like bearing the labor market, and he did not wish to do that. But now Dennis had said that the cut had been made by somebody, and the poor fellows who tramped along the road looked as though fifty cents a day with food and lodging would be better than what they were getting.

So Mr. Sneath had a cheap, but comfortable, building erected, large enough to accommodate a considerable number of men with sleeping quarters, kitchen, dining and sitting rooms, and a small stock of work clothes, shoes, tobacco, etc., laid in.

A cook and a foreman were installed. Then a sign was nailed up at the gate offering work to those who wanted it at fifty cents a day, board and lodging. Of the unemployed who came that way and read the sign, some scoffed and went their way, but others turned in to investigate. It was surely a decent place, and the odors from the dining room were appetizing. The foreman explained that 50 cents was all that the work on hand would warrant, that they could take it to fill in dull times if they liked, and quit whenever anything better offered. The house was soon well filled, and the work went on nicely. Some of the men stayed but a short time, but with others the days ran into weeks, and the weeks stretched into months, and still they hesitated to take to the road and leave that good food, comfortable housing, and fifty cents. The remarkable thing about that 50 cents was the way in which it swelled the credit of the laborer on the books. There was so little to spend money for, no booze, no treating, no gambling, no carfares, no theaters. Tobacco, pipes, and cheap clothing took a little, but not much. Many a man left the Sneath "camp" with more hard cash than had been his at one time for many a day. And quite a number of the 50-cent men were promoted to be regular dairy hands at full pay, as vacancies occurred.

The improvements were made as planned, and added to the value of the ranch. Brush gave place to choice grasses, stones went into roadbeds, and on the swamp that had been grew the finest crop of Italian rye grass that we ever saw, while the superfluous water was conducted into a reservoir whence it could be drawn for a variety of uses.

There was no conflict between labor and capital in all this, no waste of money or materials, no pauperizing of those helped over a dull time in the labor market. There was kindly feeling on all sides, and benefit to all concerned.

Surely there are many opportunities right now, and at all times, in and around San Francisco, and all over the United States, for the application of the principles involved in Mr. Sneath's experiment.

Much work could be laid out which it would be well to perform within limits as to cost, but that could wait until men wanted it at wages offered, just to fill in time. In many cases the limit would be found to be higher than those paid at that time by Mr. Sneath, but not high enough to keep men from higher-priced work in their chosen callings when it was offered.

The fact that plans were not made, and buildings not erected before winter came on need be no insurmountable obstacle. In these days of auto trucks, materials are quickly moved, and a wooden building could be tried out in short order. Tents can also be hired or bought on short notice. The "camp" should be close to the work, to avoid exposure to bad weather. Any officer of U. S. Engineers, or the State Commission of Immigration and Housing could furnish a practicable plan. Where there is a will there is a way.

I am by no means advocating the lowering of wages, and I have an unlimited enthusiasm for Mr. Ford, for profit sharing, and all that sort of thing, but I do not believe that they will prevent those times of depression when "going wages" will fail, and the unemployed will suffer. For the relief of these latter it seems as though there should be something better than the bread line and the free soup kitchen, a place where a self-respecting man can pay his way until the clouds lift. I never talked of Mr. Sneath's plan with a real worker but what he gave it his decided approval.

[This reminiscence is very interesting, and all should know of the facts. It is a question, however, whether it would be wise to make such an offer now for fear of the resentment it would engender.—Editors.]

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN"—the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

See your seed dealer or write for *free booklet*.

ARMOUR FERTILIZER WORKS, Dept. 137 Los Angeles, Calif.

ESTABLISHED REX 1896

Arsenate of Lead

UNEXCELLED IN ITS

FINENESS OF PRECIPITATION

SPREADING QUALITY

MISCIBILITY ADHESION

QUICK KILLING

Rex Arsenate of Lead

is made from the very best quality of Raw Materials, is processed in our own factory by our own Chemists, who have had the experience of years.

REX has demonstrated 100 per cent efficiency in numerous orchards. Why not use it in yours?

Write for

Rex Arsenate of Lead Booklet

To

CALIFORNIA REX SPRAY CO.

BENICIA, CALIFORNIA

Manufacturers of

Rex Lime and Sulphur Solution

Rex Iron Sulphide

Rex Miscible Oils and Distillates

ETC. ETC. ETC.

KIRKMAN NURSERIES

WHOLESALE GROWERS OF

True to Name Nursery Stock

Main Office: 2523 TULARE STREET, FRESNO, CALIF.

GIANT WINTER RHUBARB

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

UNDER the usual land mortgage, a farmer with a $3.000 investment can only borrow 50 per cent of the value of his farm, or $1,500—not one-half enough to supply it with valuable livestock. The big profit is in raising the best.—Extract from pamphlet written by Geo. H. Bayley.

Financing and Breeding Purebred Cattle.

It is the scarcity of cheap money and the difficulty of getting it on almost any terms that is retarding the development of the dairy industry to a greater extent than all other factors. Such is the contention of Mr. Geo. H. Bayley of Berkeley, who financed and operated a large farm in Modoc county, who has just issued a pamphlet full of interesting comparisons between the scrub dairy cow and the registered cow and the relation of Rural Credit Banks to the advancement of the latter named animal.

In compiling the statistics contained in the pamphlet Mr. Bayley has not depended upon his own experience entirely, but quotes from the various authorities on the subject of production of milk by the average scrub cow and the purebred one. In quoting from a letter written by Eugene Merritt of the U. S. Department of Agriculture he states that on January 1, 1914, the average value of dairy cows in the State was $53.94 each and that their average yearly production was 3500 pounds of milk each.

In comparing this with the average registered Holstein cow he quotes from eastern authorities on that breed who maintain that such animals produce on the average 15,000 pounds of milk and that their average worth is $400 each. In view of the fact that the figure given for the average production is less than half the amount produced by the California cow, Tilly Alcartra, Mr. Bayley considers the comparison well in the line of reason.

With the object in view of showing the difference in the increase and product of 100 scrub cows and the increase and product of 100 registered cows he gives the following tabulation: 100 grade dairy cows increase annually 90 per cent, or 45 heifers and 45 bulls; sire worth $200; 45 heifers having the same value as their mothers at time of first calving ($53.94 each), $2418.30; 45 bulls which sold as steers at $75.00 each, $3375.00; 3500 lbs. milk each, one year, for 100 cows, 350,000 lbs. at 2 cents lb., $7000.00; total, $12,793.00.

One hundred medium registered Holstein cows, value $400 each, increase 90 per cent annually; 45 heifers value $400 each, value of increase and product for one year; sire, value $2000; increase, value $400 each, as shown above.

Forty-five heifers, value first calving, same as their mothers ($400.00 each), $18,000.00; 45 bulls, 10 per cent of which, selected, sold as bulls at $500 each, $2250.00; 90 per cent bulls sold as steers at $75.00 each, $3037.50; 15,000 lbs. milk annually, each, 1,500,000 lbs. at 2 cents per lb., $30,000.00; product and value of increase, of 100 head of Holstein cows, for one year, $54,287.50; product and value of increase, for one year, of 100 head of grade dairy cows, $12,793.30; difference between Holstein and grade cows for one year, $40,494.20.

This almost incredible result, proven by statistics and the irrefutable letters mentioned above, measures the difference, so thinks Mr. Bayley, between what is and what might be in dairy husbandry, and the fearful handicap which our dairymen are struggling under.

All of this would be changed about in a remarkably short time, thinks Mr. Bayley, if some form of cheap farm money were available, as there is a general realization among dairy farmers that the big profit in livestock comes from raising the best, but with interest rates at their present high level, and even then hard to get, farmers are deterred from purchasing the higher-priced animals.

His plan for the organization bank is to have twenty tax-paying farmers meet at each county seat, select three of their number, and send their names for appointment, as president and vice-president and cashier of a bank to be located at that county seat. That they should be given the following powers, namely: To participate in forming a corporation when asked to do so by any farmer desiring a loan. The president of the bank to be the president of the corporation, the vice-president and cashier directors. The farmer with realty, minimum value $3000, to be vice-president and manager of the corporation and name one other director. The said realty to be deeded to the corporation, all the capital of which to be pledged to the bank as security for a loan to be made to the corporation, and the bank to grant the corporation the right to draw $2800 to pay for seven registered cows and $2000 to pay for a bull. The president of the bank to appoint an agent to assist the farmer in selecting the livestock and pay for the same, insuring them against accident when shipped. All the stock purchased to be put on the corporation ranch, under the management of the farmer, vice-president of the corporation, and under observation of the president of the bank and corporation, and, of course, no corporation property to be sold without his consent. The privileges of the bank would not be restricted to loaning on seven or any number of registered cows. The suitability of securities and relative amount of loans would be left to the judgment of the bank officials. An assurance for success in doing so, that only men who have been sufficiently successful to be able to invest $3000 in a farm, can get such a loan. It is not proposed to limit the bank to making loans, through the medium of a corporation, on registered cows, or any class of property, that to be left to

DE LAVAL

Cream Separators are by far the most economical

Real economy is never short-sighted. It never confuses PRICE with VALUE.

PRICE is what you pay for an article.

VALUE depends upon the amount and quality of service the article gives you.

You get by far the greatest actual VALUE for your money when you buy a De Laval — BECAUSE it will give you much better and longer SERVICE than any other separator.

From the standpoint of its greater durability alone the De Laval is the most economical cream separator to buy, and when you also take into consideration its cleaner skimming, easier running, greater capacity and less cost for repairs, the price of the "cheapest" machine on the market is most exorbitant compared with that of the De Laval.

And there is no reason why you should let its FIRST COST stand in the way either, because the De Laval may be purchased on such liberal terms that it will actually pay for itself out of its own savings.

A De Laval catalog to be had for the asking tells more fully why the De Laval is the most economical cream separator, or the nearest local De Laval agent will be glad to explain this and many other points of De Laval superiority. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

DE LAVAL DAIRY SUPPLY CO.

101 Drumm St., San Francisco 1016 Western Ave., Seattle

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Milking Machines
3 Sizes and Power.
See our exhibit at the Exposition, or write for pamphlet giving full particulars.
A. F. STEINER,
Block 1, Agricultural Palace,
P. P. I. E. San Francisco

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE
55 New Montgomery Street
San Francisco

FOR SALE
20 HEAD OF REGISTERED TWO-YEAR-OLD
Hereford Bulls
WM. M. CARRUTHERS,
218 Hearst Building, San Francisco

the judgment of the bank. Would it not be a great public benefaction, to finance the Rural Banks by issuance of 4½ per cent bonds, interest payable quarterly? Such bonds would force the savings banks to increase their interest rate to the same per cent, otherwise all the coin that could find investment in these bonds would be taken from their vaults, as interest could be collected from the bonds as family expenses demanded. Bonds to run 35 years at 4½ per cent interest, payable annually. Amortization fund provided by collection of $400 yearly on each loan of $3200 for the last eight years of the loan. Sale of a four-fifths interest in the $2000 bull to four other farmers making loans, would reduce the indebtedness of each to $3200. There being no business done by the bank over the counter, and only occasional long-time loans, there would be slight demand on the time of the bank officials, therefore, small pay required. The Superior Judge could name the same. Money received as interest could be deposited in a local bank, notes, mortgages, etc., kept in the vaults of the County Auditor, thus reducing the expenses to a minimum. The bank officials to give personal bonds to the State, and to make monthly report to the State Board of Control of the business done during the month and condition of the bank, such details, and everything pertaining to the system, to be prescribed by the Rural Credit enactment. The individual corporation loan feature should be religiously protected.

The plan outlined above certainly affords adequate security to the farmer and the bank. Insurance of the realty against fire, and livestock against death, would make the security absolute.

With the Live Stock Men.

DAIRYING.

The Churchill Creamery, Inc., of Fallon, Nev., recently opened a butter factory.

The consolidation of the Landa Bros.' dairy with the Elgin dairy of Elko, Nev., is reported.

I. L. Davis of Fallon, Nev., recently sold 20 head of Jerseys to Forsberg Bros. of that place, receiving $150 per head for the stock.

A number of improvements are being made in the plant of the Visalia Co-operative Creamery, among them being a new cream cooler capable of cooling 5000 pounds of cream per hour.

Four carloads of registered Holstein dairy cows recently reached Glenn county from Oregon and Washington. They will be divided among various dairymen of the county. Three more carloads are expected shortly.

Geo. Leihau of Oakdale recently sold thirty head of Holsteins to the firm of Such & Underwood, who are establishing a big dairy farm on their ranch in Stanislaus county. They are milking 90 cows at the present time and expect to eventually have 200 on the ranch.

Prof. Gordon H. True of the University Farm at Davis recently addressed the members of the Dixon Farm Unit. He pointed out to them the fact that the average butter fat production of California cows is 150 pounds a year, and urged the improvement of their herds through the purchase of purebred stock. Jas. Mills, county farm adviser, also urged the organization of a cow-testing association.

CATTLE AND SHEEP.

Frank Mendosa of Colusa recently sold a lot of choice spring lambs for $5 per head to a San Francisco dealer.

Sheep shearing is reported to be in full swing all over the State. At the Vina Ranch in Tehama county, 1100 sheep will be shorn; and work will shortly commence on the San Miguel island where several thousand animals will receive their annual "hair cut."

John Martin, Sec'y of the State Agricultural Society, has agreed to furnish the management of the Butte County Spring Exposition with a list of the owners of thoroughbred cattle in northern California, so that they may get in touch with the exhibitors. One of the features of the show will be rice-fed stock.

Wool growers of Elko and Humboldt county, Nevada, have decided to deal directly with independent brokers in the East rather than negotiating with the buyers who are sent out each year by the eastern houses. Frank Cartiez of Winnemucca was the first sheepman to finish his shearing this season and expects to realize 27 cents per pound for his product.

HORSES AND SWINE.

Ross & Weisbaum of Hanford recently shipped a fine Duroc Jersey boar to head the herd on the Pacific Acreage Co.'s ranch at Caruthers.

Geo. T. Farmer of Kings county recently sold 21 head of purebred Duroc Jersey hogs to L. P. Denny, receiving $12.50 per head for them.

Swine raisers of Yolo county have perfected the organization of an association to combat hog cholera in that county, where it is estimated the annual loss amounts to $25,000.

Another carload of horses for the European war left Fallon, Nev., last week. It is estimated that horsemen in that section have received $15,000 during the last three months for animals shipped.

The first of the draft horse view herds at the Panama-Pacific Exposition were installed last week by the Wm. McLaughlin Importing Company of Oakland, who have recently received a large shipment of Percheron mares and stallions from the East, which were taken directly to the Exposition stables, and will be on exhibit to all visitors. This exhibit will be of interest to farmers attending the Fair, as they will be able to combine business with pleasure.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Several choice Shetland ponies. Zach Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

HOLSTEIN BULL CALVES—Sired by King Pontiac Netherland Segis, son of King of the Pontiac, Dam K. S. P. Netherland, 24 lb., 3 years old, daughter of King Segis Pontiac. Ernest Otto McClure, R. 2, Modesto, Cal.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

HOLSTEINS—Mr. Breeder and Dairyman: I am offering the best bred bull in Stanislaus county. Pontiac breeding and out of the great cow Brinka de Kol. Also some good grade heifers bred to one of the best bulls in the county. J. A. Pelanda, Salida, Cal.

FOR SALE—Reg. Holstein-Freisian bull calves, sired by a grandson of King of the Pontiacs. Write for prices and pedigrees. E. A. Clausen, 1139 Devisadero St., San Francisco, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

REG. GUERNSEY BULL for sale. Kitchener's Count Sucotte Sire Imp Lord Kitchener; Dam Imp Countess Sucotte 13th. T. J. Baltimore, Gridley, Cal.

FRANK MEACHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

N. H LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

SWINE.

O. I. C. Swine—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

FOR SALE—or will trade for thoroughbred Duroc-Jersey boar, one thoroughbred Berkshire boar, year and eleven months old, in perfect condition. Paul N Lownsbery, Pleasant Grove, Cal.

WE HAVE some Fine Young Boars for sale. They are a Berkshire and Poland China cross, about six months old and of exceptional size and quality. Stanford Vina Ranch, Vina, Calif.

REG BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely, no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172 Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

QUALITY BERKSHIRES—Boas, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in State. $20 up. M Bassett, Hanford.

REGISTERED DUROC-JERSEYS from Eastern stock Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED DUROCS—Fine young boars. November farrow. Thorp, R. 6, Stockton.

READAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS H. E Roudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type Prize-winning stock. S F. Williams, Chico.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

POLAND-CHINAS—Young boars for sale. J. W. Lea Napa Junction, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electic car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Short Horn Bulls

20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

Stock Men Act on Legislation.

[Written for Pacific Rural Press.]

With an attendance that represented practically all of the large range interests in America, the delegates to the American National Association have, for the most part, left the State for their homes in various parts of the west and intermountain states. Before departing they have left behind new ideas in the matter of co-operative associations; for they have demonstrated most forcibly that the way to get just legislation for the producer is to have and support a strong organization which is eternally going after the things which are economic necessities to the industry represented.

This organization has long been considered the hook upon which to hang the stockman's legislative hat, and it was therefore natural that the strong features in each day's session were along the law-making lines.

In this respect the increase of freight rates on all classes of livestock which has been asked for by the railroads of the country was severely criticised by the Association and the progress of the trial before the Inter-State Commerce Commission was thoroughly explained by S. H. Cowan, attorney for the association. He stated that the contention of the railroads was that in view of the fact that business conditions in this country were depressed, the railroads were heavy losers, which condition made it necessary for rates on livestock to be raised if the railroads were to continue in business.

Mr. Cowan then quoted a part of the proceedings which took place at the last hearing, showing that the railroads do not possess data to show either the cost or profit in livestock shipments from given points in the country. For that reason he believes it unjust to the stockmen to raise the rates until such time as the railroads can show that they are making less than a fair rate of interest on such shipments. He stated that he would return East immediately after the close of the convention, at which time the hearing would be continued, in what he hoped would be a successful manner to the American National Livestock Association, which body immediately passed a resolution protesting against the proposed advance in rates on livestock, thus showing their hearty approval of their attorney's work.

Quarantine.—Believing that no other subject is at present of more importance to the stockmen of the country, and especially to the range men, who could not control it if once started, a great deal of work was done on quarantine measures relating to the foot and mouth disease, by the Sanitary Committee who worked in conjunction with the State Veterinarians of 12 western states.

Texas, Arizona and New Mexico representatives were agreed that the present quarantines now in force in those three states which prohibit the shipment of livestock into their states from all others was entirely satisfactory to them and they declined to enter into any agreement that would alter this condition. The other states represented took a different view of the situation, however, and agreed to allow free shipments in the following states: Utah, Colorado, Wyoming, Idaho, Montana, Washington, Oregon, Nevada and California, provided that each of the states mentioned maintained strict quarantine against other states, Texas, New Mexico, and Arizona not being included in the restricted district. This agreement is not binding and in case any of the states see fit they can withdraw.

It was generally believed by those present that this agreement will greatly facilitate the movement of feeder cattle from the southern ranges to those of the northern states, and at the same time protect everybody concerned from an outbreak of the dreaded disease.

Other subjects which were thoroughly discussed at the meetings and which were the foundation for resolutions being adopted in their favor were:

Demanding import duty on live stock and its products.

Endorsing the work of the Bureau of Animal Industry and the various sanitary officials of western states for their work in eradication of foot and mouth epidemic.

Demanding more thorough inspection of the wholesomeness of imported meat food products.

Demanding protection from the Federal Government for American Live Stock owners and ranchmen in the Republic of Mexico.

Requesting adequate inspection of live stock and meats imported from Mexico.

Asking for funds to carry on work of suppressing infectious diseases.

Endorsing work of Agricultural Colleges.

Opposing prohibitive tax on oleomargarine.

Endorsing administration of National Forests.

Favoring Federal control of public grazing lands.

Thanks to railroads for certain rate readjustment from Montana westbound.

Asking an appropriation for destruction of predatory wild animals.

Protesting against the proposed advance of railroad rates on live stock.

Asking railroads to readjust westbound rates on live stock.

After six years of faithful service as president of the association, H. A. Jastro of Bakersfield resigned to allow a young man to take up the work. Dwight H. Hurd of Phoenix, was chosen to succeed him.

Stock Buyer

J. HENRY LETTOW,
Los Angeles, Cal.

Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.

EXCHANGE BUILDING.

The Ideal Green Feed Silo

A Practical Piece of Dairy Equipment

SUPERIORITY AND EFFICIENCY count for as much in a silo as in a cream separator.

A CHEAPLY CONSTRUCTED or improperly designed silo is a waste of money. It is even worse than none at all for it is usually a source of loss, in spoiled feed.

THE IDEAL GREEN FEED SILO is of proper design, material and workmanship, and will return as good ensilage every pound of good feed put into it.

YOUR SUCCESS in the use of an Ideal Green Feed Silo is highly important to us, for we sell everything a dairyman will need and we want you to succeed.

THE IDEAL GREEN FEED SILO is a practical piece of dairy equipment.

REMEMBER, a cheap silo is even worse than a cheap separator.

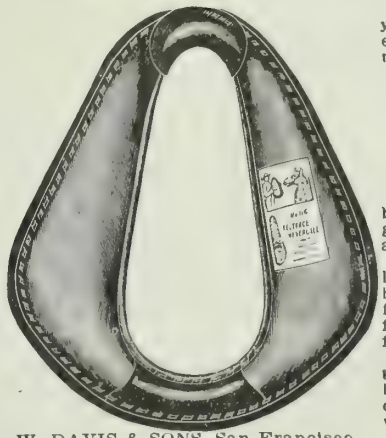
Why Experiment?

Send for new 1915 Catalog B.

De Laval Dairy Supply Co.

SAN FRANCISCO. SEATTLE.
Everything for the Dairy.
ENSILAGE CUTTERS. ALPHA ENGINES.

SORE SHOULDER INSURANCE



If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face".....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Feltface" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about **"FELTFACE"** collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.
Very truly,
W. F. INGWERSON,
(Harness-maker) Visalia, Cal

A selling agent (dealer) in nearly every town. If none in your town, write us

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

Copro

Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

Pure Cocoanut Oil Cake Meal

An Economical and Palatable Food For Dairy Cows, Hogs and Poultry

WAR has advanced the price of wheat and other food staples, but it has not advanced the price of Copro. Feeders will find this superior feed the most economical and most nutritious they can buy.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B
PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.

Raising More and Better Pigs.

[Written for Pacific Rural Press.]

Too much emphasis cannot be placed on the caring of the pig during its first days of existence, is the belief of E. M. Innis, manager of the Enterprise Stock Farm in Alameda county, who keeps about 40 sows, growing pigs for breeding purposes as well as for the market.

At the time of our visit in March the spring litters had just been farrowed and we were told that for a solid week, staying up at night as well as day, simply catching a little sleep at odd times, had been the rule, but we were also informed that the time thus spent had been very profitable, as from all of the sows, but one pig had been lost through inattention.

Situated as they are on land which overflows quite badly in the rainy season, the farrowing houses on this ranch have been built up off of the ground about two and a half feet. In extremely bad weather this system allows of keeping the hogs dry, as they are not turned out of the houses at such times. The benefit of this system was easily discernible at the time of our visit, for while a heavy storm of several weeks'duration had just passed, the process of pork prduction had continued just the same, a great many of the pens containing sows with large litters, while another larger one contained a fine lot of stock hogs which were just being finished up for the market.

There are two of these farrowing houses, both of which are built of lumber, floors included, and each one containing a large number of individual pens. Hinged doors on the back of each pen allows access to the pens, both for entering and for feeding. The floor being elevated, as before mentioned, naturally raises these doors to a convenient height for pouring the feed directly into the troughs, which are placed inside of the house next to the doors.

An opening in the front of the building allows the hogs free access to the outside pens, which are in turn adjacent to the alfalfa fields, where the hogs are allowed to run in good weather after the pigs have been weaned and until about a week before farrowing time. When kept in the farrowing house the ration fed is composed of alfalfa meal, crushed barley and skim milk. This has been found to be a good fattening ration as well as a good one for the brood sows and pigs, although it is moderated to meet conditions.

At farrowing time the sows are carefully watched, as well as each new born pig, and for the first few days the pigs are kept away from the sows except at regular intervals when they are allowed to eat from their mother. By clipping the young pigs' teeth the first day the sows are not irrigated as they would otherwise be, and as a result they are not so apt to roll around and kill the pigs.

As before mentioned, this ranch produces both market and breeding hogs, but it is the intention to gradually work into registered Berkshires and Chester Whites. With that end in view, good-sized foundation herds of both these breeds have been started and as a result most of the young stock is sold at weaning time to farmers in the immediate vicinity at exceptionally good prices, due to the better quality they possess for fattening purposes than the common scrub hog of that neighborhood.

With a strong conviction that pork raising will be more profitable than any other branch of farming, the owners expect to materially increase the present herds of swine, the only other source of income being a small 17 cow dairy which is run primarily for the skim milk it affords, a factor which the owners of the ranch consider of prime importance.

If more farmers were to pin their faith to the highly bred hog as their chief source of income, it is probable that many of the ranches which are paying a poor annual income at present would show a much larger profit to their owners as well as help to diminish the 20-million-dollar bill that we yearly pay to other states for pork and pork products.

The Nation's menu must be made up from the fields, pastures, orchards and gardens, and to farm intelligently the farmer must know what is needed.

"The Farmers Friend"

Ask your Dealer

BERKSHIRES Oak Grove

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Entire Herd Registered Holsteins

Headed by two-year Bull Prince Korndyke Pontiac 2nd, who combines 37½% blood Pontiac Korndyke record dam and sire's dam averages 27.88 lbs. butter 7 days. Two 5 yr., two 3 yr., six 2-yr.-old-cows. Two yearling and two young heifers, one yearling bull and 3 bull calves also four extra high grade 2-yr. fresh heifers. 10 females, sired by Segis Oak Homestead Fobes, whose 7 dams average over 27 lbs. butter 7 days from dams who are daughters and granddaughters of Hengerveld de Kol, Woodcrest, Hengerveld de Kol Dutchess Ormsby Piebe Burkeeels. This stock is equal in breeding and individuality of any in the State. Come and see for yourself.

For particulars and prices address..
H. S. VAN VLEAR, Lodi, Cal.

Swineland

FAMWORTH'S DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.

Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

ABSOLUTE DISPERSION SALE

of the
P. F. SCHUMACHER HERD
Recently Tuberculin Tested.

75—Registered Holsteins—75

Ascot Park, Los Angeles, May 12, 1915

This is the greatest event of Holstein history of the Pacific Coast. There will be more high record cows sold in this sale than in any sale previously held in the West, including a cow with a record of 29 lbs. and one with a record of 28 lbs. of butter in 7 days. Daughters and granddaughters of such famous sires as Pietertje Hengerveld Segis; Rag Apple Korndyke 8th, the $25,000 bull, Sir Fayne Concordia and others of equal note.

A noteworthy feature of this sale is the large number of females in calf to TILLY ALCARTRA'S SON, Junior Herd Sire of McAllister, and Son Herd. This bull is the son of the only cow to make over thirty thousand pounds of milk in one year.

Bulls! Bulls! Bulls!

McAlister & Son having purchased the famous Merci ranch herd of Modesto, are consigning their entire lot of herd bulls consisting of a son of King Segis Pontiac Emperor, senior herd sire of the A. W. Morris & Sons herd and out of a 20-lb. daughter of Juliana King of Riverside. A son of King Pontiac Artis, formerly herd sire of Stevens Bros. Co. of New York and out of a good record daughter of Prince Hengerveld De Kol. A son of Pontiac Hengerveld Parthenia, the $9000 son of Hengerveld De Kol. A number of other high-class bulls and bull calves will also be sold.

YOUR OPPORTUNITY

It will be many months before you can buy at your own price such high-class cattle! Don't let this wonderful opportunity slip!

TERMS: $500 and under cash; over $500 one-third cash, balance in three equal payments in three, six and nine months with note and approved security and 8 per cent interest. Five per cent discount for all cash on time sums.

For catalog address
JAMES W. McALISTER, JR., Sales Manager.
Chino, Calif.

COL. BEN A. RHOADES, Auctioneer,
1505 South Main St., Los Angeles, Calif.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

Have You a Catalogue of California Breeders Second Annual Jersey Consignment Sale?

If you have not, get one. 80 Head of stock, all fully guaranteed, PRIZE WINNERS and PRODUCERS, HEIFERS, CALVES, etc., etc.. One of the best offerings we have ever had.

Don't forget the day! MAY 4th. Don't forget the place! MODESTO.

CONSIGNORS:
C. N. Odell, Modesto.
D. Larsen, Stevinson.
Dr. L. J. Belknap, San Jose.
F. B. Wulff, Modesto.
Dr. S. Z. Peoples, Petaluma.
D. Wall, Modesto.
Mrs. A. E. Melander, Stevinson.
and many others.

For free catalogue and particulars, address
G. O. HILLIER Sales Manager.
2106 Telegraph Ave., Oakland.

B. A. RHOADES, Auctioneer,
Los Angeles, Calif.

We are also going to sell 60 HEAD of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

FOR SALE.

Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

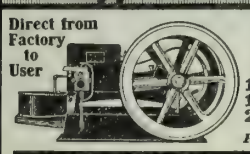
COW DOESN'T BREED.

To the Editor: I have a heifer that came fresh in December, first calf. In four weeks she was in heat and has come around regularly ever since, but so far I have not been able to get her bred again. She takes the bull all right, but as soon as he covers her, or ten or fifteen minutes afterwards, she humps up in the back and strains for all she is worth. There is a whitish looking stuff coming from her. I suppose that comes from the bull. She is in good health and milking good. I used sterliold the last time. Every third day I irrigated the womb with the mixture. It is put up by the Martin Remedy Co., of New York, and hasn't done any good. Can you tell me what is the trouble?—J. M. F., Raisin.

[If mouth of uterus is open, explore the womb with your hand and see if there is any afterbirth left. If you you find any, remove it. Irrigate the vagina daily with a gallon of water containing one ounce potassium permanganate. Allow this to drain out, then irrigate with a gallon of water containing one ounce powdered alum. Continue this treatment for two weeks.]

Now! These New Engine Prices

Direct from Factory to User



2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 197.00
16 H-P, 308.80
22 H-P, 389.65
Portable Engines Proportionally Low.

WITTE Engines

Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Standard the world over for 28 years. Better today than ever. Why pay double price for a good engine, or take a poor or doubtful one for any price, when the WITTE costs so little and saves all risk?

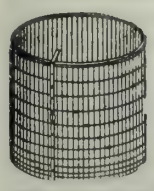
5-Year Guaranty

On Efficiency and Durability.

Direct from Factory to Users, for cash or on easy terms, at prices hitherto unheard of, for engines of these merits: Long-wearing, semi-steel, separable cylinders, and four-ring pistons; all vertical valves; automobile ignition; spark shift for easy starting; variable speed; and others, without which no engine can now be high-grade. I am simply sharing my manufacturing advantages with engine buyer-users—asking only one small factory profit.

New Book Free The most easy-to-understand engine book in the business. Gives the "inside" of engine *selling* as well as *manufacturing*. Shows my liberal selling plans with complete price list. Write me your full address for my prompt reply.

Ed. H. Witte, Witte Engine Works, 2861 Oakland Ave., Kansas City, Mo.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON

640 SO. CENTER ST., STOCKTON, CAL

HORSE OWNERS! USE GOMBAULT'S

CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

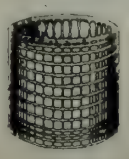
THE LAWRENCE-WILLIAMS CO., Cleveland, O

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal



Redwood Tanks

I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

PIGS COUGH.

To the Editor: Although my pigs are not sick, they have had a cough for a long time. One of the sows had pigs, and they are commencing to cough, too. What shall I do for them?—Mrs. B. S., Marysville.

[First see that your pigs have good, dry sleeping quarters with no draughts. Place in different containers where pigs can have free access to them, the following substances: Powdered iron sulphate, salt, charcoal, and saltpeter. Have the following put up: Quinine sulphate, 1½ drachms; pulverized nux vomica, one drachm; pulverized ammonium carbonate, one drachm; pulverized camphor, one drachm; pulverized gentian Rad., 3 drachms. Make this into twelve powders and give one in molasses three times a day to each one hundred pounds of live weight until cough stops.]

HORSE HAS COLIC.

To the Editor—I have a two-year-old colt that seems to have the colic quite often. She will lie down and groan for awhile, then get up in a minute all right. She is quite a large animal for her age.—F. H. R., McFarland.

[Give colt one quart raw linseed oil containing one ounce fluid extract ginger. Have the following put up: pulverized nux vomica, 1 ounce; pulverized iron sulphate, one ounce; pulverized gentian, three ounces. pulverized potassium nitrate, one ounce; pulverized fernugreek, two ounces. Divide into eight powders and give one powder twice daily in bran or grain.]

SLOBBERS.

To the Editor: What medicine would you advise me to use for slobbers among hares?—P. V. G., Bakersfield.

[Wash out their mouths several times a day, using a saturated solution of potassium chlorate. Throw a couple of ounces of this into their mouths at one time, with a dose syringe.]

BROME GRASS FOR DRY LAND.

To the Editor: Is there a forage grass that can be grown, without irrigation, on a light, sandy soil? Our farm washes badly during the winter, so we would like to seed our ground to a perennial grass, with good root system, and try dairying. Do you think this would be profitable on a farm of sixteen acres, worth in the neighborhood of $225 an acre?—Subscriber, Arroyo Grande.

[Answered by Prof. P. B. Kennedy, Univ. of Cal., Berkeley.]

[We are inclined to believe that it would be unwise for you to attempt to go into the dairy business on a farm of sixteen acres of light, sandy soil worth $225 per acre, with our present knowledge of the forage plants that will grow on such lands without irrigation. For dairy purposes, unless it was alfalfa land that could be irrigated, I would not pay as high as $225 per acre for land. The Smooth Brome grass, Bromus inermis, would be the most likely grass to withstand the conditions of a light, sandy soil without irrigation. If you could secure a stand, it would withstand the summer drouth and would be sure to act as an excellent soil binder and prevent the washing of the land during the winter.]

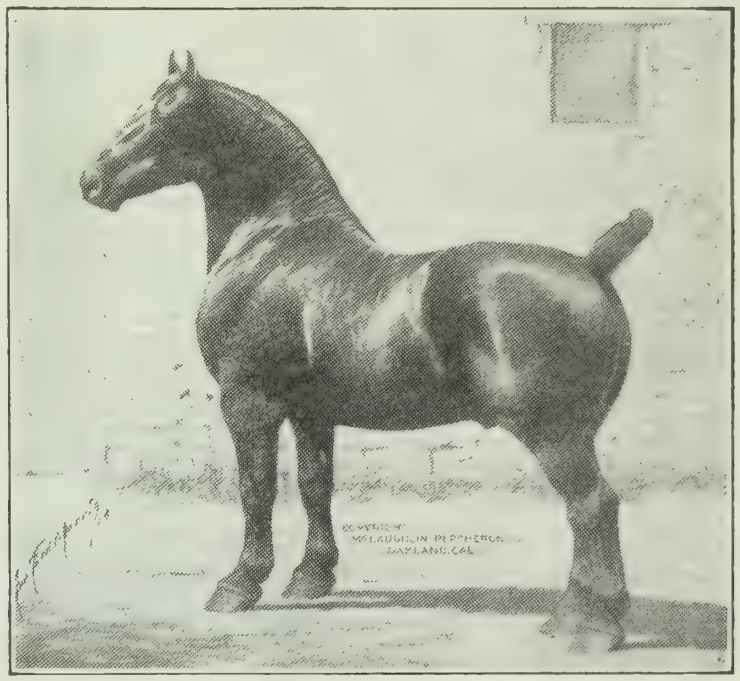
America's Leading Horse Importers

Dunham-McLaughlin Co.

Oakland, Cal. Wayne, Ill.

Percheron Horses

We have just installed a large assortment of Percheron Stallions and Mares in BARN NO. 8, LIVE STOCK DIVISION, AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION, SAN FRANCISCO.



IMPORTED PERCHERON STALLION MONSIEUR, Three Years Old. Black. Weight 2010 Pounds.

From now until December 1st the most representative Exhibit of the Percheron Breed can be seen in our View Herd on the Exposition Grounds instead of at our extensive stables in Oakland. Our Mr. William McLaughlin, or one of our representatives, will be on the grounds daily and will be glad to show the animals to parties interested.

OUR SAN FRANCISCO TELEPHONE FILLMORE 7000 AND ASK FOR LOCAL 726

During the past season we have sold double the number of imported Percheron Horses in California sold by all other firms in America combined.

Don't Fail to See Our Horses at the Exposition

Dunham-McLaughlin Co.

LIVE STOCK DIVISION (Barn No. 8.)

PANAMA-PACIFIC INTERNATIONAL EXPOSITION, San Francisco.

Federation Poultry Commissioner Bill.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Ass'n. of California.]

AS an important step toward stopping the $7,000,000 loss, we present below the full text of the measure as introduced, at the request of the Federated Poultry Association by Assemblyman Knox Boude on March 29, 1915. This is the State Poultry Commissioner Bill, mentioned in previous issues, and intended for use in case the Secretary of Agriculture Law should fail to pass. Every poultry raiser should read this carefully—and then act.

Assembly Bill 1539.

AN ACT TO CREATE THE OFFICE OF POULTRY COMMISSIONER, DEFINING HIS DUTIES AND PROVIDING FOR AN APPROPRIATION TO CARRY OUT THE PROVISIONS OF THIS ACT.

The people of the State of California do enact as follows:

SECTION 1. There is hereby created the office of poultry commissioner. He shall be appointed by the governor, and shall hold office for a term of four years, when his successor shall be appointed in like manner. He shall receive an annual salary of three thousand dollars, to be paid at the same time and in the same manner as other State officers are paid. He shall, within fifteen days from the time of notice of his appointment, take and subscribe to the constitutional oath of office and shall file the same in the office of the Secretary of State, and shall execute to the people of the State a bond in the penal sum of ten thousand dollars, with corporate security of two or more sureties to be approved by the Governor of the State, for the faithful discharge of the duties of his office.

SEC. 2. The poultry commissioner shall have his office in the city of San Francisco, and he shall, from time to time, obtain the necessary furniture, stationery, fuel, light and other proper conveniences for the transaction of the business of his office and the fulfillment of the duties thereof; provided, that the total annual expenditures provided for in this act shall not exceed four thousand dollars per annum.

SEC. 3. The poultry commissioner shall faithfully perform the following duties:

(a) He shall publish a monthly bulletin relative to the poultry industry, with the object of dispensing information to, and furthering the education of persons engaged or desiring to engage therein.

(b) He shall compile said bulletin from data and statistics collected from successful poultry producers and authorities on the poultry industry, both of this State and of the other agricultural States.

(c) He shall keep reasonable office hours and shall dispense informaion to all applicants to assist them to produce poultry on a profitable basis.

(d) He shall assist producers to establish co-operative markets, shall aid in the establishment of dispensing depots, and shall devise ways and means of reducing the cost of production and marketing.

(e) He shall conduct educational campaigns to promote sanitary production of poultry, shall co-operate with the State Board of Health in enforcing sanitary conditions and shall investigate and assist in the eradication of diseases peculiar to poultry.

(f) He shall encourage and work for the improvement of poultry stock upon the farms of California by advising poultry farmers in experimental work and shall investigate and experiment with new breeds of fowl and shall strive for the improvement of established strains.

(g) He shall assist in poultry shows and encourage the management of these exhibitions to include educational features covering all departments of the industry.

(h) He shall have power to inspect poultry farms, buildings and hatcheries, and may certify the quality of the products thereof to the public.

....(i) He shall, semiannually, certify under oath to the State Board of Control, the total amount of expenditures incurred by him in his official capacity for the six months preceding.

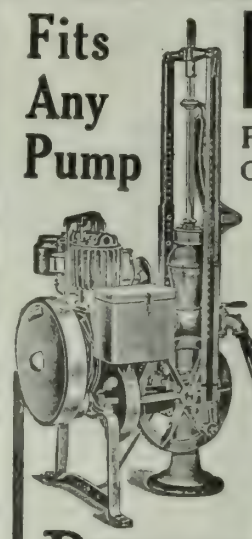
SEC. 4. The sum of eight thousand dollars or so much thereof as may be necessary is hereby appropriated out of any money in the State treasury not otherwise appropriated to carry out the provisions of this act.

As compared to the great amount of work to be accomplished this is a small amount of money, but it is a good start. Even with this small appropriation, this bill will not pass if the poultrymen do not urge it. Write Knox Boude, Sacramento, or to your Assemblyman or Senator at once, asking them to work for this bill. The time is getting short—write now.

In addition to this, circulate petitions to the Governor asking him to favor this bill and to sign it in order that it may become a law.

Owing to reduced State revenues, peculiar conditions confront the present administration. Hundreds of proposed bills will fail to pass. Only those vigorously called for by the people will be favored. Therefore, shower the Governor with petitions and resolutions so that he may have a good excuse for favoring your bill. But do so at once. If you wish us to present the signed petitions, mail them to Federated Poultry Ass'n., 525 Market St., San Francisco.

Fits Any Pump



All You Want Of It

FROM 270 TO 2450 GALLONS OF WATER PER HOUR WITH THE

FULLER & JOHNSON FARM PUMP ENGINE

This Farm Pump Engine has been rightly called "*the mainspring of the farm.*" Can be attached directly to any pump without extra fittings, special platform or foundations. It works in any kind of weather and will supply all the water needed for home or stock in the hottest and calmest days—for household or garden use—for washing buggies—fighting fire—for cooling porches—sprinkling lawns, etc.

No extras to buy. Comes complete in one crate, ready for instant use.

Remember there are 73 years of honest manufacturing experience behind this Farm Pump Engine.

It is not to be compared with cheap articles of the same sort which are *built merely to sell.* This engine is *guaranteed* and once you use it you'll say it's the best investment you ever made.

Our Low Price will surprise you.

Power

The Farm Pump Engine is also a complete power plant in itself. Relieves you of turning cream separator, churn, washing machine—in fact, anything that can be hitched to it. Runs steadily and easily and without vibration.

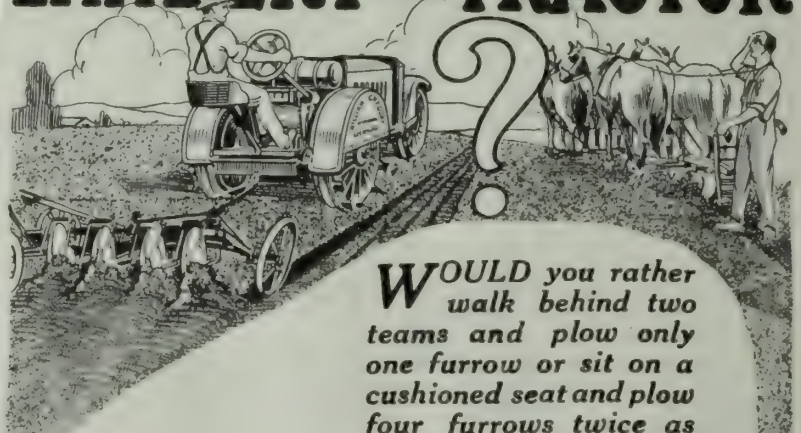
FREE BOOKLET

Let us explain in detail just what this pump can do and why it will pay you to own one. Send for our free booklet.

Pacific Hardware & Steel Co.
702 7th St., San Francisco
Los Angeles Portland

Water

LAMBERT STEEL HOOF TRACTOR



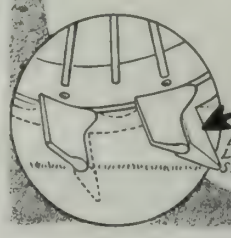
WOULD you rather walk behind two teams and plow only one furrow or sit on a cushioned seat and plow four furrows twice as fast?

Of course you'd rather do the latter. You can if you own a Lambert Tractor. It will run all day on less than a dollar's worth of fuel. It easily does the work of 8 or 10 horses and only one man's services are required. You can use it to plow, harrow, disc, cultivate, haul crops to market, for running power machinery and in many other ways. It's the one and only Tractor for ranches of all sizes.

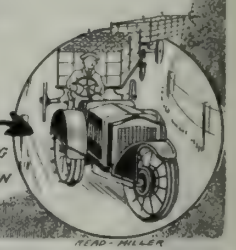
For field work, the Steel-Hoofs on the Lambert effect a positive traction—no chance of wheels slipping. For road work the Tractor runs on rubber tires and travels from 10 to 15 miles per hour. Built for years and years of dependable service. It reduces the cost of ranching, eliminates labor.

Call and see the Lambert work. You'll be convinced it's the Tractor to buy. Descriptive booklet on request.

WM. GREGORY
606 North Main Street
Los Angeles
Dealer in
Engines, Pumps, Irrigation Machinery, Autos, Oils, Etc.



FAMOUS LAMBERT STEEL HOOF



HAULING CROPS TO TOWN

READ-MILLER

CALIFORNIA POULTRY PRACTICE $1.50 Postpaid

By Susan Swaysgood. Pacific Rural Press, Publishers

Poultry for Profit.

[Written for The Pacific Rural Press by Susan Swaysgood, Pomona.]

Getting chicks and poults is a small part of the deal; what counts is keeping them to either market size or as layers. A good many well-meaning people feed little chicks wrong from the start. What is needed is a knowledge of the action of certain foods on a chick's digestive tract.

Feeding Chicks and Poults.—For little chicks I like rolled oats, but knowing that rolled oats are laxative I feed them but sparingly until the chicks are able to stand them. At some feed stores they sell a mixture of wheat flakes and rolled oats and in this case one offsets the other. But small chicks need something easy of digestion, so we feed a little rolled oats and if a loaf of baker's bread is cut in slices, baked brown in the oven and then rolled or pounded into crumbs, and this baked bread fed with rolled oats or at another time, it will quite offset the laxative tendency of the oats. And what is more, the chicks like to pick up the little brown crumbs and will scratch for them. A dry mash seems to be another necessity, at least after the chicks are a few days old, but this should not be fed indiscriminately. If it is given them about the middle of the forenoon and taken away about four o'clock the chicks have time to get up an appetite for the dry chick feed that should always be served for the last feed at night. Good dry grain chick feed lasts longer than any soft feed; and it is a long while from night till morning, for the little chicks. Their capacity is so small that they should be encourage to eat all they can and will at night.

Plenty of greed feed during the day, right from the start, if they will eat it, and get the chicks on the ground as soon as possible. Wooden floors are all right for us people that don't appreciate nature, but give a chicken the ground every time if possible, and it will thrive better. Of course if baby chicks are brooded artificially, on the ground they will need a good bed of fine-cut straw or other litter under them, because no brooder ever quite takes the place of the old hen.

Feed before Water in Morning.—Always take away the water can at night, then in the morning feed on a dry tummy. After the feeding fill up your drinking cans with water that has had the chill taken off or with skim milk if on hand. But beware of putting sweet milk before them one day and sour the next; it won't mix agreeably for the chicks. On the whole, if there is not time to be very clean with the drinking vessels, water is the safest for young chicks, and after a month old the milk can be given with less danger. It makes them grow, but the drinking vessels must be kept sweet and clean; and if there are many chicks it means extra work. The next important feature in raising chicks is exercise, and it is the exercise that develops the frame and internal organs. Chicks that are raised in close brooders and runs must have the ground dug up frequently and be well supplied with short cut litter. All the chick feed must be fed in this litter and the chicks kept hungry at first until they learn how to scratch and dig for feed.

Chick Runs Long and Narrow.—If you are short on room make your chick runs long and narrow. It does not look, on the face of things, as if this made any difference, but it does, because chicks always run straight ahead when they can and if you will watch you will notice that no matter how wide a yard is, they are nearly always traveling along the edge of the wire, so if the yard is long and narrow there is more room for them to run up and down the run. Infertile eggs may be fed to chicks, in moderation, after the first ten days, but it is not what I call a safe feed before that age.

Toes Look Like Worms.—The cause of toe picking is not so much a lack of animal food as it is a lack of exercise. The chicks have nothing to do. The hover does not pick up a tiny grass seed and call all the chicks on a run for that infinitesimal bug or seed; no, nothing calls the incubator chick, so he learns to rustle, and pink or yellow toes look very inviting and he wants to rustle them. Find some exercise for the little feet to do and they will not get picked. These professors of chicken lore make me smile to hear and read the learned reasons and causes of toe picking and other chick tricks. One says, "It's lack of meat"; another says, "It's a lack of mineral ash in the parent stock, consequently the poor chick is starved and immediately he arrives he begins to peck the toes of his brother chicks to make up for what his parents were short on." Great philosophy, that, but you just make those chicks earn their bread by the sweat of their feet and you will see they will forget all about a lack of mineral or meat. If they still peck toes, darken the brooder house windows and drive them out in the open, then when they go back they will scratch around in the litter.

February, March, and April are the months to do your hatching in order to secure early hatched pullets.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BABY CHIX as good as the best, regardless of prices. Booking for April and later. One hatch a week. White Leghorns, $8 per 100, $76 per 1000. Brown Leghorns, $10 per 100; $95 per 1000. Rocks, Orpingtons, Minorcas, Wyandottes Chix booked to order. Eggs for hatching. Chix shipped C. O. D., with 50 per cent deposit with order. First-class chicks, or your money back. Hawkeye Hatchery, Turlock, Cal.

BUFF LEGHORNS EXCLUSIVELY—Trapnested prize-winners at Petaluma eight regular prizes and special silver cup. Eggs $1.25 per 15; $6 per 100; 95 per cent fertile. Chix, $12 per 100. Write for price list of special matings and chix of other varieties. Golden Feather Poultry Yards and Hatchery, Amos Bowler, R. 5, Petaluma, Cal.

AT 5 CALIFORNIA SHOWS I won 112 firsts, 55 seconds, four times best bird in show and many specials. Utility and show stock. Eggs and chicks of Black, Buff and White Orpingtons, Rose and S. C. Reds, White and Blue Leghorns, Silver Campines, Anconas, Salmon Faverolles, Polish and Cornish Games. Free mailing list. Holman Poultry Farm, Stockton, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

FOR SALE—Last of March and April delivery. White and Brown Leghorn baby chicks from selected thoroughbred stock. Rose Hill Poultry Farm, Turlock, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

GET your day old White Leghorn chicks from Empire Hatchery, Empire, Cal. Strong healthy chicks from vigorous parent stock, selected and bred for heavy laying. $9.50 per 100; $90 per 1000. Beegle and Cullen, Props.

HATCHING EGGS—Any quantity any time. Rhode Island Reds, White Leghorns, $4 per 100; $35 per 1000. All from good layers. Our baby chick prices will interest you. Write us: Roofden Poultry Ranch, Campbell, Cal.

MACFARLANE STRAIN White Leghorn eggs, $1.50 per 15, $5.00 per 100, chicks $10 per 100 from our thousands of heavy layers. Order now, any quantity. Big plant, lowest prices, best stock. Newton Poultry Farm, Dept. 1, Los Gatos, Calif.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred, Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

BABY CHICKS—Single Comb White Leghorns. Selected stock. With a capacity of 25,000. Can fill orders on short notice. Carl Stange, 1408 Silver Ave., San Francisco.

SELECTED—Single-comb White Leghorn eggs for hatching that will improve your flock. All hens, 220 egg type. $1.50 for 15 eggs; $8 per 100. Jay Maxwell, Madera, Cal.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first-prize London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn selected stock, $5 per 100; $40 per 1000. Order now No baby chicks.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6. Box 336C. Phone S. J. 1889.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beegle & Cullen, Empire, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

ORPINGTONS—Buff and White Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

WHITE WYANDOTTES—Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15 Cockerels, $7.50 and $10. Nellie Presher, 3107 22nd Ave., Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

S. C. WHITE LEGHORNS—Eggs and chicks. Heavy layers. Write for catalogue. G. W. Suits, 378 Bandini Ave., Riverside, Cal.

TRAPNESTED LEGHORNS. White and Buff Stock; eggs, chicks. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BARRED ROCKS ONLY—Eggs for hatching, $5 per 100, and chicks $12 per 100 in April. G. S. Hawley, Madera, Cal.

PEARL GUINEA EGGS—$1 per 13. Indian Runner Duck Eggs, $1 per 13. Mrs. Kate Lambert, Box 93, Newark, Cal.

TURKEYS, DUCKS AND GEESE.

BUFF ORPINGTON DUCKS—The only large duck that is a great layer. Outlays the Runner. Eggs and baby ducks from Los Angeles. Prize winners. Mating list free. Ferris Poultry Ranch, R. 2, 144D, Pomona, Cal.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

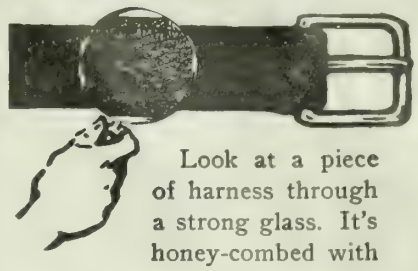
CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHESANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

BELGIAN HARES—Young stock for sale. Hurd Bros., St Helena, Cal.



Look at a piece of harness through a strong glass. It's honey-combed with pores—like a sponge. But you can't see them with the naked eye.

EUREKA HARNESS OIL

If moisture, sweat and dust are allowed to get into these pores, they gradually sap the life and strength of your harness. An occasional application of Eureka Harness Oil fills the pores of the leather and resists the attacks of the elements. Eureka adds years of life to your harness. It pays to use it. Dealers everywhere.

Standard Oil Company
(California)
San Francisco

Get the Best for your chicks

Coulson's POULTRY FOODS

Special Chick Food

Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

Free Book

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
"Kilmol" Squirrel and Gopher Killer.
F. F. SMITH & CO.,
1006 J Street, Sacramento.

The Home Circle.

PAUL AND HIS AIRSHIP.

By Alice E. Allen

It was Uncle Paul himself who put the finishing touches on Paul's airship; and it was Uncle Paul himself who unconsciously put the last touch on a thought which had been busy for days in Paul's head.

"Will it really fly, Uncle Paul?" asked Paul anxiously of his adored uncle.

"As well as some others, probably," said Uncle Paul gloomily. He didn't tell Paul that his own wonderful aeroplane, by failing to make a long-expected ascent, had just disappointed him beyond words. He went back to his car waiting for him outside the yard, and with a shrill "Honk!" disappeared around the corner.

After Uncle Paul had gone his small nephew stood for a time looking at his new airship. It had been made for him by his admiring uncles and his own father, all of whom were so interested in aviation that they talked about little else.

Paul's airship was really a wonderful toy. It was quite large enough to hold a very small boy like Paul, and if you worked the steering-gear just as Uncle Paul said, the big white sails moved up and down and the little ship moved with them.

"Of course it will fly," said Paul. He drew a deep breath and looked up, up, up at the fleecy clouds in the sunny blue of the sky. "It just can't help it."

Paul had heard so much about the joy of flying like a great eagle through the clear upper air that it was no wonder he wanted to try it for himself.

He climbed into the airship and set the white sails buzzing. The airship sped a little way over the smooth lawn, but it didn't fly as Uncle Paul's did. Little Paul had been to see his famous young Uncle make a trial trip once.

"I think," said Paul to himself, "if it was high enough to begin with, it would fly."

Then a wonderful plan came to Paul. At the end of the street stood Aunt Marcia's house. On the other side which overlooked the public park was a beautiful tower. It had an outside stairway with a landing about half-way up. Aunt Marcia was away just now and her house was closed, but Paul and Aunt Marcia were great chums, and she had told him that he might sit on the landing whenever he wanted to. If he could only get the airship to the landing he was quite sure he could make an ascent, and how proud and pleased Aunt Marcia would be some day to think that the first ascent of the great aviator Paul Gordon had been made from her tower.

Just at this minute, down the street, with a great clatter, came Marcia drawing Lily in Paul's express-wagon. Marcia was Aunt Emily's little girl. She was the biggest of all the cousins who lived on the street. Lily belonged to Aunt Lily. Except for the babies she was the littlest cousin. Lily was a slender flower of a girl, always dressed in dainty white things which mustn't be soiled or torn. As she and Marcia rattled past, Lily waved her hand at Paul. Behind the cart trotted Sambo, Lily's big black cat.

"Lily had a pussy cat,
His fur was black at ink;
And everywhere that Lily went,
The cat went too, I think!"

cried Paul, in teasing sing-song. Then suddenly "Marcia!" he shouted.

Marcia dropped the handle of the cart and turned toward him.

"If Lily will get out of the cart," he said, "and you and she will help me get my airship up to the stair-landing at Aunt Marcia's, you can see me make an ascent."

"Will it fly—really-truly?" gasped Marcia.

"Just come along—you'll see," said Paul.

Lily was quickly emptied out of the cart. Somehow or other, between them, Paul and Marcia got the airship to Aunt Marcia's side yard, and, tugging and boosting, got it safely to the landing.

Paul looked at the park, its soft velvety green, its cool paths, its glinting pond. At the entrance, just below the landing, was a peanut-stand. Guiseppe, who tended it, was asleep in the sun. Soon, he, Paul Gordon, would leave Guiseppe, the peanut-stand, Marcia, and Lily far behind, and would sail away, away, away up toward the fleecy cloud airships of the sky.

"I can't take you, Marcia, 'cause your'e too fat for the airship," he said, "and maybe Aunt Lily wouldn't like me to take Lily, but I guess I'll take Sambo."

Sambo was sleepy and settled down contentedly in the ship. One end of Lily's blue sash was tied to his collar, the other was fastened to the side of the ship. The airship was pushed almost to the edge of the landing. Paul took his place, pulled down his cap firmly, and set the machinery going.

"Whir, whir, whirrity," sang the white sails. The airship moved along the landing—left it; but instead of going up, up, up, it was the green of the park and the glint of the distant pond which went up, and Sambo, the airship, and he himself went down, down, down. Sambo reared his back. His eyes were like green stars. His tail was a great black fluffy plume. "Sp-zz-sz-zzz, sz-zz!" he sputtered. Somebody overhead—it seemed miles overhead—screamed wildly. Paul shut his eyes and gripped the steering-gear. The next he knew a sudden thump sent him flying out of the airship on some friendly soft substance which turned out to be grass. A hissing, spitting, soft, black object trailing the yards of blue behind it flew past him like a fury. Showers of small hard things pelted his head and face unmercifully. One of them went into his mouth and tasted salty.

"Peanuts," he said aloud. Some one stood over him, talking angry gibberish and making frantic gestures at an overturned peanut-stand nearby. It was Guiseppe. Paul's airship had brought him straight down from the landing to the park entrance and had bumped him carefully in the grass, upsetting, as it did so, Guiseppe and his peanuts. It lay a total wreck beside him.

MANLESS LAND
for the
LANDLESS MAN
2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

PIPE
NEW Threads and For Every Purpose Couplings Hot Asphaltum Dipped
2nd Hand and New
Screw Casing Fittings and Valves Guaranteed for Pressure
PACIFIC PIPE CO., 4 Main and Howard Sts., San Francisco.

It's SAFE SWIFT SURE To Travel On The
OAKLAND, ANTIOCH & EASTERN RAILWAY
Electric Service To and From Water Gate of
Exposition Grounds and Sacramento
CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON,
And Other Sacramento Valley Points.
Reduced Round Trip Rates
From All Points
Every Day During the Exposition
TICKET OFFICES:
Key Route Ferry in San Francisco. Phone Kearny 2339.
Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

How to Get Rid of Ants.

Information of Great Value To Every Housekeeper

Even though you are not troubled with ants just at present, you are almost certain to be in the future—for these pests have a way of getting into every house at some time or other.

Everyone will be interested in knowing, therefore, that a sure exterminator of these annoying insects is now available. It remained for a baker and candymaker, whose shop was overrun with ants, to devise a means of effectually ridding himself of this nuisance.

So successful did his remedy prove, that it was decided to place it upon the market for general use—with results exceeding the most sanguine expectations. It is for sale at all druggists under the name of Kellogg's Ant Paste—and thousands of houses all over the country have been completely rid of ants by its use.

Try a package today, and if you follow directions closely your ant troubles will be solved forever.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

GET THE STUMPS OUT!

Make ALL Your Land Earn Money For You

"K" HAND-POWER STUMP PULLER

Makes stump pulling a one-man job. This powerful machine *weighs* only 171 lbs., but it *pulls* 96,000 lbs. Two speeds, high speed for light work, power speed for heavy work. No chains. Pull more than horse machines. Complete equipment, including 200 feet Weatherproof English steel cable. Used by U.S. Gov't in Alaska, and by many states and counties.

Valuable Book on Land Clearing FREE—My new catalog tells costs of different methods of land clearing. Write for it today, and get special direct-to-you prices.

W. J. FITZPATRICK
Box 32 1926 2nd Ave.
Seattle, Wash.

Porto-PANAMA Hats

COOL AS A DROP OF DEW

Hand-woven, soft, durable, comfortable. Good as the South American Panama but cooler, lighter, more dressy. Direct from maker to you $1.50 postpaid. State size and send money order. Money refunded if you are not perfectly satisfied. Very stylish for Ladies this year.

MARTIN LOPEZ & CO.,
P. O. Box 148, B. 8, San German, Porto Rico.
Reference: Bank de Economias, San German.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENTS PATENT AGENCY

Circular containing 100 mechanical movements mailed free.

Guiseppe's storm of words pelted him almost as unkindly as the peanuts had. Of them all Paul could make out but one; that one was "jail!"

Dizzy, but otherwise unhurt, Paul got to his feet.

"I'm so sorry," he said politely. He tried to touch his cap as Uncle Paul did, but his cap was gone. "I—I was only flying. You can't arrest a man for flying in his own airship, Guiseppe."

But Guiseppe still waved an unfriendly hand at his overturned peanut-stand, his scattered peanuts.

Just how it might have ended it is hard to tell, but at that moment along the street came a procession of aunts and cousins. There was Aunt Lily with little Lily sobbing along beside her; Aunt Frances, the baby in her arm; Aunt Lucy pushing the twins in their go-cart; Aunt Emily scolding Marcia; and Paul's mother, white and scared-looking, holding Paul's motor-cap closely to her heart.

At the entrance to Aunt Marcia's yard the procession of aunts and cousins was met by Aunt Marcia herself, bag and baggage, with Uncle Paul in his car.

"Thought we'd give you all a little surprise," cried Uncle Paul. "Hello—what's up?"

"Oh, Uncle Paul," wailed little Marcia. "It's—it's Paul, and he isn't up—he's down."

When they all discovered the angry Guiseppe, the scattered peanuts, the stranded airship, Paul, they one and all fell upon the young aviator. Finding that nothing was injured about him except his feelings, they left him to his mother. Aunt Marcia and Uncle Paul, who were the only ones with pocketbooks, took up a collection for Guiseppe twice the value of his peanuts. Then, leaving the wreck of the airship to be brought home by Uncle Paul in his car, they all went slowly back up the street.

On the porch of Aunt Lily's house sat Sambo. He was busily engaged in smoothing his rumpled fur, but at the first sight of the procession he flew down the steps and disappeared around the corner of the house. Something blue trailed after him.

"Maybe he thinks you want him to make another ascent with you Paul," giggled Marcia.

"He can't go—Sambo can't go, can he, mother?" wailed Lily.

"I'm not going again myself," said Paul. He smiled up at mother, who smiled back. "That is not till I'm a big man like Uncle Paul, with a real airship!"

HOUSEHOLD HINTS.

A pinch of soda added to stewed sour fruit makes less sugar necessary in sweetening.

Never stand gelatine aside to cool unless a light covering is thrown over it, to prevent the absorption of germs.

Left-over cereals need not be wasted. They are excellent fried like mush, and eaten with syrup or honey.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO; Blake, Moffitt & Towne, Los Angeles; Blake, McFall & Co., Portland, Oregon

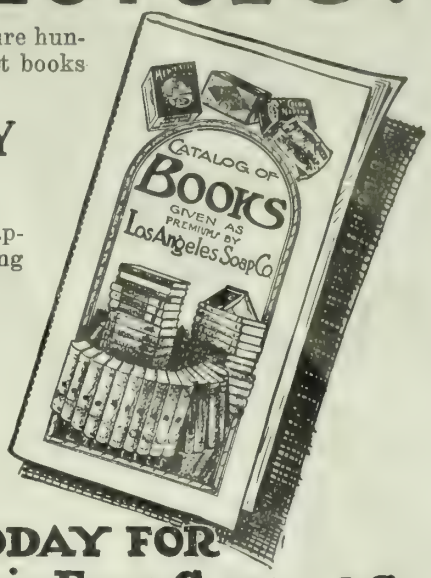
Book Lovers!

Here is your opportunity to secure hundreds of standard and copyright books by world famous authors

PRACTICALLY FREE

by saving the coupons and wrappers from our soaps and washing powder.

Books for boys, girls, children, and grown-ups. Single volumes as well as complete sets. Fiction, History, Travel, etc. Finely printed. Well bound. A handsome addition to any library.



SEND TODAY FOR THIS FREE CATALOG

-Giving List of Books and Full Details of How to Obtain Them-Or Ask Your Dealer

for a copy of this list, and when you buy soap insist on MERMAID QUEEN SOAP, COCOA NAPTHA SOAP, LADY JANE TOILET SOAP and MERMAID WASHING POWDER—the cleansers of quality and quantity.

1000 Premiums

in addition to books we also give as premiums nearly 1000 different articles—including pipes, silverware, cutlery, purses, wallets, pictures, pennants, etc. Our name and reputation is a guarantee of quality and worth. Your name and address on a postal will bring you our premium list free. Write today.

Los Angeles Soap Co., 703 E. First Street, Los Angeles, Cal.
Premium Dept.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

The Markets.

San Francisco, April 7, 1915.

(Grain quotations are for round lots, delivered San Francisco.)

WHEAT.

Continued scarcity of tonnage and lack of new export business is having quite a depressing effect in all markets. Local business is extremely dull, while quotations are unchanged; the tendency of prices is distinctly downward.

Cal. Club, ctl	$2.35@2.40
Forty-fold	2.40@2.45
Northern Bluestem	2.40@2.45
Northern Club	2.35@2.40
Northern Red	2.37½@2.40

BARLEY.

There has been very little speculative buying, and the spot grain is entirely neglected, except for a small jobbing movement in feed. Choice lots are still held at the old prices, but off grades are lower. The crop is expected to be considerably below last year.

Choice feed, per ctl.	$1.25@1.32½

OATS.

Government inquiries and shipping business for Australia have tended to strengthen the oats market a little, but there is only a limited demand here, with supplies sufficient for all needs and values show no change.

Red Feed	$1.55@1.60
White	1.85@1.90

CORN.

Large shipments of Manchurian grain of the Milo type are coming in, but the few offerings are held at about the old figure. Business in all lines, however, is very quiet.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80

BEANS.

Some export business has been reported of late, but shipping on sales already made have been completed, and current business from the East continues rather light, with buyers taking only what is needed for the immediate future.

(On Wharf.)

Bayos Cal., per ctl.	$5.10@5.20
Blackeyes	5.50@5.65
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	4.90@5.00
Large Whites	4.75@4.90
Pink	3.90@4.00
Limas	5.00@5.10
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

Everything under this head is quite dull at present, values standing as for some time past.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb	Nominal
Canary	10 @12½c
Hemp	3 @ 3½
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Conditions continue very favorable for the coming crop, which from all indications will be very large; and as there is still a considerable tonnage of last year's hay on hand, the outlook for values is by no means encouraging, unless some new and important outlet can be found.

(Prices per ton, carload lots, on track, San Francisco)

No. 1 Wheat, per ton	$9.00@10.00
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	30@45c

FEEDSTUFFS.

Everything under this head continues very quiet, with prices rather easy. Rolled barley is $1 per ton lower.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	27.00@28.00
Rolled Oats	33.00@34.00

VEGETABLES.

A new offering this week is summer squash from southern California, which sells up to $1.75 per crate. Most of the eggplant is still coming from Florida, and the cucumbers are hothouse-grown. Artichokes from the Ocean Shore district are very plentiful, and prices are lower. Arrivals of asparagus are still heavy, with large lots going to the canneries below the regular market figures, which hold up to those of last week. Peas also are plentiful, and rather cheap, and celery is lower at the inside figure, with a good deal of trashy stuff offered. Rhubarb shows a wide range, Alameda stock being rather cheap, while shipments from Santa Clara bring good prices.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40c
No. 2	30 @40 c
Asparagus, box	$1.25@1.75
Peas, lb	3 @ 6 c
Peppers, bell, lb., large	15 @20 c
Tomatoes, repack'd crate	4.00@5.00
Celery, crate	1.50@2.50
Rhubarb, box	60c@1.40
Lettuce, crate	.75@1.25
Cucumbers, doz	90 @1.10
Eggplant, lb	25 @30 c
Summer squash, crate	1.50@1.75

POTATOES AND ONIONS.

The potato market shows considerable strength. Salinas stock is cleaning up, with advancing prices. Onions are quiet and rather plentiful.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl	$1.75@1.85
Lompoc	2.10@2.15
River Burbanks, ctl	1.25@1.75
New Potatoes, lb	6c
Sweet Potatoes, ctl	2.25@2.50
Onions, yellow, sack	75c @1.00
Garlic, per lb	17 @20 c

POULTRY.

The Jewish holidays during the past week gave considerable firmness to the market for a few days, but this demand is all over now, and some lines are lower. Broilers and hens in particular are easier. Offerings of young stock, however, are light, and both fryers and young roosters bring an advance. Belgian hares are very dull and lower.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	17 @19 c
do, dressed	18 @21 c
Broilers, small	30 @32 c
Fryers	22 @24 c
Hens, extra, per lb	18 @19 c
Small Hens, per lb	18 @19 c
Young Roosters, per lb	20 @23 c
Squabs, per doz	$2.50@4.00
Geese, per pair	3.00@3.50
Ducks, lb	16 @18 c
Belgian Hares	8 @ 9 c

BUTTER.

Both extras and firsts have stiffened up a little in the last few days, and the local market has been higrer than the south all week. The recent advance is attributed to a heavier demand in the north, which is diverting stock from this market, especially of extra grade.

(S. F. Dairy Exchange prices)

Extras	23	23	23	23	23½	23½
Prime	22½	22½	22½	22½	22½	22½
Firsts	21½	21½	21½	22	22	22

EGGS.

Extras are a fraction higher than a week ago, as the local demand has been quite active, and this grade has been a little less plentiful in the arrivals. Supplies of pullets are large, causing a drop in prices.

Extra	21	22	22	21½	21½	21½
Sel. Ful.	18½	18½	18	18	17½	17

CHEESE.

Fancy flats have stiffened up a

Fruit and Produce Raisers Take Notice

PARTIES ON RANCHES who are producers of selected choice fruits, vegetables, table poultry, etc., who might be interested in marketing their products direct to consumer on a profitable basis, should Address

F. L. DARROW,

1605 Telegraph Ave., Oakland, Cal.

THE MOST VALUABLE BUILDING MATERIAL CATALOG EVER PUBLISHED

Sent FREE Upon Request Send Coupon Below

MOST VALUABLE

because it has just been published. Contains the latest improvements and articles in the building material line. Most valuable because you will save 25% to 40% on everything in lumber, sash and door, plumbing, hardware, paints and oils. Most valuable because it tells you all about the quickest and easiest way to buy "direct from factory to consumer." You'll be delighted with our methods. Thousands have benefited by our mail order department. You can be one of them by just merely sending coupon below for our latest 1915 catalog. Just look at a few of these prices. Everything in our catalog is priced at a like reduction, and a liberal money-back guarantee goes with every purchase made from us.

GALVANIZED CORRUGATED IRON $4

—Corrugated Galvanized Iron, 2-in. corrugations, 6 to 10 ft. lengths. Brand new and in perfect condition. Per 100 square feet $4. —This is another illustration of how we can save you money. Remember we ship direct to you and save all unnecessary costs.

PAINTS $1.50 GAL.

—You can buy paints cheaper from us than any other dealer in the West. We buy in large quantities and sell for the lowest prices. —Standard House and Floor Paints, $1.50 per gal.

Standard makes of varnishes at 25% off regular prices.

Black Graphite Roof —per gal. 50c

Standard Roof Paints—red, green, gray— per gal. 85c

Shingle Stain, made from pure ground colors —per gal. 50c

Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.

Dutch Kalsomine 4½c per lb.

$30 WALL BOARD $19

—The finest grade of wall board to be had. Compare this price with what most dealers ask. Made of three layers of moisture proof fibre with asphaltum between, or you may choose the cream white fibre board.

—Easy to lay and costs but $19 per 1000 sq. ft.

BARBED WIRE $1.85

Galvanized American Special Light Barbed Wire, in 80-rod reels, at $1.85 per reel.

Heavy Galvanized Waukegan Barbed Wire at $2.40 per 80-rod reels. Compare these prices with your local dealers. Remember we ship direct and guarantee satisfaction or your money back.

WIRE FENCING at Half Price— Per rod 35c

Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition; 55 inches high, 20 rods to the roll. This is just about half price. Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED POULTRY NETTING 42½c

2-inch mesh, all heights—150 lineal feet in a roll—per hundred sq. feet—full rolls 42½c

1½-inch mesh, in full rolls—per hundred sq. ft. 55c

1-inch mesh, in full rolls—per hundred sq. ft. $1.00

Any of this netting may be had 12, 18, 24, 30, 36, 48, 60 or 72 inches high.

"STANDARD" ROOFING PAPER

—A Splendid quality of roofing paper that most firms would sell 20 to 40 per cent higher. Each roll complete with necessary cement, nails, etc., ready to lay.

1-ply, double-sanded, per roll of 108 square feet $1.15

2-ply, double-sanded, per roll of 108 square feet $1.40

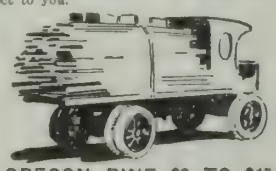
3-ply, double-sanded, per roll of 108 square feet $1.65

1-ply, "King" smooth, per roll of 108 square feet $1.25

2-ply, "King" smooth, per roll of 108 square feet $1.50

3-ply, "King" smooth, per roll of 108 square feet $1.75

Send for free sample. Remember we ship direct to you.



OREGON PINE $8 TO $15

Good new rough Oregon Pine lumber, all sizes, at $8 to $15 per thousand.

Oregon Pine lath, 4 ft., new, $2 per thousand.

Best grade Slashed Grain Oregon Pine, sanded finish, $37.50 per thousand. This makes a beautiful interior finish.

These prices will give you an idea of how our lumber department can save you money. Send in your lists and let us give you our price delivered.

SASH AND DOORS

—1-light sash, 40c and up.

Casement windows in pairs with 2 lights, $1.25 up.

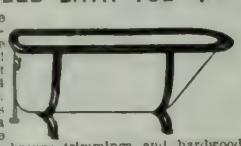
Screen doors, $1.25 and up; strongly made of best sugar pine.

A lot of 7-ft. Colonial doors, made of best sugar pine, at $1.50 and higher.

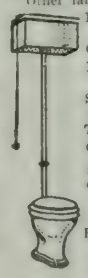
Prices on other material in this line are similarly low.

THIS SPECIAL STEEL ENAMELED BATH TUB $8

One of the greatest bargains we ever offered! Made of best galvanized 24 gauge steel. Outside is finished in a rich sky blue enamel with bronze trimmings and hardwood edge. Priced only $8.



Other larger sizes at $8.50, $9 and $10.



Low Down Enamel Steel Toilet Combination $11.50

Complete to floor—wonderful value.

Low Down Vitreous China Closet Combination $15.50

Special value—worth $22.50.

Big value in High Tank Toilet Combinations $10.00

Complete to floor—a bargain.

Special Bankrupt Stock of Kitchen Sinks.

All sizes—up from $1.00

Best Quality Porcelain Lavatories; every one guaranteed $10 down to $3.75

Be sure and send this coupon for our

Free Catalog

of Building Material just published. Save money on everything building. Our methods for filling mail orders will satisfy you.

SEND COUPON TODAY.

Whiting-Mead Company, 9th & Maple, Los Angeles, Calif. Please send me your 1915 Catalog of Building Material. PRP

Name

City

Whiting Mead Co.

9th and Maple Avenue

Los Angeles, - California

little, though supplies are still coming in freely.

(S. F. Dairy Exchange prices of flats and Y. A.'s)

Y. A.'s, fancy	13 c
Fancy Calif. flats, per lb.	12½c
Monterey Cheese	10@11 c

LOS ANGELES DAIRY PRICES.

Butter	22	22	22	22	22	22
Eggs	20	20	20	20	19	19
Cal. Cheese	11½	11½	11½	11½	12½	12½

DECIDUOUS FRUITS.

Apples continue to move slowly, and while good Newtowns are doing a little better, values on ordinary stock are very poor. Strawberries are now offered in fairly large quantities from southern California, as well as some from Fresno and Palo Alto. The latter has been bringing about 75c per drawer.

(Wholesale prices, San Francisco)

Strawberries, So., crate	$1.00@1.50
Fresno, crate	2.25@2.50
Apples, Newtown Pippins	50 @90c
Belleflowers	25@50c

DRIED FRUITS.

There is not much of interest to report on dried fruits at present, as business in spot offerings is quiet, and except for peaches and apples the remaining stocks are for the most part small and scattered. The buying movement is slow in practically all markets, and of late there has been little doing for export, though there is talk of further foreign inquiry in some quarters. A good deal of interest is taken in packers' offers out of the new crop, but it is much too early to form any estimate of future values, and the prices named would seem to be more with a view of depressing prices at this end than of making large sales. The New York Journal of Commerce says:

The combined influence of the Easter and Jewish holiday season has tended to make this one of the dullest weeks in an unusually dull period. About the only feature of any consequence was the better tone developed in the spot and future California prune market as a result of increased inquiry. It did not appear, however, that export buyers had renewed their activity. The inquiry for prunes held here has been growing of late, but it has resulted in comparatively little business so far, as buyers are reluctant to meet the views of holders and the latter are unwilling to make concessions. However, it is understood that East Side holders have done quite a little business in the past day or two at a fraction under the quoted prices.

Evap. Apples, 1914	5 @5½c
Apricots, 1914	6 @8½c
Figs: White, 1914	3 @3½c
Black	2½ @2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	5 @5½c
Peaches	3 @3½c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction markets are barely holding their own under heavy receipts from California and Europe. Orange shipments from south of the Tehachapi are now at the highest for the season. Prices on the New York auction, Monday, April 5th, averaged from $1.50 to $2.45 per box for navels, and from $2.25 to $2.60 per box for lemons.

At San Francisco values remain as before. Trading has been fairly active in all lines, but offerings of oranges and lemons are liberal and there is no particular firmness in the situation.

(Wholesale prices, San Francisco)

Oranges, navel, box	$1.00@2.10
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx	1.25@2.00
Fancy	2.50@3.50
Lemons, box	1.50@2.50

NUTS.

The Almond Association reports a fairly strong demand from other consuming markets, with little desirable stock available. The local demand, however, is light, and there are a good many scattered lots of mixed or ungraded nuts that find no demand.

(Prices f. o. b. San Francisco.)

Almonds, 1914 crop:	
IXL	14½c
Ne Plus Ultra	13½c
Drakes	12½c
Texas Prolific	12½c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½c
Manchurian	7 @ 9 c

HONEY.

Buyers have been taking hold a little better of late, but the movement is light at best, and has made little impression on the large holdings remaining in the State. With a new crop due shortly, the outlook for values is not encouraging.

(Prices on cars, San Francisco.)

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

Beef cattle continue to arive in rather large quantities, and with only moderate demand the price has broken a little. Sheep and lambs have also eased off a little, as lambs are coming in more freely, and growers are more disposed to sell since the shearing has been finished in some districts.

(Prices at Butchertown, S. F.)

Steers, No. 1	6¾ @ 7 c
No. 2	6½ @ 6¾c
Cows and Heifers, No. 1	6 @ 6¼c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7¼c
100 to 225 lbs	7½ @ 7¾c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½c
Shorn sheep, less by	¾ @ 1 c
Yearling lambs	7½ @ 8 c
Suckling lambs	8 @ 8½c

WOOL.

It is impossible to give any definite basis of values for spring clip California wool at present. Local dealers say that San Joaquin year's staple, sold a few weeks ago at 20c or over, is not worth over 15c now, and that the eastern market is dull.

Wool .....Nominal

HORSES.

Some good sized lots of heavy stock from Nevada and Utah have come in this week, and as most of the offerings were well adapted to the requirements of this market, they sold off fairly well. There seems to be no very strong demand here, but a good many outside buyers are taking an interest, and desirable stock finds a ready sale at fair prices.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks, 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green mountain range horses, 950 to 1200 lbs.	50@ 90
Farm workers	60@ 75

MULES.

1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

HIDES.

The hide market is in poor shape, as there is considerable accumulating, and tanners are holding off.

(Country hides, delivered S. F.)

Heavy Steers, over 56 lbs	15 @15½c
Medium	15 @15½c
Light Steers, under 48 lb.	15 c
Heavy Cows, over 50 lb.	15 @15½c
Light Cows, 30 to 50 lb.	14½ @15 c
Kip	15½ @16 c
Veal	16 c
Calf	16 c
Dry Hides	25½ @26½c
Dry Kip, 10 to 15	24½ @25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

Removal Notice!

After April 1, 1915, our offices will be in the Insurance Building, California and Battery Streets, San Francisco, California.

California Almond Growers Exchange.

Modern Methods in Farming

Tractors, cement pipes for irrigating, automobiles, and scores of modern improvements and equipments benefit the farmer.

But the farmer who benefits most is he who raises the biggest crops of the finest quality on the least ground.

Animal fertilizer is the truest and surest of all crop producers. GOLD BEAR brand animal fertilizer is surest in results.

The booklet which tells about it will be sent you on request, free.

PURE ANIMAL MATTER AMMONIATES

GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

Western Meat Company

704 TOWNSEND STREET, SAN FRANCISCO.

Biggest Stumps Pulled For 4c Each—In 5 Minutes!

Free Book

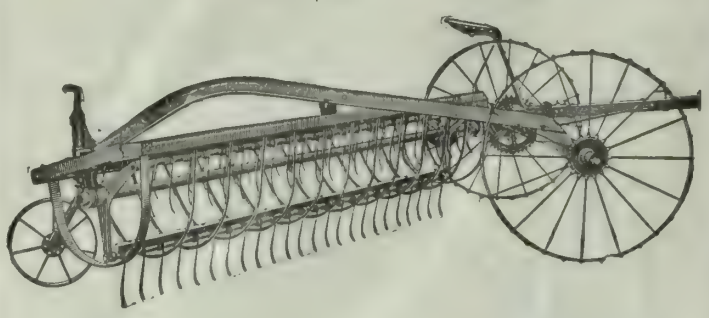
E. C. Culbreath, Johnston, S. C., does it. Thousands of others doing it. Why not you? Pull an acre of stumps a day. Double the land value—grow *big crops* on virgin soil! Get a

HERCULES

—the only all steel, triple power stump puller made. More power than a locomotive. 60% lighter, 400% stronger than cast iron puller. 30 days' free trial. 3 year guarantee to replace, free, castings that break from any cause. Double safety ratchets. Free book shows photos and letters from owners. Special price will interest you. Write now. Address

Hercules Mfg. Co., 112 23d St. Centerville, Iowa

International Harvester Haying Machines



YOUR haying tools must be strong and steady in frame; they must work easily and smoothly; they must get all the hay and put it into the best shape possible. That is why you must consider **International Harvester** hay machines, for **I H C** hay machines have never been beaten for good work in the field or for durability, at any time or place.

I H C local dealers sell these machines. It is to their interest to see that your hay is put into the barn, stack or bale, in the best condition, regardless of the weather or accident. When they sell you an **International Harvester** tedder, side delivery rake, self or hand dump rake, stacker, sweep rake, loader, combined sweep rake and stacker, or hay press, they sell you a machine that you can depend upon; that will give you perfectly satisfactory service.

Drop us a line, and we will direct you to the nearest dealer handling our machines, and will also send you interesting catalogues on any one of these machines you may be interested in.

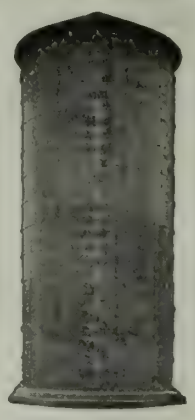
International Harvester Company of America
(INCORPORATED)

Crawford, Neb. · Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

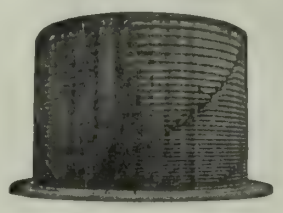
SILOS

BUILT FOR YOUR PARTICULAR NEEDS,
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR
CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

THE HAY STACKER THAT SAVES TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us **NOW** for full details explaining just what it can do and how it can save you time, work and money. Address

SCHMEISER MANUFACTURING CO.
Box 87
Davis, California

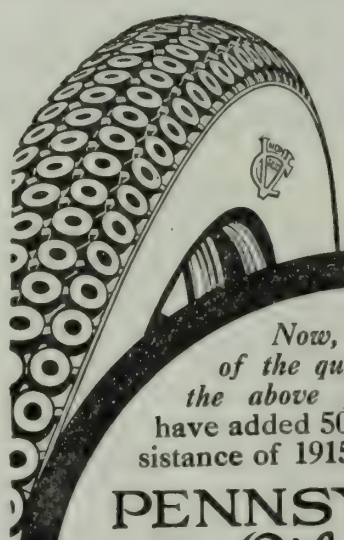
PILES UP HAY AND PROFITS

USED BY ALL MODERN FARMERS

"Campbell" Gates — Anderson Flume Gate Company — Diamond Gates

Redlands, Cal. Phone Black 96

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.



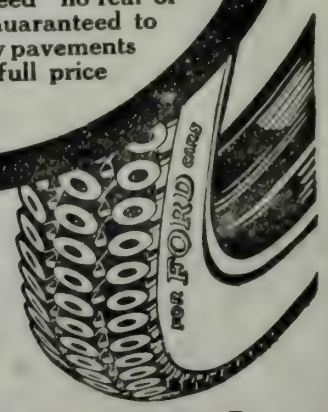
THESE were the tires that ran up the unapproached average mileage of 6,760 miles in the test by The Automobile Club of America—the highest official testing authority.

Now, right on top of the quality that scored the above performance, we have added 50% to the wear resistance of 1915

PENNSYLVANIA Oilproof VACUUM CUP TIRES

and at the same time we have more than met our proportion of all price reductions. So that you can now buy these enormously longer wearing tires at the prices you formerly paid for ordinary tires.

Oilproof quality guaranteed—no fear of the new oiled roads. Guaranteed to be non-skid on slippery pavements else returnable at full price after trial.



Vacuum Cup Tires For Ford Cars

30 x 3 $13.00 30 x 3½ $16.20

At the new prices our special V. C. tires for Ford cars show the greatest economy in the tire field. The 4,000-mile guarantee only begins to indicate the big mileages they are piling up.

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

Atlanta Dallas Minneapolis Pittsburgh Boston Detroit New York St. Paul
Chicago Kansas City, Mo. Omaha San Francisco Cleveland Philadelphia Seattle

An Independent Company with an independent selling policy

Vol. LXXXIX—No. 16 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, April 17, 1915 LOS ANGELES

State Library 7-1-16

Dairy Cow Has Helped Stanislaus.

[Written for Pacific Rural Press.]

A dairy county and proud of it. That is the distinction that Stanislaus county now claims in her message to the outside world. It is true that a visitor is told of the wonderful irrigation and climatic advantages as well as of the grain, alfalfa, fruit and melons; but, after all, the atmosphere is so full of alfalfa and milk that you leave with a feeling that the old dairy cow is a pretty good asset after all.

Twenty years ago this condition did not exist. Then Stanislaus county was proud of her grain. Her next pride was in her irrigation projects, among the best in the world, you were told. After irrigation came alfalfa in abundance until in 1909, 16,306 acres of the 22,136 acres then irrigated were seeded to this great forage crop.

All of this time the dairy cow was gaining headway and making a profitable market for her owner's hay; and she was improving her kind through offspring sired by better bulls. Regardless of her headway she was not featured from a publicity standpoint, for it should be remembered that it is the big, extraordinary things that find their way out of most of our counties, and as yet she was not in that class.

The Cow Made the County Famous.—By 1914 the alfalfa was increased to 44,261 acres, or 84.5 per cent of the irrigated land in the county. Before that time, however, in 1910, to be exact, the dairy cow in Stanislaus county became famous in the State through a production of over four and one-third million pounds of butter, placing her county at the head of butter production in the State.

Jerseys lead in the registered cattle population of Stanislaus county, the last statistics showing 426 of the 627 head of purebred dairy cattle to be Jerseys.

In the last four years that mark has been surpassed by almost four million pounds, according to the State statistics; and instead of the indifference which she at first met, she is now held up as the foremost factor of success on an alfalfa ranch.

This distinction is not maintained, from the farmer's standpoint, through her ability to break State production records, but rather by her ability to make high-priced land pay. While many have tried selling hay to the market, cheap prices have cured that evil, and the farmers have finally settled down to a constructive dairy husbandry, which is so badly needed in many parts of California where alfalfa is grown.

All progress seems to necessitate trouble, and so it has been with dairying in Stanislaus county. Here, as in all new dairy sections, the scrub cow has had to be eliminated; and with her, the farmer who looked upon the dairy cow as a temporary relief from the low hay prices rather than as a permanent asset.

This elimination has advanced efficiency on a larger scale than is to be found in most other dairy sections, first by advancing the use of better-bred sires, and second, by securing for the industry a class of dairymen who are working out the feeding conditions which are peculiar to California.

To illustrate the work which is being done by dairymen in the county to advance higher production of their herds, the last figures of the county statistician show that there were 627 head of purebred dairy cattle in the county. It is probable that this number has been materially increased since that time by the off-spring and by importations from other counties and States.

Jerseys are shown to be away in the lead in this report, 426 of the total number being of that breed. Dairymen there attribute this showing to the statement that the Jersey is the small dairyman's best friend. They predict that the county will continue to maintain her leadership of this breed in the State on account of the tendency toward smaller rather than large dairies. Cow-testing association work has aided in no small manner in the increased capacity of the dairy cattle of the county; and while no actual figures are at hand which show the average production, it is generally thought that at least two hundred pounds of fat a year is produced by the cows of this great dairy county.

Feeds and feeding are receiving their due share of attention, alfalfa, while of great value, not being considered sufficient for

(Continued on page 478.)

PACIFIC RURAL PRESS

Issued [illegible]
LOS A[illegible]

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., April 13, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.66	39.99	40.58	62°	42°
Red Bluff...	.14	31.82	22.29	78	44
Sacramento •	.10	14.06	17.91	76	48
S. Francisco	.30	23.92	20.47	74	50
San Jose...	.14	19.09	15.38	76	42
Fresno.....	.28	9.42	8.46	84	46
Indep'nd'ce.	.00	2.93	8.38	78	..
S. L. Obispo	.05	23.83	18.44	78	44
Los Angeles.	.00	15.35	14.54	86	52
San Diego..	.00	12.99	9.17	74	54

The Week.

Everything is going ahead wonderfully by sun-heat and water-power. Showers since our last issue have been widely spread and have pushed plants and facilitated cultivation. Promises of yields of all kinds are very bright, and people, in producing lines are proportionally joyful. The California expositions are still looming larger in the public eye, and are electrifying the prophets. Charles S. Hamlin of Massachusetts, one of the governors of the new Federal Reserve Banks, and therefore having his personal reserve usually well bottled up, slipped the cork the other day and let fly these words: "All other of the world's great expositions were but curtain-raisers to the San Francisco Exposition." Senator Lane of Oregon, having in mind displays, both at San Francisco and San Diego, said this: "There will be a great influx of Easterners to California for several years after the close of the Expositions. The population of California should double within three years. The Easterner will see advantages you have overlooked." It is comforting to be assured that in our exaltation of California, we are overlooking things! Let those who charge Californians with exaggeration remember what Senator Lane says.

But probably no one can say anything broader of our place in the scheme of things than did the distinguished James Bryce recently in London, in describing the great Aryan race, which he spoke of as starting from its Asian home and marching west, driving its cattle before it, until it "arrived at the Cliff House, San Francisco, in an automobile." As Mr. Bryce knows very well the joys of Aryan automobilists at the Cliff House, his tribute to our advancement need not be analyzed: as a token pidity it will not be questioned.

An American Re-called.

A cable dispatch from Melbourne says that Dr. Elwood Mead, who has been chairman of the Victoria Water Commission, has resigned, in order to accept an important position with the American Government, and the cable adds: "Mr. Mead's action is regarded as a great loss to Australia, where he has done much to foster irrigation and encourage American immigration." We fully sympathize with the Australian people in their loss of Dr. Mead's services and approve their valuation of him, but we feel rather better for ourselves, for there is really no reason why a capable American should be consigned to the development of Australia while his own country has so much for him to do in the same line. We are not yet rich enough in Americans to spare them either for actual settlement or for leadership of settlement in other countries, and we are glad that the government re-call is loud enough to bring Dr. Mead back. We have known of the movement, in a general way, for some time and now that Dr. Mead's decision is confessed by the Australians we feel free to say that his services are required in this country in connection with reorganization of the policies of the Reclamation Service. He is to be chairman of an executive board of three, a part of whose duties will be to thoroughly investigate the financing of the United States irrigation projects from the point of what it is right to require from the settlers as the valuation of the lands under the various reclamation projects, including, perhaps, terms of payments, rates of interest, and qualifications of those to whom sales of such lands shall be made. It seems to be clear enough that all the overhead and alongside expenditures of the Reclamation Service should not be included in figuring the acre-cost of the land to the settler. Very much, probably, should be borne by Uncle Sam as his penalty for the enjoyment of a great national enterprise; that expensive errors or excess costs should not be passed up to the settler, but that he be charged only a fair and exact physical valuation for the works as they now stand. Therefore, it will be the duty of Dr. Mead and his associates to extract a lot of wind from the projects and get down to selling the settlers actual values. The indirect result of such government effort may be to take a lot of both wind and water from the stock issues of which private corporate enterprises expect to make the settler pay for. The movement on the part of the government thus promises to make all irrigation development schemes reasonable and fair and increases their chances of success. It looks good to us.

The Immortality of Calves.

According to a Sacramento dispatch Assemblyman Salisbury of Santa Rosa has introduced a bill prohibiting the slaughtering of calves under sixteen months old. The measure is claimed to be in the interest of conserving the live stock of the State. We are surprised that this very bright idea, which originated with the hotel cooks of the Southern States, and ran its silly course to death in Congress two years ago, should come to life again in California, but evidently we are up against propositions to do farming by statute, as we apprehended last week. When the game laws save all the wild life and the food-regulating laws save all the tame life, it is to be hoped that some one may think of the desirability of a law saving the farmers' life—for that is what it is coming to. Laws to prevent sale of immature veal are reasonable because it is unwholesome, but any law which aims to regulate the duration of life of a food animal after its flesh becomes wholesome, infringes the personal rights of its owner and destroys his property rights. Beyond wholesomeness, it is absolutely unconstitutional in this country to fix metes and bounds upon the period during which a grower of food animals shall care for and feed his product. This duration is determined by two laws which are higher than any statute: first, the necessities of the owner; second, the economics of the industry in which he is engaged. In the case of dairying, for instance, it is often essential that the calf shall be sacrificed at birth. It is an economic law of the industry under certain conditions, and it has been recognized for centuries. The law now proposed at Sacramento would require the dairyman to be a hand-feeder of calves and a beef producer—both of which might be to him economically impossible, because he had neither the labor nor the land for it; or, if he should hand-feed up to grass-eating for sale to graziers, the probability is that he could not recover the cost of it. The State law has no more right to fix sixteen months as the killing age of a calf than to fix the same period for the wearing-out of a suit of clothes, or for a legislator to show some common sense.

French Nonsense about Women.

We have read about Robert H. LeRoux, Parisian editor, who has been lecturing at Harvard and saying: "I made a particular study of American women students. I found that the tendency was to produce a non-productive third sex. In France there is but one recognized vocation for women—marriage." We saw enough in France two years ago to know that this is a slander on French women. As we went about quickly, both in city and country, we got the idea that the French women were the liveliest wires in Europe — wideawake, resourceful, full of initiative and doing relatively more than the men to uphold the old standards of the French nation for thrift and industry. It was fairly surprising how much hard work they could do and still look sprightly and charming. In short, we got the idea that the women were the better half of France. As for their productiveness, in the sense Mr. LeRoux uses the word, statistics show that they have been cutting that out for several years, because they have been so busy doing things which men ought to do for them. Mr. LeRoux evidently knows as little about American women students as he does about French women.

Must There Be a State Fair?

It seems we were premature in approving the idea of holding the State Fair at the Exposition, as the directors decided to do, because the Attorney-General has decided that it will be a violation of the California statutes of 1880 if the State Fair is not held in Sacramento this year, under the same auspices and conditions as in former years. He holds that in 1880 the Legislature made them a State institution and specified the time and place for such fairs. If that decision is correct, then we must go to it

most energetically. It will not do to have a State Fair this year of Sacramento merchandise and willyboys. To have a fake State Fair will knock us back agriculturally half as far as we get ahead by the Exposition, for the people who are coming know what real State Fairs are. Something must surely be done.

"Dictated, but Not Read."

Nothing sets our consciousness on edge more than to receive a letter from some man, submitting a question or proposition wholly in his interest and not ours, which has, alongside the signature, "dictated, but not read." Why should we give a moment to the consideration of a matter which the writer will not take time to look over and see if it is just what he wishes to say? Perhaps the letter says "black" when he means "white," and where do we go if we play on the "black" in answering? It may be all right to use that phrase on strictly business letters, because it gives a chance to crawl out, which is, perhaps, a careful modern business method, but that does not apply to letters written for editorial favors or information. Unless the publisher should decide that it might wreck the shop, we shall have a rubber stamp made: "Damned, but not read," and send such letters back to the writers, with that imprint. We feel it our duty to make this protest against the flip business methods of this generation. Push the button, call out a few form-numbers, or say a few rough things to the young woman, turn the whole tray-full over to her, grab your hat and go to the ball game, or the cock-tail route, while she and the office boy brand the whole day's product, "Dictated, but not read!" Think of your grandfather, you smart young man; remember how he dotted each "i" and crossed each "t," and would not send a letter until he was sure it was exactly what he wished to say, and then he would live up to that letter and not try to hide as you do, behind your stenographer's—we would ,say "petticoats," but we understand they don't have any. "But," you retort, "grandfather was too slow; he never would get there. I must get there quicker!" Get where?

How Much Potato Seed to the Acre?

This is a practical question which has always vexed potato planters, and it has just received an answer which involves the usual problem of how to save the most seed and at the same time get the most crop, in more intense form than ever before in the world, perhaps. Surely, no nation ever desired to meet these two conditions more intensely than the German Empire now does, and one can readily imagine how deeply the authorities have looked into the way to have most potatoes to eat now and to get thereof to eat later. It is, in fact, the most dramatic aspect the spud has ever assumed. As a result of such strenuous inquiry the German minister of agriculture has made this announcement: "This year about three and one-half million hectares of the German empire will be planted in potatoes. (One hectare equals 2.4 acres.) One and one-half to two and one-half tons of potatoes per hectare will be employed for seed. The economy in seed will be a half-ton per hectare. This will be a saving in the whole empire of one and three-quarter million tons." Reducing the foregoing to pounds of seed potatoes per acre, one will find that the prescription is from about 1250 to 2000 lbs, or from eleven to eighteen sacks, per acre. Of course, one must remember that European potatoes are largely grown by hand-hoeing and more plants are grown to the acre; also that fertilizers are so freely used that about all a plant has to do is to sit up and take nourishment. Still, the conclusion for all cultures must be that to get a good crop one must not skimp the weight of seed and that the Germans in their present stress are too wise to try to save potatoes in that way. Whether they grow them in wide-row field culture with eleven sacks of seed to the acre, or in close-row garden culture, with eighteen sacks to the acre, they declare that the way to get plenty of potatoes out of the ground is to put plenty of potatoes into it.

Queries and Replies.

Querists must give name and address.

Growing Garlic.

To the Editor: When is it just the right time to plant garlic? How deep should the seed be planted and how far apart? Will any kind of soil do?—E. G., Martinez.

There is no "just the right time" for planting garlic in California. It is not grown from seed, for the plant seldom flowers or grows seed. It is propagated by separating the "cloves" or bulblets which compose the cluster and which are held together by the silvery skin. Tear the cluster apart and plant the parts of it separately just as you would onion sets. This can be done at any time from fall to spring in this climate, providing the soil is not cold and water soaked. Set in October in properly moist soil, it gives you garlic for early summer; set in February to April, it gives you a late summer and early fall crop, if it is not pinched out by summer drouth for lack of cultivation or irrigation, if needed. A deep, mellow soil is best. In the garden plant the bulblets six inches apart in rows a foot or so apart for hoeing; in the field make the rows twice as far apart to use a cultivator.

Sour Sap in the Top.

To the Editor: I am losing quite a number of my peach trees from sour sap. The roots seem to be perfectly healthy. The sap starts to sour near the branches and works down. I have found some trees that have but a small strip on the trunk affected, the remainder of the tree being healthy. What is the cause and is there a remedy?—E. H. R., Live Oak.

When a tree has a sound root and dying, fermenting inner bark above it is commonly called "sour sap in the top." It is believed to be caused by frost after the sap has gorged the tissue above and before it finds relief through pushing buds and leaves; it is possible that it might be caused by intense sun-heat before foliage appears and such occurrence in a strip would be a form of what is commonly called "sunburn." There are many things connected with the foregoing diagnosis which are not yet demonstrated and therefore subject to revision. The only remedy is to cut below the injury as soon as you see it in the hope of getting a new start from above the budding point.

Sunflowers, Beans and Peanuts.

To the Editor: I would like to know when to plant sunflower seed, black-eyed peas, pink beans and peanuts. Also the amount of irrigation each will require.—J. S., Caruthers.

All the seed you mention should be sown as soon as possible after frosts are over in your locality. There can be no generally applicable date in California, because there is no date at which frost-freedom begins in all localities and at all elevations in any locality. Probably in most localities, however, such a date would fall about May 1, but if you waited for that date you would lose two or three weeks in many places and more than that in some places. Also if you planted as early as that in some places you might lose your seed. Of course, the land for these crops should be prepared during the winter by good plowing, followed by harrowing to retain moisture—working again shallow at seeding time. As for irrigation, there can be no prescription as to the amount of it, or whether any at all will be necessary. It depends upon the soil, the local rainfall and the tillage which you do to get the rain into the soil and to hold it there. California farming is a matter of experience and judgment; not of recipe.

Nitrate in Tree Planting.

To the Editor: We are also setting out a young orchard on land rich in phosphoric acid and potash, but lacking in humus and nitrogen. We would like to have the trees make a good start this year and wish to know if nitrate of potash (of which we happen to have a supply on hand) will give the desired effect. How much should we use per tree?—L., Cochise, Arizona.

If you are sure that your soil is too poor to grow a young tree, which is not often true, it is rational enough to use nitrate, and nitrate of potash is better than nitrate of soda. It is dangerous to put nitrate in the hole with the tree because of the chance of its not being mixed with enough earth. You might safely mix a tablespoonful in the loosened earth in the bottom of the hole, then fill and pack around the roots with fine earth without nitrate and scatter a little more nitrate on the earth which you are to use in finishing the fill. If you wish to take all that trouble you could safely use a quarter of a pound to the tree. It would, however, be altogether better to plant without nitrate and then if, when it has water and cultivation enough, it does not grow to suit you, make a surface scattering of half a pound of nitrate to the tree and let it go in with irrigation water and following cultivation.

"CALIFORNIA GARDEN FLOWERS," by E. J. Wickson, is the best book of its kind ever published when viewed in the light of its value to local gardeners. Professor Wickson's book concerns flower growing in this particular State, while the great majority of books on the subject are general in their scope and the information they contain is of little benefit to local readers. For this reason a work by an authority such as Professor Wickson, in which the ambitious gardener or horticulturist may learn something of the most successful methods employed by those who have made flower-growing in California a study, is almost invaluable. It is a thoroughly practical book for California gardeners, in which every phase of the subject is discussed in detail."—S. F. Bulletin.

Organic Fertilizers for Mottled Leaf.

[Written for Pacific Rural Press.]

From controlled experiments carried on during the past seven years, three primary features in mottled leaf control are so outstanding that Dean H. J. Webber of the Citrus and Semi-tropical Experiment Station of the University of California, located at Riverside, feels decidedly that their publication will be of practical value.

(1) There is urgent need of getting into the soil abundant organic matter through the use of cover crops, manure, alfalfa hay, bean straw, etc., with a preference for leguminous matter rather than non-leguminous hay. These cover crops and humus-producing materials are of more value than the mere nitrogen which they contain and which might be supplied from other sources, though perhaps in a form not so agreeable to the trees.

They shade the soil so that the bacteria which perform nitrification have the best conditions for multiplication and performance of their good work. These conditions are reasonable coolness, sufficient moisture, and a porous condition of the soil, which admits air. The cover crop and manure add organic matter, too, which stimulates the bacteria by supplying them needed food. The humus, in which they live mostly, comes practically all from the decay of cellulose which is the fibrous part of organic matter.

(2) The second outstanding feature in mottled leaf control is that cultivation very probably should be considerably lessened because it exposes the soil too much to the sun heat which burns out the humus and sterilizes the ground. That is, it kills the bacteria by exposure to heat, light, and the drying due to too much circulation of the hot air.

(3) Nitrogen is of no value unless it is carried down to where the roots can use it. Nitrogen cannot be carried down where the soil is not penetrable. Therefore, keep the soil in a porous condition by means of cover crop roots and strawy material allowing irrigation water to carry the nitrogen down to the roots. Now, according to Dean Webber, most of the nitrogen is probably too near the surface for the citrus roots to get it. When the irrigation water runs through the furrows, it settles away with its load of nitrates, but spreads out and comes to the surface under present conditions of cultivation, where it evaporates and leaves the nitrogen still close to the surface out of reach of the roots on account of dryness and also destruction by the cultivator.

Seven Year Test at Station.—The orchard beside the Riverside Experiment Station building is an experiment to determine the relative value of the different root stocks. It has never been fertilized except with raw rock phosphates, cover crops, and manure. Another stock experiment some distance below the driveway at the Station has had the same treatment. Between the two rootstock experiments is a section on which no cover crop could be conveniently grown because they wanted exact results from the fertilizer experiments on it.

All Mottled Where No Cover Crop.—Some of the fertilizer plots were treated with manure, blood, and other organic fertilizers in connection with commercial fertilizers. All of them are more or less mottled, however, seemingly in direct proportion to the amount of organic matter applied. The two root stock experiments treated with manure, cover crops, and phosphate only, on both sides of the fertilizer experiments treated with all other combinations but no cover crop, look fine, with scarcely a trace of mottling. The nitrate of soda plots are the worst mottled of all. However, the Dean wishes it to be understood that nitrate of soda may be all right in certain combinations with other fertilizers. Such combinations are, however, as yet unknown.

Ventura Fumigation Costs.

Ventura county has been conducting a vigorous fumigation campaign during the past winter, which was pretty well rounded up by Feb. 1, except one 40-acre orchard. Both commercial orchards and trees on town lots have been fumigated in order to prevent the spread of those insects, especially scales, which may have a foothold in some little section, but have not spread all over the county.

Fourteen outfits have been working during February for fumigating 142,405 trees, at a cost of $39,311.22, or an average of $.276 per tree. Each outfit averaged 10,170 trees for the month, though one outfit fumigated 12,905 trees at a cost of $3,356.95.

There are very few red or purple scales in the county, these being mostly on town trees, some of which in Ventura itself were fumigated at a cost of 26 cents per tree for cyanide against 21 cents in the country. The thirty-one trees fumigated cost $17.52, the high total being largely due to the cost of moving tents and equipment from one place to another.

Many of those which had the rare but serious scales were fumigated twice while the outfits were on the ground, in order to be absolutely sure of killing the insects.

Efficiency and economy are the watchwords in this work, which is largely done at the county's expense and charged against the growers as a lien on the orchard.

One orchard of 2617 lemon trees fumigated last year in 140 hours was this year fumigated in 89 hours at a cost of $791.73. This includes 40 cents per hour for the inspector, 25 cents per hour for each of four tent pullers, and 30 cents for the measuring man or "stepper."

There has been some spraying in the county for black scale. J. T. Culbertson, agricultural inspector at Bardsdale, sprayed one orchard of lemon trees with a resin wash in November. It consisted of one thousand three-year-old trees, the spraying of which cost $80; three thousand two-year trees, which cost $148; and six thousand one-year trees, which cost $47.25. This makes a total of ten thousand trees of the three ages, the spraying of which cost $275.25, or a little less than three cents per tree. Of course, this can be scarcely balanced against the fumigation, which was applied mostly to large old trees.

PRECOOLING investigations with oranges were conducted during the season of 1913-14 by the U. S. Department of Agriculture in Florida. Precooling has a decided influence in retarding the decay of oranges. In several commercially handled lots of oranges, both precooled and nonprecooled, which were held in an iced car for ten days, there was three times as much decay in the nonprecooled as in the precooled fruit when the oranges were removed from the car. One week later the nonprecooled fruit showed twice as much decay as the precooled, and the differences were still consistent, but not so great, two weeks after withdrawal from the car.

Carelessness and Dirt for Gummosis.

[Written for Pacific Rural Press.]

"Citrus gummosis, as you are aware, is due to fungi which often live in the ground and enter wounds in the trees, especially where irrigation around the trunks is practiced, or where the lemon trunks are set into the ground, or the dirt is piled around them. That is why you see the basins around these lemon trees under the limbs. When they were planted, the gummosis trouble was not understood and they were set too deep in the ground so that we have had to dig away the dirt and expose the crown roots. Lemons are budded on orange roots and the gummosis does not affect oranges so much, but lemon wood must be kept away from the dirt and water." Thus spoke J. D. Culbertson of the Limoneira Ranch.

"But you notice the basins are diked so that no water may get in around the trees; and furrows are plowed between the rows for irrigation. We work with mules tandem in order to get the furrows close to the outside branches so the water will soak into the soil, but not run into the basins.

Dangers of a Hoe.—Where the men were cutting weeds under the trees with big hoes, Mr. Culbertson noticed a young lemon tree re-set where an old one had been taken out three or four years before. A piece of the bark had been knocked off from the tree bigger than a man's thumb.

"That's a capital place to get gummosis; we will have to stop that," he said. Turning to the man in charge of the hoeing, he gave instructions not to work so hard, but to watch every man in the gang and get onto his system of using the hoe. Then as early as possible he should choose the most careful man to hoe next to all of the trees; the rest were then to be ordered not to cut any weeds within two feet of any tree.

"Listen to that," as one of the men struck a crown root with his hoe, perhaps a foot away from the tree. "There's another chance of gummosis; we will have to keep these careless hoes away."

"We doctor gummy trees at big expense, digging away the dirt, scraping them clean, and applying bluestone paste. When the tree is much diseased, we lose a large percentage of fruit, if not the tree, so that the treatment seldom really pays unless the trouble is found in the early stages."

Hard Ground Cause of Gummosis.—There is a general belief among citrus growers that baked ground is a cause of gummosis. There is some foundation for such a belief. Irrigation often penetrates the soil under the trees which cannot be cultivated, and is not always loosened with the hoe. This soil hardens and heaves, and may often injure the trees, after which the fungus spores may enter the injuries.

One reason why hard ground causes gummosis is advanced by G. P. Von Stein of Pomona, who believes that gummosis is due to lack of circulation. Hard ground squeezes the bark at or above the crown roots and prevents the return of the sap to the roots. The one thing then possible is for it to burst out and gum. This, however, is not much noticeable on his place, but only on heavier soils where the ground has a better chance to harden and heave.

But Mr. Von Stein has also found lack of circulation due not alone to hard ground. He has a routine of investigation whenever a gummy tree is found. This is usually in the spring when the sap is flowing most freely. The first thing to do is to see that the crown roots are not under pressure of the dirt from the outside and are fully exposed to the air the same as a forest tree is in its native condition. The next thing is to clean out interfering branches in the top of the tree. He believes that he has cured many cases of gumming by removing the limbs which impeded circulation by resting on their neighbors, indenting, and strangling them more or less. Then the diseased bark is scraped off, the bark above the injury is slit with a knife, and Bordeaux Paste is applied. The tree is allowed to go without further treatment until next spring. If it gums then, the cause is probably strangled roots.

Last season Mr. Von Stein pulled up eight trees which he could not cure by the top cutting. He found the roots wrapped around each other, with rocks here and there between, like an octopus holding its prey, so tight and solid that there seemed good reason to believe the circulation had been pretty largely stopped by their own growth—a clear case of suicide.

Borax sprinkled on pantry shelves is a good remedy to drive away ants.

GOLETA WALNUT NOTES.

[Written for Pacific Rural Press.]

One farmer using the by-products of another for their mutual advantage, is illustrated by Peter Irvine of Goleta on his walnut orchard. After lima beans were threshed last fall, he bought up twenty-five tons of the straw and threw it into his orchard in two irregular winrows for each row of trees. This spring early in March, the straw was spread out, ready to plow about the middle of the month. It was wet and rotted underneath, but it dried out after it was spread and became brittle, easily breaking into short pieces. A weed chain and a single walking plow were used to turn it under because Mr. Irvine says he cannot use a gang plow on account of clogging.

He believes in manure too, for walnuts, especially since he saw the fine crop produced last year on the orchard of his neighbor, Robt. Main, who had applied 20 tons of manure per acre during the past three years.

"Goleta people quit cultivating just when they ought to begin, and they begin just when they ought to quit," according to J. B. Neff of Anaheim, as reported by P. C. Marble, manager of the Goleta Walnut Growers' Association. In the Goleta district, no irrigation is practiced on walnuts; they get about eighteen inches of rainfall on the average, but it has been the common practice to run the wet through the orchard after the late spring rains and quit cultivating. This year Mr. Marble will cultivate all summer. He has cut off an exact amount of the lower limbs from the trees so that when the nuts become heavy, they will not bend the limbs down in the way of cultivation. The common practice has been to plow in the early fall and cultivate through the summer three or four times with a spring tooth harrow to stir the ground three or four inches deep and keep the clods down. Then there would be no plowing in the spring, though some people disk and cultivate through the summer and plow in the spring. This procedure might well be reversed, sowing the land to grow a cover crop when the rainfall is most plentiful and evaporation least, instead of allowing the weeds to grow in the summer time when rainfall is least and evaporation most plentiful.

PLUM STOCK FOR CHERRIES

To the Editor: In this locality, cherries produce very good fruit, but the trees sunburn, and usually die out after a time. This spring I grafted an improved Damson plum upon a bitter almond root. Then upon the plum scion I grafted a Black Tartarian cherry, the object being to get a body that would not sunburn. Both scions are growing nicely, now, but will they, in your opinion, make good unions at the graft? My copy of California Fruits contains nothing on the point.—W. O. R., Oakley.

[The plum will probably go on the almond all right, but we have no record nor recollection of success of the cherry on the plum. Perhaps some reader can testify from experience. It will be interesting to know later how yours succeed. You are making a very severe test by grafting the cherry on a plum scion which has not yet established itself. If you can make such a ticklish graft as that work, you ought to be a county supervisor.—Editors.]

Wiring Trees Uneconomical.

[Written for Pacific Rural Press.]

Wires to support the 31-year pear orchard of B. F. Weston were recently noted in the Pacific Rural Press. Further information obtained from Mr. Weston shows that he is doubtful as to the economy or wisdom of using wires.

His neighbor, G. M. Brown, prunes the pear limbs long and lets them spread under the weight of the fruit and swing in the wind so that plenty of light and air reach all parts of the tree. The limbs, of course, must be propped. Mr. Weston believes that if wires are used at all, they should be stretched across near the tips of the limbs so that there will be considerable give or spread when the weight of the fruit is on.

His wires are placed about half way up on the limbs and hold them quite rigid. Possibly some of his dissatisfaction is due to the unskilled labor used in putting them on. They were placed very much at random, though galvanized wire was specially bought for the purpose and could have been placed to the best advantage.

Now, on account of the pruning, some of the limbs supported by wires have been cut off and the wires must be taken out. Another disadvantage with the wiring is that it is expensive to install. Concave wood blocks were used to prevent the wire cutting into the bark, and these were patented. Several thousand of them were bought, but on account of the expense Mr. Weston thought that he might make his own. The patented blocks had notches sawed across their backs to hold the wires from slipping, but occasionally the blocks became turned wrong side to and simply dropped. Mr. Weston improved on this by boring holes through the blocks and inserting wires whose ends were looped. These blocks were readily placed and securely held.

Don't Make Patented Articles.—It happened, however, that the patentee of the other blocks had rights which most people do not know about. He objected to Mr. Weston's making blocks for his own use, and since Mr. Weston had a shed half full of them, on the advice of his lawyer, he paid the patentee a couple of hundred dollars for the privilege of making all he wanted for his own use.

In putting the wires into the trees, one 3x10 foot platform was used on each of two sides of the tree and planks were laid across the other two sides of the tree. These platforms are shoulder-high and each is balanced on the axle of two buggy-wheels. Braced legs support each end of the platform. The legs on one end are fixed on hinges so that they may swing out of the way when the man wishes to move the platform from one tree to another, and the platform balances directly on the wheels. These two legs are held off the ground by a board from the axle to a cross piece between the legs which fits behind the block on the under side of the board.

INSECTS are high livers. On an acre of apple trees they may destroy a hundred dollars worth of fruit. This has been brought home to Missouri fruit growers in the last two years by a series of experiments carried on by the College of Agriculture of the University of Missouri. The average value of the fruit of an acre of unsprayed apple trees was found to be $18.05. Four careful sprayings made this value jump to an average of $187.19 an acre.

On one orchard in 1913 the net profit due to spraying was found to be $161.12 an acre. The average cost per tree of the first spraying was 6.6 cents, 13 cents for the second and 9.5 cents for the third and 8 cents for the fourth, a total of 37.1 cents a tree, or an average of $22.26 an acre.

Grape Losses are Preventable.

[By Prof. F. T. Bioletti, University of California.]

Too Much Summer Pruning.—Summer pruning, that is removal of growing parts with foliage, is weakening. Its main object is to direct the growth into useful parts and should be done early, that is with the removal of as little foliage as possible. The weakening of overvigorous vines by longer winter pruning is to be preferred, as it accomplishes the object by increasing the crop and thus utilizes the extra vigor.

Unsuitable Use of Resistant Stock.—The methods and varieties used in resistant vineyards are sometimes unsuitable and resistant vines are sometimes used where unnecessary.

(a) Rupestris St. George is a good stock where it can penetrate deep into the soil. In shallow soil, especially in the cooler regions, Rip. x Rup. 3309 appears better. In very compact soils no stock has yet proved thoroughly satisfactory.

(b) In the coast regions, resistant vines are indispensable when phylloxera exists in the neighborhood. In the hotter parts of the interior, the spread of phylloxera is so slow that the expense of resistant vines is not justified unless the phylloxera is in or immediately adjoining the land to be planted.

(c) Experience has shown that only in exceptional seasons, in the most favorable soils and with the most skillful work, can a good vineyard be established by field grafting. Good results are more certain and more easily and, in the long run, more cheaply obtained by the use of bench grafts.

Deterioration of the Soil.—Our methods of clean cultivation tend to destroy the humus of the soil and therefore its retentiveness of moisture. Large applications of barnyard manure or green manuring crops tend to correct this defect. These means are in most cases much more likely to be profitable than the use of commercial fertilizers, and without them the latter are of little use.

Diseases and Pests.—Vineyards in California have few fungus diseases. The Oidium or Mildew is, however, present everywhere and if uncontrolled may do much damage. Insect pests are more numerous.

(a) Oidium can be controlled everywhere, except perhaps in the coast fog belt, by the application of sulphur. The following points are important: The sulphur must be in the form of an extremely fine powder—whether sublimed or ground; very little sulphur is needed, but the distribution must be thorough. If the sulphur can be seen on the vine at a distance of ten feet it has been wasted. If a square inch of surface on leaf or stem can be found in which no sulphur can be seen with a hand lens, the distribution is defective. The mildew should be under control before the foliage becomes dense. Late sulphuring does little good and may be dangerous.

(b) Phylloxera will not attack vines in the sandiest soils. In sandy loams it spreads slowly. In other soils it spreads rapidly in the coast region, slowly in the San Joaquin Valley. It can be controlled by heavy winter flooding where this is practicable. Elsewhere resistant vines are the only resource.

(c) Leaf-eating insects, such as cut worms, army worms, root-worm beetle, can usually be controlled by arsenical poisons. The habits of the insect must be well known or the remedy cannot be applied effectively.

(d) Of sucking insects only the vine-hopper is a serious general pest. It cannot be controlled entirely by any means known. Much relief can be obtained, however, by such a thorough cleaning up of the vineyard before the vines start that not a single weed is left for them to feed on. This should be followed, when needed, by the use of the hopper cage on the outside rows when the hoppers return in spring and by spraying with whale oil soap and nicotine just before any of the first brood have developed wings.

(e) Many diseases of unknown cause have been noticed in vineyards. Most of these are not of wide occurrence, nor do they affect many vines. They do not appear to be infectious and are for the most part probably due to defective nutrition. More care with cultural methods will usually diminish their effects.

(f) Winter spraying of the vines for mildew, vine-hopper, or any known pest is a waste of money and labor. The vine-hopper is not on the vine and the mildew spores are in the soil at that season.

The efforts on the part of the civic bodies of Fresno to induce non-members to join the Associated Raisin Company are meeting with success all along the line. Committees of seven were appointed for each district, their duties being to campaign for new members in their various districts. The Kingsburg committee reported a favorable reception, having in one day interviewed fourteen growers, securing twelve as members.

Cured Fruit Exchange Forecasts.

The dried fruit market is still very quiet and in a very unsatisfactory condition. On account of considerable quantities of spot stocks on hand in the various markets, there is practically no demand for coast shipments, and one of the things that is also preventing much heavy buying is the fact that the indications are for a heavy crop of all varieties of fruit for the coming season.

The lack of demand on prunes has forced prices to a lower point than they have been held at. While the carry-over, we believe, will not be much over three hundred cars, holders seem anxious to unload and move stock, and are shading prices. The large sizes, for which there is very little demand, bear the brunt of the reduced prices. Santa Clara prunes today are being quoted at 3¾, and a good many sales have been made at 3½c. Outside districts, other than Santa Clara, about one-eighth lower. In 1914, on account of the smaller crop of prunes, very little distinction was made between Santa Claras and the outsides, but this year, with the prospects for a large crop, there will more than likely be a better price realized for Santa Claras. Some of the outside districts have prunes which are equal in every respect to the best Santa Claras, and which should bring equal prices.

Apricots and peaches are both quoted at lower prices, with the demand very slight. Peaches today are being quoted for about 3¼c base for standards. We are informed that on account of the high price at which prunes have been held, the Washington State Board of Control has made a contract for dried peaches for State institutions, because prunes are 50 per cent higher than peaches. On apricots there is practically no demand for the new crop. Buyers seem to be holding off with the idea that there will be a diminished export demand, and if this turns out to be the case, it is likely that the prices in the United States will be lower. We hear of quotations having been made on the three grades of Santa Clara apricots at 8½c. basis.

The selling of futures, which is being indulged in to a certain extent, is a very bad practice. It is a matter of gambling, and gambling, as far as the fruit grower is concerned, should be eliminated. The practice of quoting futures at low prices enables the buyers to go out to the producers and offer them low prices for their product. Fruit should not be sold until we are in a position to know approximately what the fruit crop is going to amount to, and we should ask our members to advise all their friends to not sell until they are more definitely informed as to conditions. The year just past and the outlook for the coming year is a very strong reason why the growers should get in command of the situation, and should co-operate much more strongly and endeavor to control their own business.

The present indications are for a large peach crop for 1915, with the prices probably as low as 1914, and on account of this it is very essential for all of our members to be very careful of fruit that they dry this year. In the first place, the thinning should be done very carefully, so as to raise the grade of the fruit, and thereby get better prices for it, so we would request every one of our members to thoroughly thin all trees so as to produce larger peaches, and thereby a better quality; and to thin early and not to wait until the pits begin to harden; and in thinning, as much as possible, to leave the peaches on the under side of the limbs, instead of those on top. The grower who has large peaches will get just as much weight, with less labor, and more money, than those who have a large quantity of poor-undersized fruit. This applies equally to apricots, so don't forget that the large, fine quality of fruit is what you want to get results with. Many a grower is afraid to go to the expense of thinning, feeling that he is not going to get his money back, but our experience has always shown that it is quality that counts. You can always sell good fruit, when you cannot get the buyer to talk to you

Choice Ornamental Evergreen Trees and Shrubs

Fine specimen plants can be supplied either balled or established in tubs and boxes; also in our new cement tubs. Ask us for our new list of these fine plants for immediate effects.

OLIVES

Our new "Bulletin on the Olive" gives valuable information about this industry. It is free for the asking. Bear in mind that we have a fine assortment of these trees still to offer. Our prices are right.

CITRUS TREES

If you have not already arranged for your citrus trees this season we can offer you the finest stock on the Pacific Coast. Our assortment is complete in varieties and sizes. Write for our special quotations.

PAID UP CAPITAL $200,000.00
FANCHER CREEK NURSERIES
GEO. C. ROEDING, PRES. AND MGR.
Box 18 Fresno, California

OLIVE TREES

Now is the time to plant your Olive grove. I have a large stock of extra fine Mission and Manzanillo olive trees for sale at low prices. Write for quotations, stating number of acres you expect to plant.

THEODORE PAYNE,
345 S. MAIN ST., LOS ANGELES, CAL.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

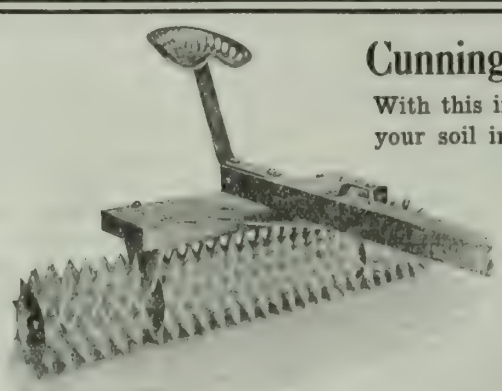
One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,
552-556 SOUTH FIRST STREET. SAN JOSE, CAL.

A 40-ACRE EQUIPPED FARM
in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.
SOIL: Deep San Joaquin loam.
WATER: Unlimited water at 20 to 25 feet.
EQUIPPED: With a plow, a harrow and a cultivator, a pumping plant, complete, trees and seed.
SPECIAL: Land absolutely above all flood from rivers: titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON
1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.



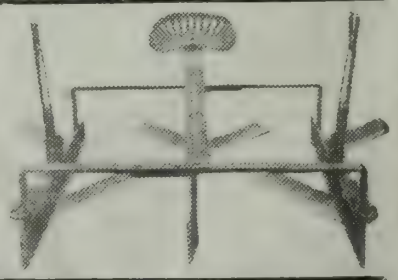
Cunningham Pulverizer
With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.
Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

PIPE
For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped
2nd Hand and NEW
PIPE
Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. Main and Howard Sts., San Francisco

GOLDEN GATE WEED CUTTER AND MULCHER
Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.
See them at the Exposition, Block 1, Agricultural Palace.
Write for Circular.
C. G. SIGURD,
CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

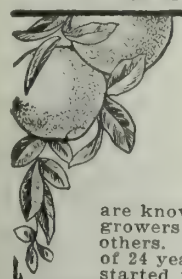
GIANT WINTER RHUBARB
NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

about poor fruit, and by all of our members having good fruit it is going to strengthen your organization and create a better demand for "Blue Diamond" fruits.

We are receiving a good many letters from our representatives throughout the country, and they advise us that the prospects at the present time look good for a good crop; they also state that jobbers advise that the usual demand for this season of the year has not been as great as for former seasons, and that their spot stocks of California canned and dried fruits are larger than usual, with the possible exception of prunes. They see no immediate prospect for an increased demand, with the result that purchases of additional supplies will be limited from now on. It is generally conceded by Californians that everythings points to a large and satisfactory crop for the coming season, and because of this fact jobbers and dealers are not inclined to anticipate their wants. There are many features that will enter into business during the balance of the year, all of which will have a tendency to keep market values down.

Weather conditions have, up to lately, in the East, been very good, but we notice in the last few days that there has been considerable damage by frost in some sections. Should the report of this damage be founded on facts, it may help things materially, but one thing to be carefully thought about is the fact that growers must co-operate to get results; they must own and control the fruits of their investments, and when they do control, they will receive much better prices than they can get today, when their output is controlled by those who seek to handle it for profit.

CITRUS TREES



Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries Inc.
Established 1890 by R.M. Teague
San Dimas, Cal. U.S.A.

Blake, Moffitt & Towne

Dealers In PAPER — 37 FIRST STREET, SAN FRANCISCO; Blake, Moffitt & Towne, Los Angeles; Blake, McFall & Co., Portland, Oregon

RURAL CREDIT AND WILD GAME.

To the Editor: I have just read D. A. La Porte's criticism on proposed rural credit in the Pacific Rural Press of March 27.

The general opinion around here agrees with him. The law evidently is not intended for the common or ordinary farmer. There is too much "red tape" attached to it to go through with. I have not heard one favorable expression from the farmer for the measure. There is a common belief that the proper method would be to have all loans made through the county officers. There would be less expense and it would give better satisfaction.

We were told last fall, in official documents, that over twenty-five million dollars of public funds was held in vaults in this State that could be loaned out. This money could and should be put into circulation without banks and "go-betweens" getting the bulk of the interest. Under the proposed law, on this amount loaned the "chosen banks" would have a yearly commission of two hundred and fifty thousand dollars for doing nothing only O K-ing bonds based upon real estate security, the O K-d bond going to the State instead of the real estate security. It is no better than the mortgage direct to the State would be and for some reasons not as good. Their O K would add nothing to the security. It is all uncalled for and would be nothing less than legalized grafting.

One other measure: The fish and game laws should nearly all be abolished. The fish, it is said, "is the poor man's meat," yet he cannot catch one for his family, although it passes his door, unless he first gets a license, and then only in a prescribed way well known to be impossible to catch them. Then there is the quail, the cottontail and the bush rabbits—the farmer is not allowed to shoot them till after they have done all the damage they possibly can do to his growing crops. And the deer, they are protected till they have eaten all the fruits they can reach; they have a legalized privilege to destroy young vineyards, the young prune and apple orchards or anything else they like. If a neighbor's stock damaged my orchards as the deer have done, and if he was not honest enough to settle it without, I could collect the damage by law; but with the State I must stand by and see it done, suffer the loss without any redress, and this we do, knowing we are the victims of the gamesome hunter of the city.

Such laws retard the progress and development of the State, and if the Assembly does not know this let them send a commission out here and see for themselves. Seeing will be believing.

Healdsburg. C. E. Sandborn.

GOVERNMENT SHOULD LOAN TO FARMERS.

To the Editor: I am a subscriber to the Rural Press and I have been reading the articles published in regard to rural credits. I am not a socialist, though this may sound like socialism. The only system of credit that would help the ranchers and all classes of business men is for the government to help us. That can be done by loaning us money at the same rate of interest that the bankers have to pay. I have nothing against the banks except in the present system we as a people have to pay too high a rate of interest. Why could not the government establish a bank to loan money direct to the people at the same rate of interest that the government lets the private banks have it? Some business man will say it can't be done. That is what they said when the government established the Postal Money Savings Bank. Let the government establish a bank to loan money to anyone who can give security, as we have to give to a private bank and charge enough interest to pay the running expense. Put a limit on the amount each person could borrow.

Reedley. A. J. Holderman.

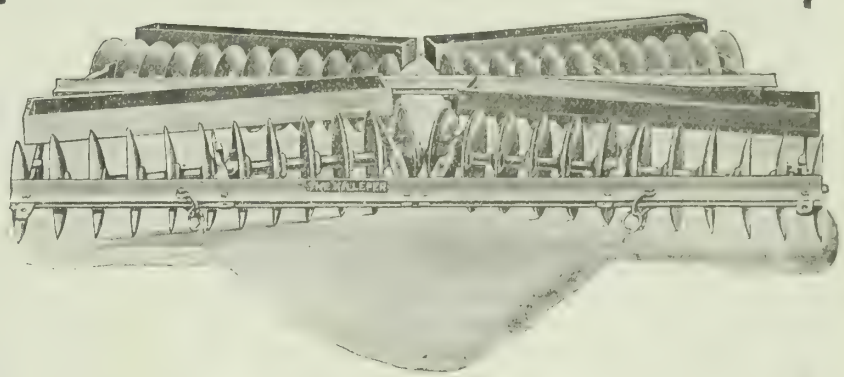
[This proposition is covered by some of the proposed laws pending in Congress. We will not now argue the points which our readers are making. Go to it, friends—so long as you do not try to unload on us financial essays. Tell the people what you want.—Editors.]

Almond trees begin to bear in the third season after they are set out. They pay for the care of the orchard next year; and the fifth year, they pay a big dividend, according to P. D. Bane of Glenn county, provided conditions are favorable for fruiting.

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.

TRACTOR DISCS

Killefer Quality
Killefer Efficiency



Our Tractor Discs are built in eight to sixteen foot cuts. The discs are made extra heavy for this work. Axle Bolts are large and all castings are heavier than usual to stand the strain required in Engine Tools. The draw bars are angle steel, reinforced with a high carbon steel bar.

The discs are equipped with weight boxes to give the necessary weight to insure the proper penetration on different characters of soil. The pitch of the disc is controlled by connecting arms bolted solidly in place, but which can be changed to any pitch within a radius of fifteen degrees.

The Killefer Manufacturing Company

2209-21 SANTA FE AVE., LOS ANGELES, CAL.

FINEST NURSERY STOCK IN CALIFORNIA

20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices, or telephone for appointment to see trees, to

TUSTIN PACKING CO.

TUSTIN, CALIFORNIA.

Avocado Trees — Sensible Prices

We are now filling orders with the finest 3-year-old stock ever offered. Our trees are 4 to 6 feet and stocky. This stock has been grown in the open entirely, and has never been sheltered. Our varieties are mainly the Taft. We also have the Dickey and several of the Sinaloa varieties. Single specimen trees $3.50 each. We invite correspondence from those planting acreage.

Hockridge Nurseries, Inc.

REDLANDS, CALIFORNIA.

Mechanical Power on the Farm.

FARM POWER AT WORLD'S FAIR.
[Written for Pacific Rural Press.]

One who wishes to see the World's Fair tractor exhibit in the shortest possible time, comparing different makes of tractors, and having the opportunity to ask courteous attendants all the questions that they want to know about, may do it best by entering Agricultural Hall at the west end. At the right, the first thing which appears is the Yuba tractor exhibit, which now includes one machine of each of their models 12 and 18. These engines are capable of doing the work of 12 and 18 horses respectively. One of their distinguishing features is the ball-bearing tracks. Another feature which is illustrated by naked and detached transmission parts is their ability to run each side of the track independently. Considerably increased floor space is being prepared, for Yuba tractor exhibits, and a painting of farm tractors at work will soon decorate the wall.

At the left, as the visitor enters the Hall, is the International Harvester Company's exhibit of a multitude of tractors, harvesters, manure spreaders, etc., many of which are in operation. Three kerosene-burning Mogul round-wheeled tractors built to displace 0, 12 and 8 horses, respectively, and three Titan oil tractors to take the place of 30, 18, and 12 horses, may be examined at one's leisure. One manure spreader on a narrow wagon is built to spread a strip nine feet wide. A running motor truck shows the operation of their type. Several grain and corn harvesters are also in operation. A wood-frame mowing machine, built in 1859, now on exhibit is one of the first successful mowers built. A McCormick reaper, built in 1841 and taken to the first World's Fair in London in 1851, has cut twenty-four crops and still might make a lively competitor for the 18-foot tractor-hauled harvesters to be mentioned below.

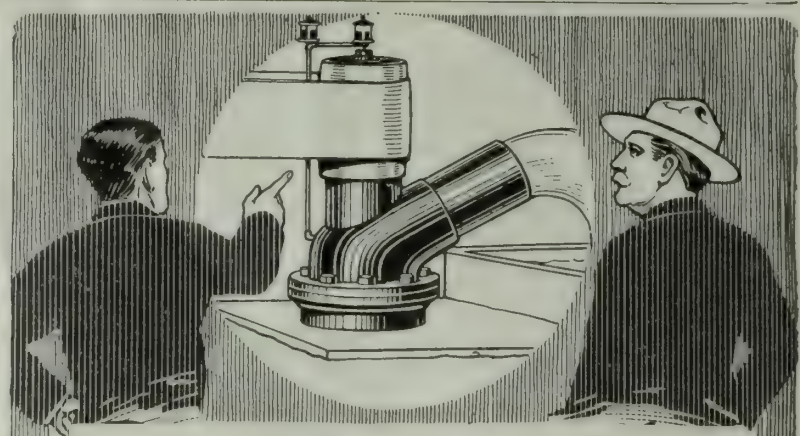
Passing these exhibits, one sees a lively chugging lot of gasoline engines of various makes, and then comes to the C. L. Best tractors. The first one to be noted is a large round-wheeled type, the wheels of which are eight feet in diameter and thirty inches wide. The C. L. Best 30 model is a small-sized one with a sloping track run by a small drive-wheel in the upper corner. The weight of the machine rests on two idler wheels which rest on the track next to the ground. A 75 h. p. Track layer is in continuous operation with glass sides showing the small cog wheel, as a distinguishing feature of the transmission in this make. It is built to take the place of 36 to 40 horses at the speed of 2¼ miles an hour or of 50 horses at the speed of 1½ miles per hour. Another distinguishing feature in this make is in the track-linking cylindrical connections. They are hollow, but an angular projection from the inside wall forms a rest for the flat side of a "rocker" which is a steel semi-cylindrical bar through the hollow link axle. When the tractor is moving, the pull comes on this angular projection, and as the track runs over the drive wheel, the rocker simply rocks, instead of requiring the bearing to slip and wear as it does on an ordinary pin bearing.

Across the aisle from the C. L. Best exhibit is a large space devoted to the Holt Mfg. Company. The first machine to attract attention is something which looks like a gang furrowing plow with a big hay rake behind it and a smooth big iron clod roller in front. This is the sagebrush plow and rake described in a recent issue of the Pacific Rural Press. Beside it is a monstrous dirt scraper designed for use with a tractor; and a 30-horse-pull caterpillar near by is hitched to some caterpillar-tracked wagons built for hauling over swampy places.

Around a little building within the exhibit is one of the new Midget caterpillars designed to displace eight horses; and across the aisle are two mammoth combined harvesters, both in operation and both with glass sides so that the interior workings of the threshing machine may be seen. One of them runs on a caterpillar track, while the other is on round wheels. The former cuts about 12 feet wide and the other 18. A 30-horse-pull tractor is shown running and also an independent crank shaft and cranks to show their operation.

Some of the special six gang disk plows and five gang mold board plows also attract attention to California's big scale of doing things agricultural.

The Holt Company's newest en-



Cheap Water

If that's what you want and you're looking for a dependable water system, then be sure and install

The

Layne & Bowler Pump

See exhibit of our pumps at San Francisco Exposition. Write today for Catalog No. 25.

Layne & Bowler Corporation

900-910 Santa Fe Ave. Los Angeles, Cal.

IRRIGATION APPLIANCES

The 20th Century Method of Irrigation

As superior to old methods as the modern auto is to the ox cart.

Saves Water Land and Labor.

Don't experiment —the best is the cheapest in the long run.

Illustrated Catalog and full particulars on request.

KELLAR-THOMASON CO.

"Originators of the Valve System of Irrigating."

1234 EAST 28th ST. LOS ANGELES.

(Ask your Dealer or Contractor.)

BARGAINS IN PUMPS AND ENGINES

We have a stock for immediate delivery, both the Douglass and Myers hand and power pumps. Also a number of the well-known

OLDS' GASOLINE ENGINES,

in sizes from 1½ H. P. to 10 H. P. inclusive. All brand new—No second-hand stock. Let us mail you our Bargain List P.

General Machinery and Supply Co.

Formerly

COMPRESSED AIR & GENERAL MACHINERY COMPANY.

89 Stevenson Street, San Francisco, Cal.

gine is there, too, being guided without any front wheel at all, but simply by regulation of the track speed which is independent on each side. It is mounted on rubber covered tracks so that it gives running exhibits on the floor at visitors' request. It is built to take the place of 22 horses and can be fitted with either a 12 or 32 inch track. It is recommended for use with ditching machines on the softest kind of land.

Automobiles. — Passing through Agricultural Hall, one crosses the Court of the Universe into the Transportation Building; and, passing running locomotives with their sides taken out, and Government exhibits of various transportation problems, he comes to the automobile display. This covers some acres and is characterized by the dismantled car in practically every exhibit. Many of these are fixed to run in a frame to show the inside workings of the machines and always an attendant is glad to explain all operations. Panels on the walls above the pillars show the various transcontinental automobile routes and the mountains, deserts, plains, and rivers which they cross.

At most any time, the most crowded exhibit is that of the Ford Automobile Company, who have men assembling their cars from the start to the finish, beginning at one end of the track and shoving it along as each part is fastened in its place until the machine comes out complete.

HADN'T CULTIVATED SOON ENOUGH.

[Written for Pacific Rural Press.]

Rolling and pitching like a ship in a high sea, and paying no attention to the grunts and squeals of the cord-wood-weighted double cutaway disk laboriously climbing over the clods belonging to S. J. Compagno, a Yuba tractor impatiently see-sawed its diagonal way over the young orchard in Santa Clara county.

An old cherry orchard had proved to be an unprofitble bearer on this ground, and was pulled out last winter and replanted to apricots alternated with cherries. Both fruits were planted so that when they come into full bearing, the one which pays best will be retained and the other dug out.

Cultivation had been delayed too long after the young orchard had been plowed square across, on account of a multitude of other duties on the big ranch. In order to catch up, the Yuba tractor was hired at $2.00 per hour, and it with the disk was cutting the clods so thoroughly that the rear disks were often buried to the hubs, although there were many big clods in the field. The turns were made easily and the disks were kept close to the trees, by plowing alternate diagonal rows.

OIL THE ENGINE JUDICIOUSLY.

[Written for Pacific Rural Press.]

"We ought to use a high grade of oil every day. Poor oil and lack of it are the worst sources of trouble," according to the Service Man for the Samson Iron Works located at Porterville.

About the next source of trouble is too much oil. It collects dirt all over the machine and conceals parts which may work loose, until something breaks. If poor oil is used for cylinders, they get foul with carbon or the spark plugs get foul and sometimes people run a half a day on three cylinders without knowing it. This is a waste of driver's time and the machine does not give satisfaction. Spark plugs should always be kept clean.

MARKETS ORANGES BY AUTO.

[Written for Pacific Rural Press.]

Marketing oranges by automobile is a practice of D. A. Beattie, who lives a mile or two out of Porterville. He puts a portable truck bed on the back of his automobile and hauls twenty-five boxes of oranges from the ranch at a load. He has made twenty trips a day. It takes about twenty minutes from the time he leaves the ranch until he has unloaded and brought a load of empty boxes back home.

Mr. Beattie found his automobile a money-saver when his power cement mixer stopped, and he had to run to town for repairs.

In heavy ground, never set a tree so that when it settles, the surrounding ground level will be higher than the point on the tree which was at the surface of the ground in the nursery.

LIFTS A HOUSE 265 FEET.

[Written for Pacific Rural Press.]

Facts about the aeroscope on the Zone will be of interest to everyone who visits the Fair because it is one of the most prominent features. Built like a steel bridge 265 feet long and balanced on a steel frame by enough concrete so that a 220 h. p. motor will lift the steel "bridge" from the horizontal position to nearly vertical with a two-story house on the end of it capable of carrying 118 passengerfs at once, it lifts the visitor above everything except the Tower of Jewels, in three and a half minutes; and from this elevation, which is 330 feet above the sea, they claim the horizon is 200 miles away. The whole outfit then makes a slow complete circle and settles back to terra firma.

Clear soup or consomme should be strained through a folded towel laid on a colander. It must not be squeezed, or some of the small particles of egg used in clearing will be forced through and spoil the soup.

Large Shipment of

Water Pipe

Received by Los Angeles Pipe Firm.

300,000 Feet Ready for Immediate Shipment.

The Adams Pipe Works of Los Angeles, which recently changed management, announces they have just received one of the largest shipments of Water Pipe received by any one firm in a single week. All sizes are included and all pipe absolutely guaranteed. Special prices on various sizes as follows: Riveted Dipped Pipe: 10-inch, 30c; 4-inch, 12c. Sandard Pipe: 8-inch, 45c; 6-inch, 35c; 5-inch, 30c; 4-inch, 25c; 3-inch, 15c; 2½-inch, 12½c; 2-inch, 7½c; 1½-inch, 6c; 1¼-inch, 5c; 1-inch, 4c; ½-inch, 2c. Tubing: 2-inch, 8½c. O. D. Casing: 10-inch, 70c; 8-inch, 45c; 4¾-inch, 22c; 4-inch, 17c; 3½-inch, 13½c; 3¼-inch, 13c; 3-inch, 12c.

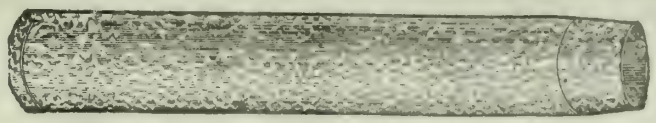
Mail orders and quotations given prompt attention. **Adams Pipe Works**, 2025 Bay St., Los Angeles, Cal. Broadway 1264. F-1917. Night and Sunday phone, Vermont 1294.

SECOND HAND PIPE

Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.

WEISSBAUM PIPE WORKS

160 Eleventh St.,.. San Francisco



STANDS HIGHEST

In the Estimation of All Orchardists and Ranchers

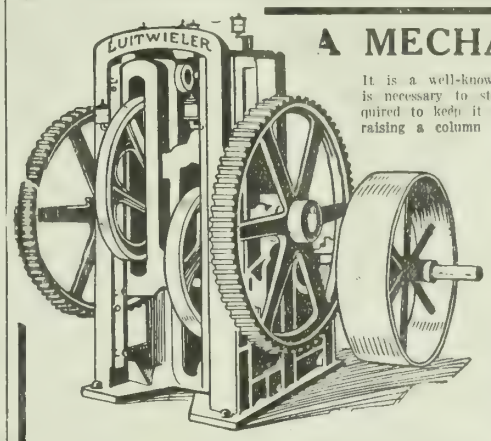
"AMERICAN"

SURFACE IRRIGATION PIPE

Is made to last a lfetime. Of heavier sheet steel than any other, it has our famous double-locked seam that never leaks. **No rivets.** We also make riveted underground pipe and all fittings for irrigation systems. Write for illustrated catalog and irrigation circular.

American Steel Pipe & Tank Co.

354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CALIF.
Branch 1228 "H" Street, Fresno.



A MECHANICAL TRUTH

It is a well-known fact that two or three times more power is necessary to start an inert or stationary body than is required to keep it in motion. This mechanical truth applies to raising a column of water as well as putting a train in motion. That's why an ordinary plunger type pump with a jerky delivery requires so much power.

The Luitwieler Pump

(non-pulsating)

delivers a steady, even flow, without jerk, jar or vibration, which not only means minimum power consumption, but greater efficiency and no pump troubles. No pit. Guaranteed. See exhibit at either Exposition.

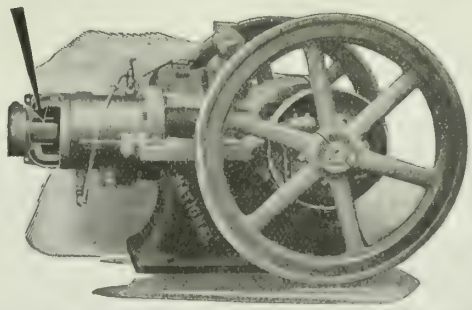
WRITE TODAY FOR CATALOG.

Luitwieler Pumping Engine Company

711-13 N. MAIN ST., LOS ANGELES.

SAN FRANCISCO AGTS.: SIMONDS MACHINERY CO., 117 NEW MONTGOMERY ST.

The National Oil Engine



Runs On 2½c Fuel

Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts, springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

National Steam Pump Company

Upper Sandusky, Ohio.

Address California Distributor, J. C. WIGHT,

4927 Budlong Ave., Los Angeles, Cal.

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam. A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—the Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.

Box V, Gilroy, California.

Agricultural Review.

CITRUS AND SEMI-TROPICAL.

It is estimated that more than one thousand acres of grapefruit will be set out in the Imperial Valley this year. The grapefruit in that section is of a very superior quality, being similar to that grown in Florida.

The recently organized Lindsay-Merryman Citrus Exchange elected the following officers: R. C. Merryman, president; Chas. K. Towt, vice-president; R. H. Shoemaker, Jr., secretary and manager; Montague White, treasurer; and K. H. Plate, A. C. Dungan, Phil M. Baier, King C. Gillette, and McKee Mhoon, directors.

OLIVES AND NUTS.

Dr. W. W. Fitzgerald of Stockton recently disposed of his entire stock of 50,000 young walnut trees, shipping some as far as Australia.

A tract of 160 acres is to be planted to olives in the Huron section of Kings county, owned by C. M. Gifford of the Gifford Ascolano Olive Co.

GRAPES AND SMALL FRUITS.

The first Stockton strawberries are on the market, grown by Joe Sacco of that place. Mr. Sacco has the reputation of raising the first Stockton berries for several years past.

As a means of boosting the coming Raisin Day, April 20 has been named as Post-Card Day by the publicity committee of the Fresno County Festival Association.

In interstate shipment of berries it will not be necessary in the future to mark berry containers to show the net contents, according to a new ruling by the U. S. Department of Agriculture. Berry growers desiring more explicit information in regard to the new ruling should communicate with the Chief of the Bureau of Chemistry, Washington, D. C.

REVIEW OF SEASON'S PLANTING.

The peach acreage has perhaps held its own, but the discouragements of the past season have prevented large new plantings.

Very few cherries have been put out on account of the difficulty of diagnosing the State-wide die-back of those trees.

A feature of the season's planting has been the rush into Thompson Seedless grapes in the great central valley.

Large apricot plantings have been the response to the greater ease of marketing at living prices of that fruit since the first shock occasioned by the war.

Apple planting has been discouraged by the low prices and slow movement of the crop. This fruit, with peaches, has to stand severe competition from the rest of the United States.

Prune planting has shown no special activity, and pear growers are still needlessly fearful of the blight.

Walnuts have shown some plantings in a consistent steady progress through the season, but with no boom.

Almonds have shown probably the greatest activity, growers seeming to have great confidence in their future on account of the State-wide Almond Growers' Association having secured about four or five cents per pound more for its members than outside buyers paid.

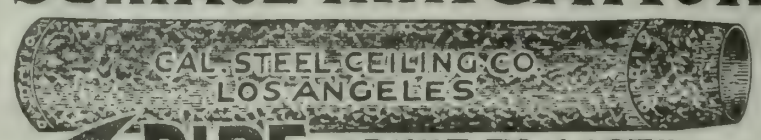
A surprise in view of the low price of alfalfa during the past season is encountered in the irrigated districts of Stanislaus and San Joaquin counties. Considerable acreages are even yet being planted to alfalfa to furnish feed for the rapidly increasing dairy cow population.

Citrus planting has been slow, though there are yet several weeks in which it may be done. This slowness is largely due to financial depression, the low market prices of oranges and lemons, and the poor prospects for tariff encouragement.

Olives seem to have been the favorite for planting from San Joaquin county north to Shasta county and a considerable acreage is being set out despite the difficult marketing of last season.

Notwithstanding the great prospects for high prices of grain on account of the war, and the determination of so many farmers to be prepared for the high prices, reports from most of the grain growing sections indicate that perhaps the total

SURFACE IRRIGATION



PIPE "BUILT TO LAST"

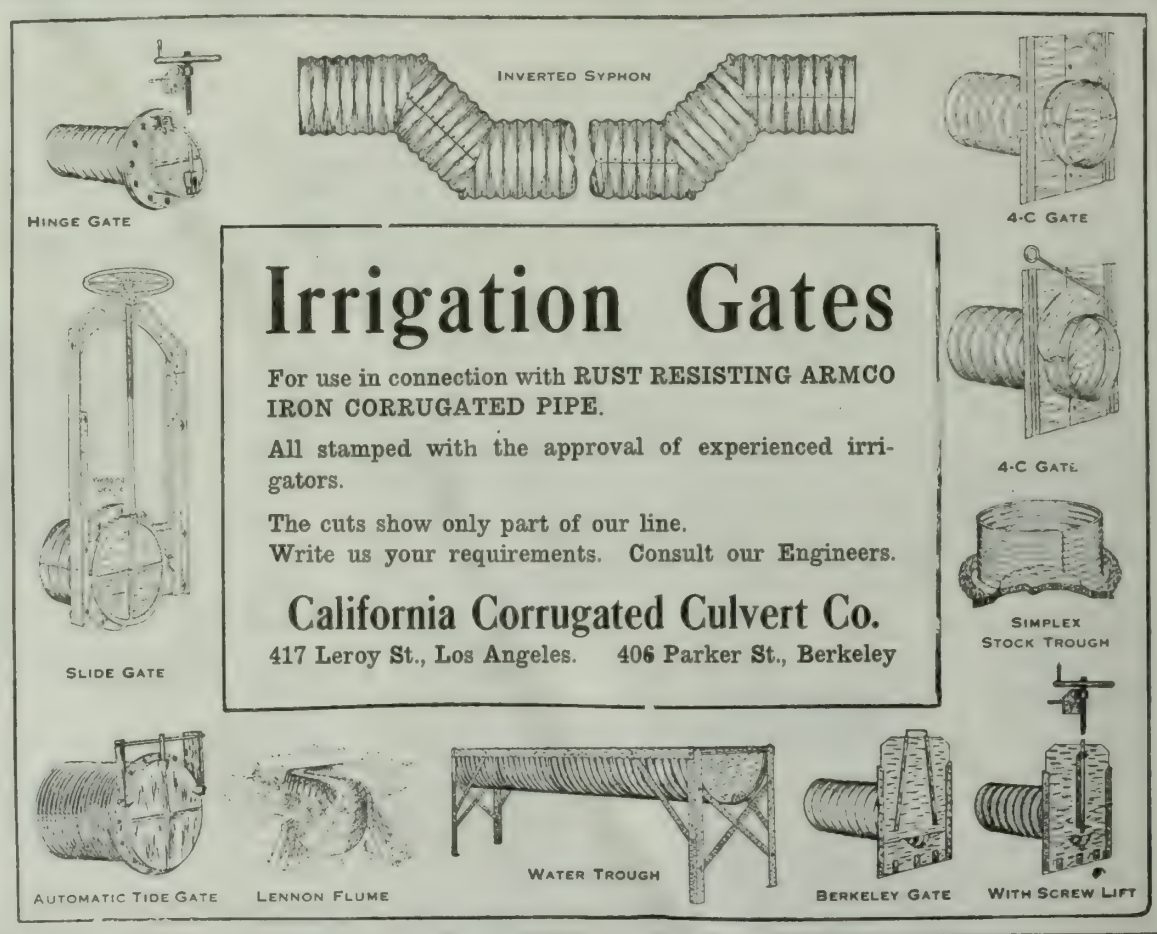
Body made from single sheet of Galvanized Open Hearth Steel 10 feet long, with extra heavy taper collar on one end and band of heavy steel on the other—making each section 10½ feet. Made with lock seam (four thicknesses of steel), which gives unusual strength and durability, besides—ABSOLUTE PROOF AGAINST LEAKAGE.
Write for illustrated price list. Phones: Home F1088, Sunset Main 3141.
Manufactured by
CALIFORNIA STEEL CEILING COMPANY
Eighth St. and Santa Fe Ave., Los Angeles, Cal.
Also Manufacturers of Galvanized Iron Tanks.

If you want the most for your money ask for, insist on, and demand that your DEALER furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good,"—it cannot be furnished. Every sale carries with it an unqualified guarantee.
Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives power tables, Belt Speeds, List Prices, Etc.

New York Belting and Packing Co. of New York
Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.



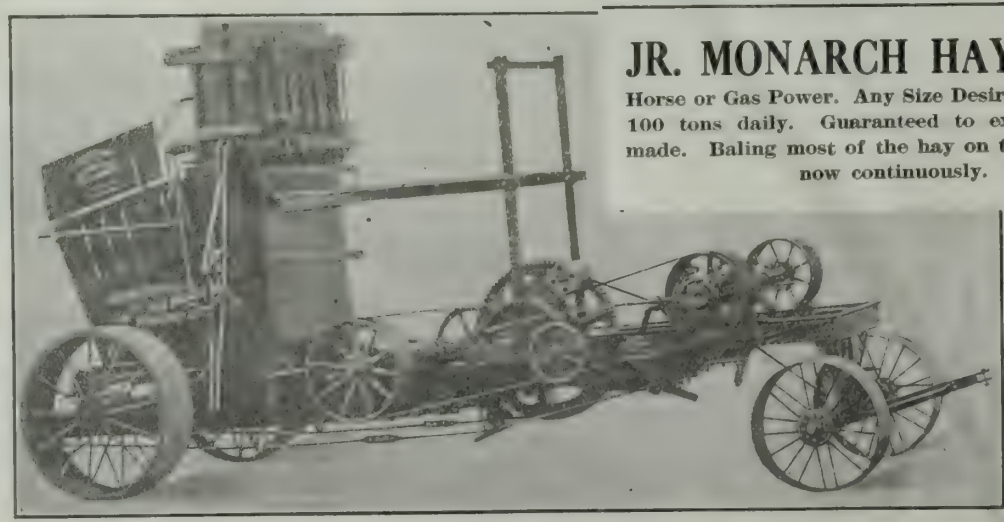
Irrigation Gates

For use in connection with RUST RESISTING ARMCO IRON CORRUGATED PIPE.

All stamped with the approval of experienced irrigators.

The cuts show only part of our line.
Write us your requirements. Consult our Engineers.

California Corrugated Culvert Co.
417 Leroy St., Los Angeles. 406 Parker St., Berkeley



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

acreage planted is only three-quarters of normal. This is due to heavy rains at the time for preparing the seed bed and planting. Practically all of the grain that was planted is now in fine shape. Rice in the southern San Joaquin and Sacramento valleys is on the boom.

MISCELLANEOUS.

At the annual meeting of the Alta

PROFESSIONAL DIRECTORY.

SYMMES & MEANS
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

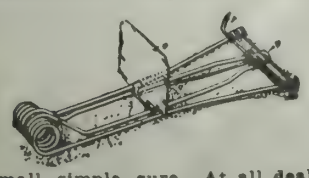
SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides. Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Kill Morning Glory
NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL
Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices.. Very low rates in drums and tank cars.
For sale by all dealers.
Wheeler, Reynolds & Stauffer
624 CALIFORNIA ST.,
San Francisco. California.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by
Z. A. MACABEE, Los Gatos, Cal.

District Cured Fruit Association of Tulare county, the following officers were elected for the ensuing year: J. W. McPhearson, president; W. E. Evans, vice-president; and W. E. Lindley, secretary.

CROWDED APRICOTS POOR.

[Written for Pacific Rural Press.]

Apricot thinning this season may not be a very necessary proposition in most of the counties of the State from which we have reports of about three-quarters of a crop. Nevertheless, in some sections a full crop has set and is now a half inch in diameter or larger and the pits are hardening. In the sections where the crop promises to be light, many trees will be found, of certain varieties especially, which have set great clusters of fruit on favored branches.

Regardless of the lightness of the crop, if the apricots are too much crowded, they will lose in size, shape, quality, and evenness of ripening and must be thinned to get the proper development for good marketability. If the total crop on the tree is light, the fruit may be left thicker where it has set heavily, but even so, no two apricots ought to touch each other when half grown, and those which remain are more likely to stick if they do not hang awkwardly.

In San Joaquin county we recently saw many orchards heavily loaded, and our report from County Farm Adviser F. F. Lyons is to the effect that a normal crop has set over the whole county. Horticultural Commissioner A. Rutherford reports only half a crop from certain sections of Stanislaus county though other districts may do better.

Special attention may be directed toward leaving fruit on only those limbs which are able to bear it, both as regards holding up the weight and also developing the fruit to maturity. Spindly limbs or spurs which have developed practically no leaves are not entitled to so many fruits as those which have plenty of leaves and are stockier. It is reasonable to suppose that the leaves located nearest to a fruit are most likely to supply that fruit first with the plant food elements it needs, and then send the surplus on for other less favored fruits, if there is any surplus. And the stocky branches are able to carry more sap both to and from the leaves.

MEETINGS AT WORLD'S FAIR.

American Sweet Pea Society, June 4, 1915.

American Seed Trade Association, June 22 to 24, inclusive, 1915.

California Viticultural Exhibit Association, San Francisco, July 12 and 13, 1915.

State Board of Viticultural Commissioners, San Francisco, July 12 and 13, 1015.

International Congress of Viticulture, San Francisco, July 12 and 13, 1915.

National Negro Farmers' Congress, San Francisco, July 14 to 17, inclusive, 1915.

California State Fruit Growers' Convention, Stanford University, July 26 to 30, inclusive, 1915; San Francisco, July 31, 1915.

National Plant, Flower and Fruit Guild, San Francisco, July.

American Farm Management Association, Berkeley, August 9 and 10, 1915.

Society for the Promotion of Agricultural Science, Berkeley, August 9 and 10, 1915.

The American Society of Agronomy, Berkeley, August 9 and 10, 1915.

American Association for the Advancement of Agricultural Teaching, Berkeley, August 10, 1915.

Association of American Agricultural Colleges and Experiment Stations, Berkeley, August 11, 12 and 13, 1915.

California Association of Nurserymen, San Francisco, August 12, 13 and 14, 1915.

American Association of Farmers' Institute Workers, Berkeley, August 13 and 14, 1915.

National Association of Gardeners, San Francisco, August 17 to 20, inclusive, 1915.

Society of American Florists and Ornamental Horticulturists, San Francisco, August 17 to 20, inclusive, 1915.

The American Association of Park Superintendents, San Francisco, August 18, 19 and 20, 1915.

Florists' Hall Association of America, San Francisco, August 19, 1915.

The School Garden Association of America, Oakland, August 19 and 20, 1915.

Society for Horticultural Science, Berkeley, August 31, 1915.

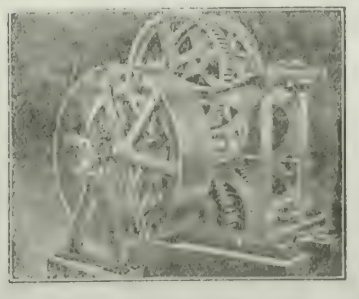
International Congress of Farm Women, San Francisco, August 31 to September 3, inclusive, 1915.

Western Forestry and Conservation Congress, San Francisco, October 19 and 20, 1915.

Patrons of Husbandry, State Grange, Oakland, October 19 to 22, inclusive, 1915.

American Forestry Association, San Francisco, October 20, 1915.

POMONA
DEEP WELL
PUMPS
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.



Write for Catalogue 104, with valuable information on irrigation.
Pomona Mfg. Co.
Pomona, Cal.
Our "made right" irrigation valves are good, and not costly.

HERCULES POWDERS
Better, Bigger Crops with the Help of Dynamite
ON the modern farm dynamite has become recognized as an important factor in producing bigger and better crops. In every field of agricultural labor this comparatively new-found power is proving its great worth. By its aid the progressive farmer is planting trees, draining land, digging ditches, removing rocks, sub-soiling land, excavating cellars, cisterns, etc. These things can be done more quickly, more thoroughly, and with less expense than by any other method when you use
HERCULES DYNAMITE
In tree planting and sub-soiling especially, it has proved itself of remarkable value. Farms that were thought "played-out" are now producing better crops than ever because of Hercules Dynamite. Sub-soiling has brought them renewed fertility.
When you depend upon the plow alone to prepare the land, you merely scratch the surface. Herclues Dynamite by means of sub-soiling loosens the earth to a depth never reached by a plow. It breaks up the hard lower strata, thereby improving the drainage and giving the crops the fresh, rich subsoil upon which to thrive.
Get Our Valuable Book Free
"Progressive Cultivation" written in a plain understandable style, tells how to increase your crops greatly by this simple and inexpensive method. Also tells of the other money-saving uses for Hercules Dynamite on the farm. Whether your farm is large or small, you need this book—and it's yours for the asking. Write today.

HERCULES POWDER CO.
CHRONICLE BUILDING
San Francisco, Cal.

Bee Keepers Supplies
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco

Casaba Culture Like Cantaloupe.

To the Editor: When should we plant casabas, and how should we cultivate them?—Subscriber.

[The planting and cultivating of casabas is about the same as for cantaloupes. A member of the Dinuba Melon Growers' Association, who raised four acres of casabas last year, which is more than most people in that section, recommends planting to come as early as possible in April, and that a summer variety, such as Golden Beauty, be used.

This lady last year planted a winter variety of casabas along in May. In July, if they had been ripe, she could have supplied an insistent demand at good prices, but by the time they were ready for shipment in August the demand had passed and it was hard to dispose of them at any profitable price at all.

Two carloads were shipped to Oregon for cold storage, but the Oregon folks claim that they rotted and did not return a dollar. Some of these winter casabas, however, were kept on the place in a dry shed, and were eaten late in February. They showed some black spots on the outside and were fairly good inside, not blackened at all, or rotted.

The casabas and other melons in the Dinuba district are grown practically entirely between young grapevines. When these are 8x12 feet, the melons are planted in the twelve-foot spaces, but if planted in the open fields the hills might be 8x8 feet, Casabas need more room than cantaloupes and are hardier.

There is no danger of pumpkin or other melons pollinating the blossoms and spoiling the flavor of this year's melons, but the seed of this year's crop, if mixed with the seed of other kinds of melons, would produce mixed flavors next year. Certain watermelons among which are the Florida Favorite and the Rattlesnake, have been thought to mix and spoil the first season, but there is some question as to whether the seed for these had not been mixed

NO POISONOUS LIZARDS IN CALIFORNIA.

To the Editor: Can you suggest something to rid one's premises of lizards? Are they poisonous?—R. F. C., Los Angeles.

[Answered by J. Grinnell, Director University Museum of Veterate Zoology.]

[Concerning the query of R. F. C. of Los Angeles, I hereby declare that naturalists agree that there are no poisonous species of lizards native in California. In the vicinity of Los Angeles, there are four species which occur about gardens and houses where the region is not too thickly settled. These are: the Fence Lizard (Scleporus biseriatus), the Brown-shouldered Lizard (Uta stansburiana), the Alligator Lizard (Gerrhonotus scinciauda) and the Blainville horned toad (Phrynosoma blainvillii). In each case these are perfectly harmless and may be counted as actual assets because of their vigorous appetite for insects of various sorts. Only a few minutes' observation on a warm day would be required to convince anyone of the value of these little animals in destroying troublesome insect pests.

The largest of the species, the Alligator Lizard, does have a rather ferocious appearance, with its yellow eyes and rapidly protruded tongue, but there are no poison sacs, and it is all bluff. I would earnestly recommend that no drastic measures be taken to rid the community of these helpful creatures.

In addition to the foregoing, we would mention the fact that an excellent pamphlet on "The Reptiles of Los Angeles County," by Director and Mrs. Grinnell was published by the Throop Institute as its Bulletin for March, 1907. This gives in some cases information as to the economic value of the reptiles of that vicinity.—Editors.]

CREOSOTE BLUE GUM POSTS.

To the Editor: I have some blue gums growing on my place which I wish to cut and use for posts, but am told that they will rot within a year. Is this true? If so, how can I prevent it? Would crude oil do? —L. A. W., Orosi.

[Answered by U. S. Forest Service, San Francisco.]

[We have been conducting tests to determine the feasibility of treating blue gum fence posts with creosote. An inspection made in the fall of 1913 showed that posts treated and set in the vicinity of Los Angeles were showing very good results at the end of seven years' service. These posts had been treated at a cost of 5½ to 6½ cents each (cost of creosote estimated at 25 cents per gallon). Labor is not included in this cost estimate. The best results were obtained with seasoned posts.

A satisfactory treatment should consist of heating the lower three feet of the posts in creosote at a temperature of 190 to 212 degrees F. for at least three hours, the posts then to be stacked upside down at least 24 hours to allow surplus oil to work towards the top. The posts treated for 3 feet should not be set deeper than 2½ feet. A very satisfactory treating plant can be made by cutting out one head of a steel oil drum. This can be set on a foundation of rock and a fire built underneath to heat the oil. Oil expands upon heating and great care should be taken to prevent it from running over the top and getting into the fire-box. Farmers' Bulletin No. 387 which covers the preservative treatment of farm timbers can be obtained upon application to this office.]

LATE DELTA CROPS BEST.

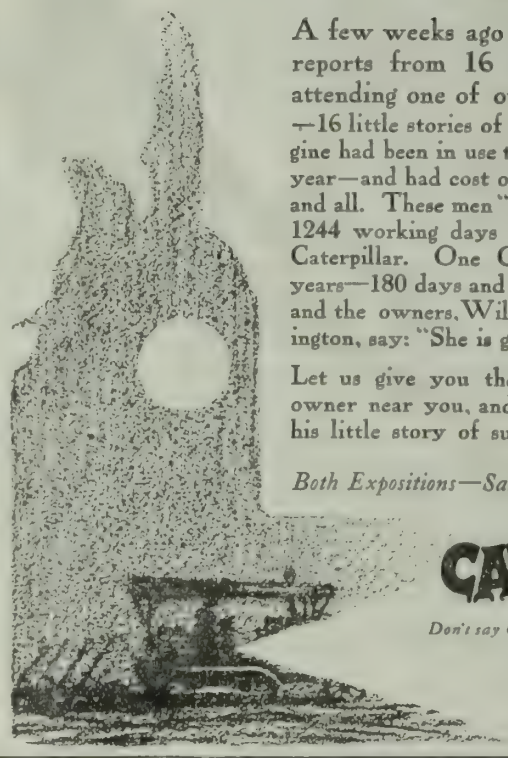
To the Editor: What months shall I plant peas, string beans, and nutmeg cantaloupes for the San Francisco market?—C. T. W., Rio Vista.

[Inquiry among San Francisco merchants seems to show that you had better plant peas as soon as possible and beans as soon as frost danger is over, though probably when your crops from the colder delta lands are ready for marketing, there will be a flood of them from the Alameda hills.

The cantaloupes had better be planted for the late market because there is no possibility of your competing for the early market; and mid-season melons would meet the competition of the main crop.—Editors.]

Little Stories of Success

No. 6



A few weeks ago we got signed upkeep reports from 16 owners and operators attending one of our Caterpillar schools —16 little stories of success. The average engine had been in use two years—190 days each year—and had cost only $155 in extras, track and all. These men "behind the engine" figured 1244 working days as the life of the average Caterpillar. One Caterpillar had run five years—180 days and 150 nights each year — and the owners, Williamson Bros., of Farmington, say: "She is good for a lifetime."

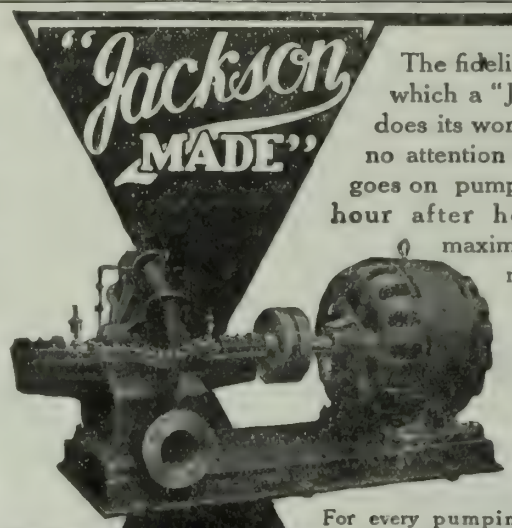
Let us give you the name of a Caterpillar owner near you, and let him tell you direct his little story of success.

Both Expositions—San Francisco and San Diego

CATERPILLAR
Reg. U.S. Pat. Off.
Don't say Caterpillar unless you mean Holt

The Holt Mfg. Co.
(Incorporated)
Stockton Los Angeles

"Jackson MADE"



The fidelity and regularity with which a "Jackson Made" pump does its work is almost human—no attention is needed—it simply goes on pump, pump, pumping—hour after hour delivering the maximum amount at the minimum expense.

Tell us your pumping problems and our expert engineers will gladly help you free of cost.

For every pumping condition there is a "Jackson Made," which, in satisfactory results, absence of repairs and costly upkeep, excels every other make.

Write for Catalog No. 47G

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

"Soil-Tone" MINERAL FERTILIZER

Lowest priced, safest and best fertilizer on the market. Contains highest percentage of sulphides obtainable. Proven best for citrus groves, farm lands, garden, shrubbery, etc. Develops more plant food at low price of $3.70 per ton than ordinary commercial fertilizers produce at $50 per ton.

$3.70 per ton (sacked)
$2.25 per ton (in bulk)
(f. o. b. Corona Cal.)

The Soil-Tone Company,
POMONA, CAL.
(We have no Los Angeles office.)

FOLSOM & SON,
Local Representatives.
170 S. Main Street.

EFFECT OF WAR ON EXPORTS OF HORSES.

By G. A. Bell,
Senior Animal Husbandman, Bureau of Animal Industry.

DURING the four months, September to December, 1914, inclusive, about 75,000 horses were exported from the United States, In addition to these several thousand more have been purchased for export by the agents of the warring nations. It has been feared by some that there would be such large numbers exported as to cause an acute shortage of horses in this country. There is, however, no apparent immediate danger of this.

The 1910 census gave 3,182,789 as the number of horses not on farms. There has probably not been any appreciable decrease in that number since then. That number added to the 21,195,000, the number estimated by the Department of Agriculture, on farms January 1, 1915, makes a total of over 24,000,000 horses in this country, and we could sell two or three times the number already exported without there being an appreciable shortage of work horses. Three times the number exported during the last four months of the past year, or 225,000, would be less than 1 per cent of our horse stock. Furthermore, the kind of horses which have been purchased are for the most part very mediocre animals, which would ordinarily sell for less than $100 per head and are a class of which we can well afford to be rid. But a small percentage of the animals exported are mares and most of these are doubtlessly either old mares or non-breeders.

The big demand for horses will probably occur after peace has been declared. At that time the countries now at war, with the exception of Russia, will no doubt be very short of horses for their agricultural and other work. According to the best information obtainable European Russia had, prior to the outbreak of the war, about 25,000,000 horses, and is the only country having more horses than the United States. This country and Russia together have 50 per cent of all the horses in the world. The world's stock is estimated to be about 100,000,000. A large number of the horses in Russia will be destroyed in the war and the remainder will no doubt be needed by Russia for her own agricultural and other work.

The demand on this country, which has one-fourth of the world's supply of horses, will, therefore, be large and will probably continue for a number of years, for the rehabilitation of the depleted horse-stock of any country is a slow process.. This country, however, will be in position to meet this demand if the farmers owning good mares will see that they are bred. The owners of such mares should see that they are bred to high-class stallions and produce the kind of stock for which there is always a good market. The production of superior animals of any kind is generally profitable, while the production of inferior ones is seldom so.

Overcoming Money Loss With Horses.

[Written for Pacific Rural Press.]

Numerically, California is perhaps well supplied with horse flesh for her present needs, yet this abundant supply is not returning the profit to our farmers that it should on account of the large number of relatively poor horses which we are raising.

This supply of poor horses is largely traceable to but one thing, viz., poor mares and stallions, statistics showing that nearly 40 per cent of the stallions which are being offered for public service are mongrels. That is to say a large percentage of our breeding stallions are horses which cannot be expected to improve either size or quality in our yearly colt crop, but are apt on the other hand to materially decrease the quality of those horses which have already been improved through the use of the purebred stallions formerly used.

To illustrate the tremendous loss annually placed upon the farmers of this State through the use of these mongrel stallions, a comparison of the prices received in the markets for horses sired by purebred stallions and those received for horses sired by mongrel stallions is perhaps the most conclusive evidence one can secure on the subject when compared with the small additional cost of breeding to the purebred animal.

In the first place, we find that the additional cost of breeding to purebred stalilons does not exceed $10 per service fee. As there are about 700 of these mongrel stallions in the State which beget probably 21,000 foals each year, the increased cost amounts to about $210,000 annually.

As mongrels these 21,000 foals, if sold at top price in the city markets, would perhaps sell for $150 a head or $3,150,000. This total is based upon present market prices and the fact that few mongrel stallions get horses weighing over 1500 pounds and even then their unsoundness forbids their use in many lines of work.

As foals out of purebred draft horses, the above horses would bring on the city markets from $225 to $275 a head, averaging perhaps $250 each, or $5,250,000, or a difference of $2,100,000 in favor of the purebred sire, less the additional cost of stallion fees of $210,000, leaving a balance of $1,890,000.

As a matter of fact it would not be possible to market the above number of either mongrel or purebred sired colts on account of the losses experienced in raising that many horses, yet the relative percentage of loss is the same in either case, and allowing a generous loss of marketable animals, which would be heavier with the scrubs on account of unsoundness, it is reasonable to suppose that at least $1,000,000 is annually lost to the farmers of the State through the use of the mongrel stallion alone.

90 % of gas engine trouble has always been due to faults of ignition

The "ALPHA" Engine

"The gas engine without batteries"

Stops ignition trouble

THE ALPHA IGNITION EQUIPMENT consists of a gear-driven, positively timed, built-in magneto, which we guarantee will last as long as the engine, and a simple, well built and positive igniter. A hot fat spark is developed which quickly ignites the whole mixture in the cylinder and enables the production of maximum power from the minimum amount of fuel.

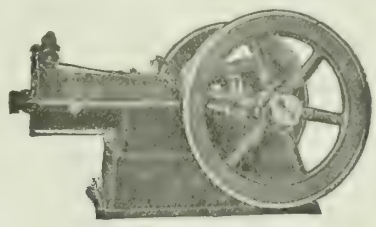
ALL ALPHA ENGINES NOT only operate but **start** on this magneto. It is hard to believe it until you see it done. In starting even the largest size Alpha Engine, only a partial turn of the fly-wheel is required and the engine goes right to work. No fussing or stewing over batteries, coils and spark plugs with which other engines are equipped.

THE ALPHA ENGINE IGNITION system is so much simpler that once you see it done you can do it yourself. No trick about it.

If you have had any experience with gas engines you will readily appreciate the great advantage of the Alpha in this respect, and even if you don't know gas engines, an inspection of the Alpha Engine will certainly convince you of its simplicity of construction and the excellence of its material and workmanship.

THERE ARE A DOZEN OTHER points of superiority of the Alpha that are just as important as the advantages of its ignition system, and these the nearest Alpha agent will be glad to explain to you. If you don't know the name of the Alpha Engine agent in your locality, we will be glad to put you in touch with him, or if there is no Alpha agent in your neighborhood we will send one of our own representatives to see you, upon request.

IN ANY CASE, WE SHALL BE glad to send you the finest gas engine catalogue ever printed



2 to 100 H. P. Portable or Semi-Portable, Water Cooled or Hopper Cooled.

EVERYTHING FOR THE DAIRY.
JAMES BARN EQUIPMENT. IDEAL GREEN FEED SILOS.
VIKING PUMPS.

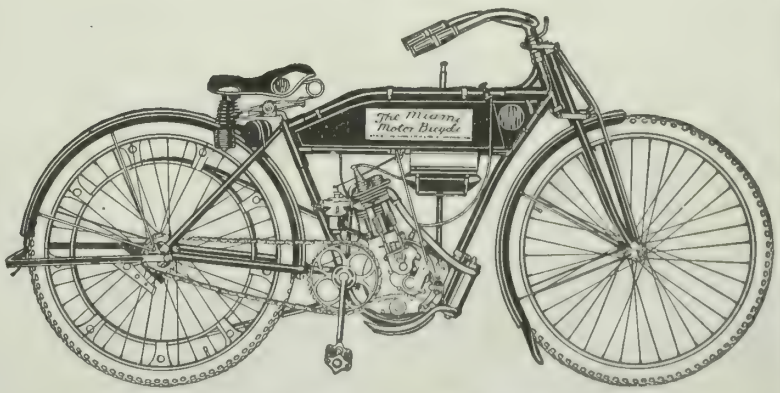
De Laval Dairy Supply Co.

SAN FRANCISCO. SEATTLE.

Just Think!

100 Miles on One Gallon of Gasoline

Can you realize how cheap you can travel on a
MIAMI MOTOR BICYCLE?



Weight 110 lbs. Price, f. o. b. San Francisco, $140.00
The Miami Motor Bicycle is a boon to farmers to come to town, boys and girls to go to and from school.
Cost less than half of an ordinary motorcycle; can be put any place a bicycle can stand.
Let us tell you more about this machine.

BAKER & HAMILTON, San Francisco

Short Horn Bulls

20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

With the Live Stock Men.

DAIRYING.

A cow testing association was formed last week in San Joaquin county through the efforts of the farm adviser and a number of progressive dairymen of that county. Between 600 and 700 cows have already been signed up and it is thought that little difficulty will be encountered in bringing this number up to 1,000 as soon as steps are taken by the association to secure more cows through solicitation.

We have been advised by County Farm Adviser H. J. Baade that a Cow Testing Association has been formed by the Napa county dairymen. The following officers were elected: President, Wm. Mitchell; Vice-President, Wm. Watt; Secretary-Treasurer, Frank Peterson; and Directors, Ben Stetson, L. Crellin, R. Imrie, and John Stewart. Over six hundred cows have already been entered and many more are expected.

A sale of choice Jersey cows recently took place in Stanislaus county when the firm of Murray & Jones of Modesto purchased the herd belonging to John F. Snover of Ceres.

About thirty-five dairymen of the rich Cottonwood section of Merced county met recently for the purpose of organizing a co-operative creamery. Dairymen owning more than 1500 cows signed up for co-operation and committees were appointed to draft a constitution and by-laws and to visit the dairymen of their respective districts to solicit their aid in forming the organization.

At the completion of its second month of testing, the Sacramento-Yolo Cow Testing Association reports that there are 916 cows in the Association, of which 52 made a record of more than 45 pounds of butter in thirty days.

Chas. Klint, Cow Tester for the Gridley Cow Testing Association, reports great progress of the association. There are twenty-six herds, consisting of about 1200 cows, being tested, which are scattered throughout Butte county and part of Yuba and Sutter counties.

CATTLE AND SHEEP.

The Amador-El Dorado Livestock Association recently held its semi-annual meeting, at which it was decided to include in the association stockmen from San Joaquin, Sacramento, El Dorado, Amador, and Placer counties in California and Douglas county in Nevada. Placerville was decided as the next meeting place.

Six registered Shorthorn cows were recently sold by Chas. Lynch of the Sonoma section to the Kilulea Sugar Plantation of Honolulu.

We have been informed that A. B. Humphreys of Mayhews will move his herd of registered Guernseys from his ranch at Mayhews to his new ranch at Escalon during the coming month. This will give San Joaquin county the distinction of having one of the finest herds of Guernseys in the State.

MISCELLANEOUS.

The final classification of prizes to be offered by the live stock department of the Panama-Pacific International Exposition has just been mailed out by D. O. Lively. In it are set forth the rules and regulations which will govern exhibitors of purebred live stock, including poultry. Breeders who have not already received a copy and who contemplate competing for premium money in the fall should write for a copy in order to better understand the distribution of prize money.

A silo expert is being hired by the Tuolumne Lumber Company of Stanislaus county, whose duty it is to hold meetings and advise farmers on all matters pertaining to silos and silage, as well as the construction methods for other classes of farm buildings. Such work should bring about a great improvement on Stanislaus county dairies.

The Whitehall Estate Co. at their ranch at Tracy are preparing a number of their fine draft horses and Shorthorn bulls for their first auction sale, which will be held some time during the next month. Messrs. Westlake and Dunlap, who have charge of the horse and cattle divisions of the ranch, are already starting to select the stock which they expect to exhibit at the Panama-Pacific Exposition in the fall. Mr. Thatcher, who has recently arrived from the Iowana Farms in the East, states that he is favorably impressed with California as a stock country

DAIRY COW HAS HELPED STANISLAUS.

(Continued from page 465.)

the greatest possible production. In this respect the silo has come rapidly to the front in the last three years, the increase during the past year being 100 per cent according to one well versed on dairying in the county. With a silo expert holding meetings all over the county, it is confidently predicted that the silo population of the county will be tripled this year.

The rotation of crops and the resultant increased yields of alfalfa which follow the silo, together with the increase in production when silage is fed to the cows, is proving too strong an argument to be long overlooked by the dairymen who are striving to raise the annual production of their herds.

"What has the cow done for Stanislaus county?" was a question asked of one of her leading lights.

"She has put the clothes on our backs and the food in our stomachs, educated our children, paid our taxes, and, last but not least, returned the fertility to our soils which the grain farmers took away," he replied, as he shot off toward home in a new machine to get there in time for the night's milking.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

FOR SALE—Several choice Shetland ponies. Zach Tompkins, Sunnyvale, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

FOR SALE—Guernsey Bull Calf of three months. Something choice in breeding and individuality, with producing ancestors back of him. $200 f. o. b. Bella Vista Ranch, Martinez. J. W Henderson, 503 1st National Bank, Berkeley, Cal.

HOLSTEIN BULL CALVES—Sired by King Pontiac Netherland Segis, son of King of the Pontiac, Dam K. S. P. Netherland, 24 lb., 3 years old, daughter of King Segis Pontiac. Ernest Otto McClure, R. 2, Modesto, Cal.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

HOLSTEINS—Mr. Breeder and Dairyman: I am offering the best bred bull in Stanislaus county, Pontiac breeding and out of the great cow Brinka de Kol. Also some good grade heifers bred to one of the best bulls in the county. J. A. Pelanda, Salida, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa For prices and particulars, address J. B. Agee, Napa, Cal.

REG. GUERNSEY BULL for sale. Kitchener's Count Sucotte Sire Imp Lord Kitchener; Dam Imp Countess Sucotte 13th. T. J. Baltimore, Gridley, Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAllister & Son, Chino, Cal.

N. H LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

SWINE.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc., 919 Hearst Building, San Francisco.

O. I. C. Swine—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

WE HAVE some Fine Young Boars for sale. They are a Berkshire and Poland China cross, about six months old and of exceptional size and quality. Stanford Vina Ranch, Vina, Calif.

REG BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely, no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co. Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

QUALITY BERKSHIRES—Boas, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in State. $10 up. M. Bassett, Hanford

REGISTERED DUROC-JERSEYS from Eastern stock Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—Young stock for sale. John H. Steuart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED DUROCS—Fine young boars. November farrow. Thorp, R. 6, Stockton.

READAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

DUROC-JERSEY REGISTERED BOAR PIGS H. E. Boudier, Napa, Cal.

REGISTERED POLAND-CHINAS—Large medium type Prize-winning stock. S F. Williams, Chico.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

POLAND-CHINAS—Young boars for sale. J. W. Lee Napa Junction, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal

REGISTERED BERKSHIRES—J. A. Goodall, Turlock Cal

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electic car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and Importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L Sayre, Madera, Cal.

Stock Men, Notice!

3200 A. open grassy range 600 A., level valley, low hills, running water and springs. Good impts. Now carrying over 500 head. $13.50 per acre.

1250 A. open range well watered clover knee-deep. 500 A. tillable. All fenced $11 per acre.

480 A. Beautiful Hog, Dairy or Olive farm. Living stream irrigating 100 A. $5000 cash; bal. long time. Cheap.

280 A. General stock and fruit farm. All irrigated. Very cheap. $7250. One-third cash.

W. W. Williams, 110 Sutter St.
San Francisco

and hopes to put the live stock on this ranch in excellent shape during the coming summer months.

The seventh annual University Farm picnic will be held on Saturday, April 24, at Davis. Features of special interest to stockmen will be the Live Stock Parade and the Boys' Horse Judging Contest.

Receipts at the Portland Union Stock Yards for the week ending April 8 were: Cattle, 853; Hogs, 2302; and Sheep, 1540. Prime steers sold at $7.75; prime light hogs at $7.50; and prime lambs at $9.25, while a few spring lambs brought $10.00.

Breeders and dairymen of the northern part of the State who are planning on attending the San Diego Exposition this spring should lay their plans to stop over and take in the P. F. Schumacher's dispersion sale to be held at Ascot Park, May 12, as it will without a doubt prove interesting, instructive, and enjoyable. On account of the recent outbreaks of the foot and mouth disease in the East and Middle West, there will be no more purebred cattle imported for some time to come, and those looking for high grade Holstein stock should seize this opportunity to secure what they want. The fact that there are two 29-pound cows to be offered, as well as a large number of cows in calf to the great young son of Tilly Alcartra, is sufficient guarantee of the quality of the stock offered. Jas. W. McAlister, Jr., who has the sale in charge, reports that much interest is being taken in the sale and that he is expecting a large attendance from all over the State.

Don't Forget

May 12th is the date for the big Dispersion Sale

of 75 Registered Holstein-Friesian cattle belonging to P. F. SCHUMACHER.

The Place

Ascot Park, Los Angeles

The biggest event in Holstein history on the Pacific Coast.

For catalog write

JAMES W. McALLISTER, JR., Chino, Cal., Sales Mgr.,

or

COL. B. A. RHOADES, Los Angeles, Auctioneer.

Milking Machines

THREE KINDS:

FOOT-POWER, ELECTRIC. GAS ENGINE

SEE OUR EXHIBIT AT THE EXPOSITION,

OR WRITE FOR PAMPHLET, GIVING FULL PARTICULARS

A. F. STEINER

BLOCK 1 Agricultural Palace. P. P. I. E.

SAN FRANCISCO.

SWINE BREEDERS TO MEET.

Among the first of the California agricultural associations to hold their annual meeting in the Hall of Congress at the Panama-Pacific Exposition grounds is the California Swine Breeders' Association. April 23 has been set as the date for the holding of this meeting, and while the program is not yet completed, Sec'y J. I. Thompson writes us that Mr. H. L. Thatcher will speak on Auction Sales In The Hog Business; Dr. Bert J. Cady of the U. S. Dept. Agr. will speak on Hog Cholera and Its Control; and instructive talks will be made by other well known speakers.

SCENTING COYOTE BAIT.

To the Editor: As you have subscribers scattered over the whole country, I wish to ask you to publish a good recipe for coyote bait or scent. —G. E. H., Orick, Humboldt Co.

[There are many recipes for both coyote bait and scent. One of the most common scents is made by cutting up a fish which is rich in oils, such as trout or eel, into small pieces and putting these in a corked bottle. When this is placed out in the sun, it gives off a rancid oil with a very odorous smell which wild animals like.

Another good scent is made by putting common angle worms in earth which is saturated with milk. In order to prevent the worms from escaping, a boxful of earth should be used. After the worms are bloated with milk, put them in a corked bottle in the sun until the mass has decomposed. Several other scents are used, but the above two are easiest to make in California.

Skunks are also considered to be good scent, as coyotes will follow the scent of them for miles, and when they find it, will always lie down and roll on it.

Any kind of meat is good for bait, but of all fresh meat, liver is the best.. Rabbits, squirrels, and doves are also good. Kill them and insert poison while the body is warm so that it will circulate through the system. Fresh meats of any kind rarely give the same satisfaction as dried meats for the reason that buzzards, hawks, and other birds of prey detect it, and oftentimes carry it off.

When dried bait is used, which is no doubt the best of all, it must first be sprinkled with poison or insertions of poison made in it, then it should be hung in the sun to dry thoroughly.

This kind of bait can be carried easily and placed almost anywhere without being molested by the fowls of the air and will keep for months if placed in a dry location.

If you desire to poison a hog pasture and it is impossible to remove the hogs to keep them from eating the baits, the best method is to bore a hole one inch in diameter and three inches deep on each side of several 4x4 inch blocks. Take equal parts of tallow and lard, melt just enough to make it run together; add poison, and pour into the holes. Place these blocks in different parts of the field where coyotes are accustomed to prowl and you will get them. If possible, roll a dead skunk over the blocks or put them on the trail where a dead animal has been dragged. This is also a very good way where birds, hawks, and buzzards steal baits.

In case a coyote is visiting your poultry yard and all means of trapping and poisoning have failed to get him, take a chicken, a white one is best, and a sick one, too, for that matter, pull a few feathers out of its back, sprinkle pulverized strychnine in the place, and stake is out by the leg where you suspect Mr. Coyote. The chicken will usually live long enough to capture him. If this is too cruel, place a small chicken coop inside of a large one, equal distance from all parts, and fasten securely. Then put several chickens in the small coop—one or two crowers are the best. Take the coops and chickens to a place frequented by coyotes, place traps all around the coop, cover and leave them until you catch your thief. It may be several days, but feed the chickens and leave them there and you will be rewarded.

Strychnine is the most effective poison for coyotes and should be used sparingly as it does not require much to kill.

If they start to eat a bait and it is too bitter with poison, they will drop it from their mouths and never afterwards touch anything that smells of strychnine. Enough pulverized strychnine to cover half an inch of the point of the small blade of a pocket-knife is enough to put in each bait.

The best time to poison is when they prowl about in packs, as they eat nearly everything they can find. The reason of this is that several discover the bait at the same time, making a rush for it and the first one getting it eats it in haste, without suspicion, to keep the others from it.

The carcass of a young calf makes excellent fresh meat bait. Drag it about the field on horseback before poisoning, then put the poison in the ears, mouth, and chest. Unless there are quite a number, they will eat only part of it the first day, usually commencing with the flank and devouring the hind quarters. This will not kill them, so encourages them to come again and perhaps bring others with them. You will likely get several, as they eat nearly everything of a young calf, even the head. —Editors.]

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price. Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face".....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Feltface" collar is all-leather, first-quality of oak-tannage, hand-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.

Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch

Very truly,

W. F. INGWERSON (Harness-maker) Visalia, Cal

A selling agent (dealer) in nearly every town. If none in your town, write us

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

The oil that's all oil —all lubrication

ZEROLENE

the Standard Oil for Motor Cars

Dealers everywhere, and at all our agencies or Service Stations. Or ask us about delivery in bulk.

Standard Oil Co. San Francisco

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.

10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00

Use any injector, but Cutter's best.

The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.

THE CUTTER LABORATORY, Berkeley, California

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adoining States.

Write for dates and terms. Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

"SHEEP conditions in the Inter-Mountain States, are generally speaking, good this year, and prospects for mutton prices being good and wool having sold for about seven cents more a pound than last year. There have been 2,000,000 pounds of this year's wool sold in the mentioned territory at 25 cents to 27½ cents a pound. Buyers have been in the field anxious to buy, but there is a tendency on the part of growers to hold on. The light snow fall this winter may make feed a little scarce unless we get rain, but otherwise you can say the sheep game is good this year."—S. W. Mc CLURE, Sec'y National Wool Growers' Ass'n.

Do Pumpkins Decrease Milk?

To the Editor: As a subscriber to your excellent paper I would like to hear your opinion about feeding pumpkins to milch cows. I used to plant a patch of beets for my cow to feed on during fall, but last April I planted a piece of ground—about one acre—to pumpkins. The yield was very large and I commenced feeding them from the beginning of August, about 40 or 50 pounds every evening at milking time. The cow seems to be very fond of them and ate them greedily; she was on pasture during the day, where she could get all the wheat hay she wanted, and at night she got alfalfa hay besides the pumpkins, but ate very little hay during the night. To my surprise the milk yield fell off rapidly and by the end of September the cow was almost dry, almost 6 weeks before her usual time, and the milk was quite bitter towards the last. It never occurred to me to blame the pumpkins for it. I thought they ought to stimulate the milk flow, on account of their succulent character. One of my neighbors came over later to buy the rest of my pumpkins for his hogs; he keeps cows, too, and told me pumpkins were not good for milch cows, they would dry them up. He tried to feed them to his cows and had to stop it. After feeding them bran instead, they soon came back to their former yield. I always give my cow summer squash, cucumbers, and muskmelons, during the summer, out of the garden, never in large quantities, only what gets too ripe for our own use. She seems to be very fond of such things. Would that affect the milk yield unfavorably like the pumpkins? By answering these questions I think you will confer a favor not only on me, but on many more readers.—F. W., Chico.

[Answered by Prof. F. W. Woll, University Farm, Davis, Cal.]

[There is no conclusive evidence that pumpkins have a tendency to dry up cows, although some farmers believe that such is the case. The fact that many leading dairymen are feeding pumpkins regularly to their cows so long as they last, shows however, that at least some farmers think well of them, and also suggests that the difference of opinion as to their value is very likely due to the way in which they have been fed. If the cows do not get much other feed, or if fed only a poor quality of roughage with the pumpkins, they will be likely to go down in milk yield more rapidly than they should. On the other hand, fed with good hay and some grain the results will be most satisfactory. Pumpkins are low in nutritive properties, containing only about 10 lbs. of dry substance per 100 lbs., and they cannot, therefore, be depended on to supply any large proportion of the nutrients required. It is always advisable to feed some grain to cows producing medium or large flow of milk, except when they have abundant pasture. With such pasture it is rather unnecessary to feed pumpkins, and they are of advantage more as an appetizer in that case than for the amount of nutrients which they supply. When fed as sole succulent feed to dairy cows, it is advisable to add rolled barley, or some grain mixture like barley, dried beet pulp and cocoanut meal, equal parts by weight, at the rate of 1 lb. for every 6 or 7 lbs. of milk which the cows produce. These feeds are the cheapest concentrates on the market at the present feed prices, and make a very satisfactory grain mixture for dairy cows on alfalfa and roots or silage.]

BERKSHIRES Oak Grove

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our cows are of equal merit

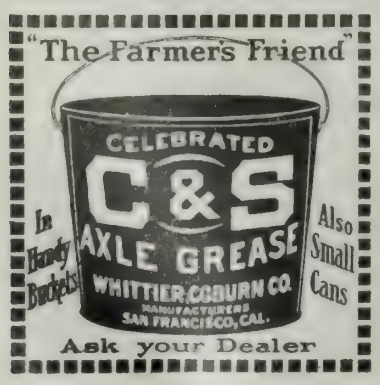
We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.



IMPROVISED SHEEP SHELTER

[Written for Pacific Rural Press.]

Providing inexpensive shade for livestock is very often a difficult task in this State on account of a lack of old timber, although the need for shelter is perhaps no place more in evidence than on ranches in our valley locations.

To supply shade for the sheep on the San Ramon Rancho in Contra Costa county, T. Ballard has improvised a cheap form of shelter by using tules along the sides of the fences next to the sheep sheds.

These shelters are made by using the fence posts as the back wall supports for a paneled tule roof, which is made by wiring tules onto a light board frame work. This roof has a pitch from the front to the top of the fence, being supported in the front with posts about six feet high. The back wall of the shelter is made by fastening the tules onto the panel and then onto the fence, thus protecting the sheep from the sun from one side and from above. By placing these shelters on all four sides of small corrals the sheep are enabled to find shelter, from either heat or storm, at all times of the day. By simply unfastening the panels they can be easily transferred from one location to another as the occasion may demand, and are built at a very moderate cost.

You Jersey Breeders!

We are offering in our **ANNUAL CONSIGNMENT SALE** this year 80 Head of the **FINEST** stock you ever saw. It would be hard to comb the State and get together a more distinctive bunch than will be found in our consignment sale at Modesto, May 4th, 1915.

YOU MEN WITH GRADES, get rid of them before May 4th and get in the **PURE BRED BUSINESS** right.

All our stock is fully guaranteed.

JERSEY CONSIGNMENT SALE ORGANIZATION.

CONSIGNORS:

C. N. Odell, Modesto.
D. Larsen, Stevinson.
Dr. L. J. Belknap, San Jose.
F. B. Wulff, Modesto.
Dr. S. Z. Peoples, Petaluma.
D. Wall, Modesto.
Mrs. A. E. Melander, Stevinson.

and many others.

For free catalogue and particulars, address

G. O. HILLIER Sales Manager.
2106 Telegraph Ave., Oakland.

We are also going to sell 60 HEAD of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered **DAIRYMEN AND BREEDERS** in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.

EAR TICKS IN CATTLE.

To the Editor: Most of the cattle in this vicinity are infested with ear ticks. This parasite breeds and develops only inside of the animal's ears, and it seems they are on the increase. While no loss of cattle has occurred so far, this tick causes annoyance to cattle. We use diluted sheep dip to try to get rid of them. Could you suggest a better remedy, and is there any danger in future of this parasite proving fatal to cattle: —S. R., San Diego Co.

[The only disease-bearing tick fatal to cattle is the Margaropus ammulatus, which is the carrier of the organism Piroplasma bigeminum, which causes Texas fever. At present California is supposed to be free from this trouble. Margaropus ammulatus attacks all parts of the body. It would be well to send samples of your ticks to the State veterinarian for identification. You will find the following a better preparation to remove ticks than what you are using: Kerosene, one gallon; cotton seed oil, one gallon; sulphur, one pound. Smear this over ticks as often as it becomes necessary.]

COW DOESN'T BREED.

To the Editor: I have a cow six or seven years of age that calved last over a year ago. Since the middle of May last I have taken her regularly every heat to the bull, and she does not impregnate. I have used four different ones, some young and some old, but in about three weeks she comes in heat again. I also have one that calved in June and another in September, and they are the same way. What is the matter with them, and can it be helped? —S. C., Madera.

[Have your cows examined by a competent veterinarian. They probably have cystic ovaries, which are at times possible to break down, manually, when the animal will breed again. Chronic catarrh of the vagina is another cause which can only be diagnosed by examination.]

CALF REFUSES FOOD.

To the Editor: I have a Jersey calf sixteen days old that seems to have lost her appetite. She mopes around and will have to be forced to eat. She has been having from one and one-half to two quarts of skim milk three times a day for a week. Today I cut down her milk to one quart and put in a raw egg. She seemed to be weak and thin from the start, but seemed lively enough. I would like to know if I have been overfeeding, or what is the trouble. —B. F. G., Corcoran.

[You have been overfeeding this calf. Give four ounces castor oil, and follow with this: Fluid extract ginger, 2 ounces; fluid extract nux vomica, one-half ounce; fluid extract gentian, 2 ounces; alcohol, 2 ounces; and simple syrup to make 8 ounces. Give one ounce of this twice a day in one pink whole milk.]

SWELLING ON COW'S JAW.

To the Editor: I have a cow that had a foxtail in her throat which caused a swelling back of the jaw. It was lanced, but the man I got her of says that it was not lanced deep enough. I called in a veterinary and he said to put a flaxseed poultice on it and give her potassium iodide. I left the poultice on her three days, and it didn't soften the core at all. The core is very hard, and there is another core about half way up on her neck.—B. F. G., Corcoran.

[Take a sharp-pointed knife and lance the hard cores you speak of. After pus has escaped, syringe out cavities daily with a 2 per cent solution liq. cresolis compositus.]

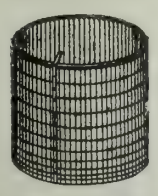
BAG INJURED.

To the Editor: I have a cow that was hooked in the right hind quarter of her bag. That quarter got hard, but the same flow of milk still came. Can you tell me what is good for it? I have been rubbing it with witch hazel.—A Subscriber, Visalia.

[Have the following put up: Red iodide of mercury, 90 grains; potassium iodide, 60 grains; simple syrup, one quart. Give one ounce of this twice a day. Apply the following to the hardened quarter once: Oleate of mercury, one-half ounce; adeps lanum, one ounce; rub in well.]

Swineland

TAMWORTH'S DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.



REDWOOD TANKS SILOS.
Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.
BROWN & DYSON
640 SO. CENTER ST., STOCKTON, CAL.

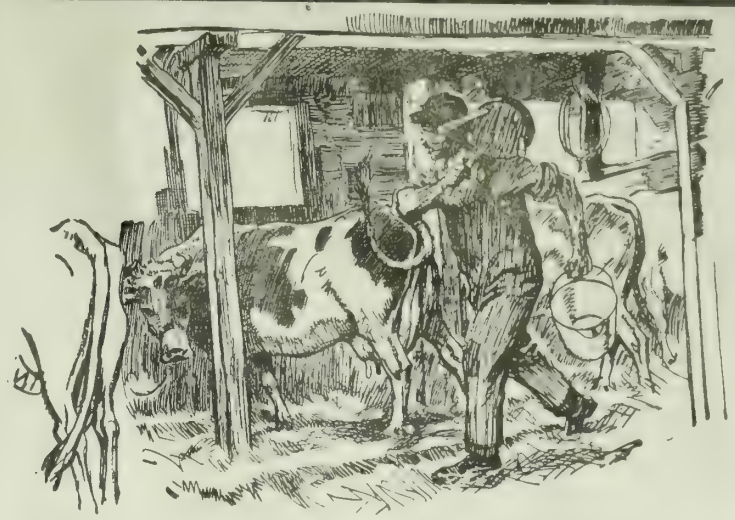
HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal

Redwood Tanks
I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. Wilson, Stockton, Calif.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo



A Mechanical Milker Without "The Teat Cup with the Upward Squeeze" is as Undesirable as a Hired Hand Without a Conscience.

YOU would not knowingly tolerate cruelty to your cows. A hired hand that took out a grouch on your herd of milkers would have to look for a new job—without recommendation. And yet a vicious hand milker who mistreats a defenseless cow does no more harm—in the long run—than a teat cup that does not have a **positive** method of relieving the congestion caused by suction. "The Teat Cup with the Upward Squeeze" perfected the milking machine by correcting this harmful defect. It is used only on the

SHARPLES MILKER

But for the invention of this essential device, even the Sharples Milker—regardless of its many exclusive time and labor-saving and health-promoting features—would have been a failure in the accepted sense of the word. It would have milked—anything that will suck will milk—but without the **Upward Squeeze** the milk production would gradually fall off and the milker eventually would prove useless.

The Sharples Teat Cup manipulates teats as nature intended they should be cared for. That it is beneficial is proved by the willingness with which the cows submit to it and by the way in which they give down their milk.

There is a vacuum in "The Teat Cup with the Upward Squeeze, that drawns down the milk. Air pressure surrounds the rubber inflation 55 times a minute, pressing it against the teat and **massaging it firmly but gently upward,** producing a rapid discharge of milk into airtight buckets, keeping the teats and udders soft, healthy, pliable, and the blood in natural circulation.

The Sharples process of milking cows by means of the upward squeeze is covered by the boadest patent which our Government can grant—a process patent—owned by us. No other milker made in the world today gives an upward squeeze. We will promptly defend our customers and ourselves should any infringement be attempted.

Do not confuse so-called atmospheric "pressure" (which registers zero on a pressure gauge) with real pressure. Atmospheric pressure is exerted on the cow always, whether she is being milked or is out in the field eating grass. Its effect is exerted both inside and outside of the teat, and has no effect whatever upon the cow's circulation.

The pulsator which controls the action of the Teat Cup permits of a comfortable adjustment of the Teat Cup to any normal or abnormal teat, and makes it readily adaptable, to the peculiar needs of individual cows—the hard milker, the easy milker, the one "in between."

The Sharples Milker enables dairy farmers and hired hands to sleep longer in the morning, finish milking earlier in the evening. It means freedom from drudgery, Sundays and holidays off, contented help, cleaner milk, better prices, increased demand, quick milking, and fewer employees, for one man with the Milker can do more and better work than three ordinary hand milkers.

The superiority of the SHARPLES TUBULAR CREAM SEPARATOR is typical of its popular growth year after year.

Send for printed literature describing in full detail the manifold advantages accruing from the everyday use of Sharples products. Sent anywhere on request.

The Sharples Separator Company
West Chester, Pa.
Principal Branches: Chicago San Francisco
DISTRICT OFFICES AND AGENCIES EVERYWHERE

AS ANOTHER step toward stopping the $7,000,000 loss, the president and secretary of the Poultry Federation, during the past week, visited Sacramento in the interests of the legislation for the benefit of the poultrymen of California.

We held conference with Assemblyman Knox Boude, who introduced for us the State Poultry Commissioner Bill, and a number of other Senators and Assemblymen, as well as the Chairman of the Ways and Means Committee, the Finance Committee, and the Board of Control.

There is practically no opposition to the establishment of a State Poultry Department in some form; on the contrary, State aid for this industry is favored all along the line. But with all this good feeling, our bill will fail to pass if the scattered individual poultry raisers and their neighbors do not let themselves be heard at Sacramento. Most of the letters and petitions have come from sections where poultry culture is already developed. The administration wants to know how badly this "public welfare measure" is needed by the "little fellow," who is not located in or near a poultry center where advice and assistance of some sort may usually be obtained in an emergency. Geo. H. Croley, President.

New Poultry Producers' Association.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Association of California.]

In Sacramento, on April 10, the writer was present at the meeting called to receive the report of the Committee on Organization of the Sacramento Poultry Producers' Association which is in process of permanent organization under the care of Morris Brooke as Chairman, and W. E. Harris as Secretary. Fully fifty per cent of the egg production of the county is represented by those now on the charter membership, and it promises to be a very successful organization. The writer was requested to speak to the meeting on some of the most important matters affecting co-operative poultry producers' associations and as these points may be of some use to others who are anticipating such associations, we publish below the substance of our remarks.

Very little exact information is available bearing on the causes of success or failure of the co-operative poultry associations that have been attempted in the past, but the results have demonstrated that they must be organized as carefully and be as faithfully and efficiently managed as any ordinary business undertaking or they will not be successful.

From my observation of several of these associations, those that succeed undertake to accomplish one thing at a time; and in considering those that seem to have been a success we find that in the majority of cases the marketing of the eggs and poultry is the first step undertaken.

The co-operative purchase and storing of feed is a feature usually developed after the association has become established sufficiently to command the respect and confidence of its own members as well as the credit of those who have the feed supplies to sell. It should be understood that even when buying for cash it is necessary to maintain a peculiar sort of credit in order to be able to buy to the best advantage.

However, one of the most successful associations, the Hayward Poultry Producers' Association, began with the purchase of feed in a comparatively small way. At a buying meeting held every two weeks the members simply delivered a list of feed wanted, and deposited the amount of money necessary to pay for the goods with the treasurer, and the united order was purchased in a lump by the buying committee. As the association grew this plan was modified to meet new conditions, until it was regularly incorporated and now maintains a large establishment with a warehouse and office force, exactly like any ordinary business house.

Owing to favorable conditions for marketing eggs in that section at the time of its original formation, the Hayward Association has not been so closely identified with the selling of its members' produce as those formed elsewhere. At present the Association acts for its members in the following manner:

The Association delivers all of the eggs brought to its warehouse by the members to one individual, who is under bond to the Association, in behalf of its members. This man, known as the "Egg Handler," pays net, direct to the members, the current San Francisco quotation for the best eggs, known as selects, and five cents under the price of selects for pullets as long as the best grade sells for less than forty cents, and ten cents less for pullets when the best grade is quoted at forty cents or over. This may seem to favor the handler in the price of the pullet grade, but he says he prefers the best grade eggs and claims to net less profit per dozen on the pullet grade than on the selects in calculating his annual net profit.

These prices are for the eggs delivered by the member to the association warehouse in Hayward, and payments are made direct to the members in about one week after delivery.

The members must furnish their own cases, which are returned when empty, free of expense, to the warehouse in Hayward.

This official egg handler is not obliged to take all of the eggs of the members, except those who make a contract with him each year to furnish him with their entire output, and he has the privilege of handling the eggs of non-members as long as he gives proper attention to the interests of the Association.

This handler is kept very busy, and also employs an assistant who is a thorough egg man, well acquainted with the trade and egg conditions generally.

On these terms the official egg handler usually expects to lose money during the period of heavy production in the spring, but makes his profit in the season of low production and high prices.

He has some trouble, more or less all the time, because of carelessness or perhaps unscrupulousness on the part of an occasional member in packing cases under standard weight or mixing in pullet eggs. In cases of this sort the Association undertakes to make a satisfactory adjustment between them and endeavors to prevent its reoccurrence.

The analysis of the results obtained through the various methods of the several associations that have been successful indicates that a new organization must decide upon a plan to fit into its local conditions and begin in a small or moderate way and grow.

THE Federation is mailing fifteen hundred circular letters and copies of the Poultry Commissioner Bill, with blank petitions, for use in getting the names of scattered poultry raisers. If the reader of this did not receive one of these letters, use the following form to head a petition, get at least five signatures at once, and mail immediately to Federated Poultry Association of California, 525 Market St., San Francisco, or direct to the Governor, or a member of the Legislature. But do so quickly, or it may be too late to accomplish any good.

To the Governor, Senate and Assembly of the State of California:

We, as citizens of the county of

State of California, hereby respectfully petition as follows: Please favor Assembly Bill No. 1539, providing for a State Poultry Commissioner.

Signed, ...

Get the Best
for your chicks
Coulson's POULTRY FOODS
Special Chick Food
Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

SULPHUR
Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.
SAN FRANCISCO SULPHUR CO.
424 California St., San Francisco, Cal.

California Poultry Practice. $1 postpaid. Pacific Rural Press.

California
AND PACIFIC COAST
Nature's Exposition
AND
ALL-THE-YEAR VACATION GROUND
San Francisco, Oakland, Berkeley and Bay Region.
Sacramento and San Joaquin Valleys.
Santa Clara, Pajaro and Salinas Valleys.
Santa Cruz, Mountains and Big Trees.
Del Monte and Monterey Bay Points.
Byron, Paraiso, El Pajaro and Gilroy Hot Springs.
Yosemite National Park.
Mariposa Big Tree Grove.
Lake Tahoe and Sierra Region.
Kings and Kern River Canyons.
Lake County Resorts and Springs.
Paso Robles Hot Springs, Santa Barbara and Coast Country.
Los Angeles and Its Beaches.
Pasadena, Riverside and Redlands.
Imperial and Coachella Valleys.
Shasta Springs and Resorts.
Klamath and Crater Lakes.
Willamette, Umpqua and Rogue River Valleys.
Portland, Tacoma and Seattle.
For Fares, Train Service and Descriptive Booklets
Inquire
Flood Building, Palace Hotel, Third and Townsend Sts. Ferry Station, San Francisco.
or ask any Agent of
Southern Pacific
THE EXPOSITION LINE 1915
—FIRST IN SAFETY

GET THE STUMPS OUT!
Make ALL Your Land Earn Money For You
"K" HAND-POWER STUMP PULLER
Makes stump pulling a one-man job. This powerful machine *weighs* only 171 lbs., but it *pulls* 96,000 lbs.
Two speeds, high speed for light work, power speed for heavy work. No chains. Pull more than horse machines. Complete equipment, including 200 feet Weatherproof English steel cable. Used by U.S. Gov't in Alaska, and by many states and counties.
Valuable Book on Land Clearing FREE—My new catalog tells costs of different methods of land clearing. Write for it today, and get special direct-to-you prices.
W. J. FITZPATRICK
Box 32 1926 2nd Ave.
Seattle, Wash.

Poultry for Profit.

[Written for Pacific Rural Press by Mrs. Susan Swaysgood, Pomona.]

MILK MOST ECONOMICAL FOR EGGS.

The waste milk on the farm is generally fed to the hogs, and this is done perhaps more for lack of knowing its real value when fed to poultry. A little inquiry will convince the most sceptical that milk is worth three times more when fed to poultry than when fed to hogs. Milk fed poultry commands the very highest price on any market, because the meat is peculiarly white and tender.

Feed Milk to Layers.—The real economical value of milk is in feeding it to the layers. If a farmer has a fair amount of milk, either sweet or sour, he can get eggs without feeding any high-priced mash or other animal food. Milk is an animal food; that is why it makes everything grow, and is the natural animal food for all young, except the feathered tribe. Milk contains protein, albumen, lime, phosphates, and probably several other elements that go into the contents of an egg. But taking just the protein as an egg maker and lime mineral as a shell maker, we find that in milk the hens can get these elements in a form so easy for them to absorb that it practically economizes the hens' time and strength.

A hen may eat more protein and lime in other forms of food and not lay as many eggs, because, though she has consumed the feed, she has not digested it. Some forms of feed are very hard to digest and they require much of the hen's strength to get any egg material out of them. The hen does her best with all material given her, but she can do better when she gets material that is easy to digest.

If the milk scours laying hens, as it sometimes will, just clabber it for a day or two by setting on the back of the stove and put a little common black pepper in it.

Milk Makes Superior Meat.—Now at this time when feed is so high, those who have milk should try this out thoroughly by feeding the hens that are laying all the spare milk and as a test, have one pen fed on mash and grain in the ordinary way. Keep strict account of all food fed and price paid, all eggs sold and price received, and at the end of three months, compare notes and see where the profit comes in. Another good place to test the value of milk is in feeding, or rather finishing up, poultry for market. Hens that are to be sent to market will take on more weight if fed gruel of sour milk and low grade flour or oats in two weeks than they will if fed corn for three weeks, and the meat is so superior that even dealers will pay a bigger price for it. Poultry finished on milk will come near getting all the market will allow.

I have a disease among my poultry; the joint in the foot swells up and they have great difficulty in standing.—J. E. B.

Your description is very meager, but I think your fowls have rheumatism. Give a small quantity of iodide of potassium in the drinking water for a few days, then discontinue. Any druggist will tell you how much to a quart of water.

Mrs. V. S. J. has had to kill a white Leghorn hen that stood with her tail drooping and her legs wide apart. On opening it, she found what resembled a hard boiled egg; wants cause and remedy.

This is a broken egg and something we have no control over. In this case perhaps several eggs were broken. The breaking of the egg may have been caused by it being too large and the hen broke it in straining, or it may have been broken through fright, such as dogs chasing her, or boys, or through jumping too far from the perch. These accidents will happen and are a part of the game; I don't really know how they can be avoided. I like at all times to keep strangers away from my flock and children and dogs are tabooed altogether. Hens that are frightened, I have noticed, have more of these accidents than those that are kept quiet.

LEGHORN STANDARD WEIGHTS.

To the Editor: Will you please tell me what the standard weights are for White Leghorns; also how much should a White Leghorn weigh at one month, two months, and three months?—H. B. T., Lancaster.

[Answered by Geo. H. Croley, San Francisco]

[The standard weights for Leghorns are: Cock, 5 pounds; hen, 4 pounds; cockerel, 4 pounds, and pullet, 3 pounds.

There are no standard weights for young chicks and growing fowls, but the following are approximate: Chick one month old, 5 ounces; two months, 11 ounces, and three months, 24 ounces. These weights are subject to great varieties for several reasons. Some strains of Leghorns will grow more rapidly than others; the weight will be influenced by the quantity and nature of the feed, and a number of other factors might affect the weight of the chick at the various ages.]

CHICKS DROOPY.

To the Editor: My chicks stand around and droop as they do with the white diarrhoea, except they do not show any other evidence of it but to drop their wings. Their crops are large and soft, and when I press on the crop, a slimy, clear fluid runs from the crop. I tried giving them epsom salts and they seemed to liven up at once. I keep them in a fireless brooder excepting a lantern to keep down the chill and dampness. I keep grit, oyster shell, and charcoal with them and feed in a litter four inches deep. Also give some dry mash after they are seven or eight days old. If you can tell me what to do for them and how to prevent it, I shall esteem it a great favor.—B. C., Empire.

[Answered by Geo. H. Croley, San Francisco]

[Catarrh or inflammation of the crop—cause, indigestion from overfeeding, irritating or moldy food, foul seeds, etc. Treatment—In serious cases, empty the crop by holding fowl head down and very gently working out the sour liquid. When crop is empty, give epsom salts or a mixture about six grains subnitrate of bismuth and three grains bicarbonate of soda in a small amount of drinking water for each dozen chicks. Take away all food for about eighteen hours and then feed little and often.]

GRAIN AND FIELD CROPS.

J. K. Armsby, believing in the possibilities of lima bean growing in the San Joaquin Valley, has offered to donate sufficent seed to the farmer who is willing to put in an acre to Japanese lima beans by way of an experiment. Should it prove a success, the Armsby people will expect a sack of beans for the seed advanced.

Raw rock phosphate is a very satisfactory source of phosphoric acid when used in connection with plenty of organic matter in the shape of cover crops, hay, or manure, according to Dean Webber of the State Citrus Experiment Station.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

HATCHING EGGS—Any quantity any time. Rhode Island Reds, White Leghorns, $4 per 100; $35 per 1000. All from good layers Our baby chick prices will interest you. Write us. Roofden Poultry Ranch, Campbell, Cal.

BROWN LEGHORN and White Leghorn chicks. Well hatched from healthy, vigorous breeding stock. Per 100—March $10; April, $9. Reduction in quantities. San Jose Hatchery, 373 Meridian Road, San Jose, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

BABY CHICKS—Single Comb White Leghorns. Selected stock. With a capacity of 25,000. Can fill orders on short notice. Carl Stange, 1408 Silver Ave., San Francisco.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W J. Hicks, R. 2, Petaluma, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first prize, London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

STADER'S POULTRY FARM, R. R., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beegle & Cullen, Empire, Cal.

CHICKS—Day-old chicks from my healthy, vigorous, heavy-laying, free-range stock of S. C. White Leghorns. Price $6.50 per 100 H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

THOROUGHBRED SINGLE-COMB WHITE LEGHORNS. Breeding Stock and Eggs for hatching. Write for free mating list. Rancho del Martino, Mrs. E. B. Martin, Downey, Cal.

200 WHITE LEGHORNS—11 months, all laying; 100 Barred Rocks, 7 months, laying, choice stock, guaranteed. Sell best offer received. Frank Phillips, Corning, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H Croley Co., Inc. 631-637 Brannan St., San Francisco.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

ORPINGTONS—Buff and White Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

WHITE WYANDOTTES—Eggs—stock. Baby chicks. Electric hatched. All varieties. Send for prices. Thos. McGuire, Petaluma, Cal.

EGGS from prize Reds, Black Minorcas, Buff Orpingtons and White Wyandottes. Hens and pullets. Mrs. R. S. Spaulding, Woodland, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds. Winners State Fair, Sacramento and Oakland, Cameron Bros., 689 Vine St., Sacramento, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15 Cockerels, $7.50 and $10. Nellie Presher, 3107 22nd Ave., Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

TRAPNESTED LEGHORNS — White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

BARRED ROCKS ONLY—Eggs for hatching, $5 per 100, and chicks $12 per 100 in April. G. S. Hawley, Madera, Cal.

TURKEYS, DUCKS AND GEESE.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

INDIAN RUNNER DUCKS—Eggs, $5 per 100. From prize-winners. C. D. Andrews, Lanare, Cal.

PIGEONS AND PHESANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

BELGIAN HARES—Young stock for sale. Hurd Bros., St Helena, Cal.

MANLESS LAND
for the
LANDLESS MAN
2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

Free Book
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
"Kilmol" Squirrel and Gopher Killer.
F. F. SMITH & CO.,
1006 J Street, Sacramento.

The Home Circle.

THE BABY.

Grasping at sunbeams and shadows,
Hands outstretched for the moon;
Heeding not snows of December,
Heeding not roses of June.
Clutching at all things illusive,
Sobbing when shadows they prove;
Hushed in the arms of its mother,
Soothed by caresses of love.

Laughing and cooing and crying,
Sweet as the heart of a rose;
Trembling all over with mischief,
From its head to its chubby wee toes;
Filling our hearts with new sunshine,
Cheering our wearisome way;
Teaching us that the dark shadows
Conceal the sun's beautiful ray.

Blessing of heaven, the dearest,
Our hearts by thy smile made glad;
The touch of thy soft, dimpled fingers
Has made us forget to be sad.
In thy smile we are basking in sunshine,
Thy prattle all gloom has beguiled;
There's nothing that's nearer to heaven
Than the innocent heart of a child.
—Mrs. A. H. Jarvis, Housekeeper.

THE STORY OF BUNNY BOBTAIL.

By Annie Balcomb Wheeler.

The Bunny Whites lived on a broad shelf with the stuffed cats and dogs in a queer little store in the big city. Sometimes a child would visit the store with its mother or nurse, and how excited all the little animals would get, because it was the ambition of each to go and live in some beautiful home out in the big world and become the pet of a dear little boy or girl. If one of the bunnies was carried away, then all the other bunnies would shake their fore feet and say, "Good luck, good luck!"

The bunny of our story was waiting his turn. He hoped he would be able to tide out in a carriage some day, like the Teddy bears and the real dogs did. He saw them pass the store every day, and they looked very happy. Even if he did not get out into the big world before, he felt sure that Christmas would find him in the stocking of some happy child.

But Bunny Bobtail did not have to wait until Christmas. One frosty night in October a fire broke out in the street. It soon reached the store where the bunnies lived. If they had been real bunnies, I think they would have hopped far, far away out of the smoke and heat and water; but, not being real bunnies, they had to sit right on the shelf and get burnt. Bunny Bobtail will never forget that terrible night, never. Some time during the roaring of the fire and the shouting of the firemen a heavy stream of water picked poor Bunnie Bobtail right off his feet and carried him off, where he lay, half drowned, half suffocated, and wholly frightened until morning. He couldn't see where he was because he had lost one of his beautiful pink eyes, neither could he smell because his whiskers were singed away, and he couldn't wag his tail if he had been ever so happy, for the good reason that there wasn't enough of it left to wag. But he wasn't happy, not one bit; he was terribly worried to know what had become of the other Bunny Whites; he hoped none of them were quite as miserable as he. Poor little Bunny Bobtail!

When the big city began to wake up, he heard a boy calling down the street. He listened with his big ears as the boy came nearer and heard him call, "Mornin' papirs, all about the big fire." Nearer and nearer came the boy, and then he stepped right on poor Bunny Bobtail's sore little stump. "Gee, if here ain't a rabbit!" the boy said right out loud, just as if somebody was there to hear. "He's all smoked up, and his tail's 'most gone; but I'll take him home to Babe. I guess Mother can fix him up."

Bunny Bobtail squinted hard with his one eye, and, sure enough, it was a boy, a big boy with a bag of morning papers slung over his shoulder, and the next thing Bunny Bobtail knew he was in the boy's pocket all mixed up with a top, top-strings, nails, and chewing-gum. He stayed there a long time, until Buvver—that wasn't his real name, but what Babe called him—sold all his papers and went home to breakfast.

I must say that our poor little bunny was disappointed when Buvver took him out of his dark pocket. His new home was little and old, and in a very shabby part of the city near the freight yards. Babe's people were very, very poor, and Muvver, as she called her, took in washing and ironing. Babe had no furry Teddy or fat Billikin to play with, nothing but an old black Dinah that Muvver made from one of Buvver's stockings. She had no pretty white frocks tied with blue ribbon, either, just a plain blue-and-white checked gingham; but, when Bunny Bobtail looked up into Babe's face,—why, he thought he had never seen anything so sweet in all his life! When he was hugged up under her fat little chin and then kissed ever so many times, he was sure of it. Bunny Bobtail chirked right up and forgot all about his lost eye and whiskers.

While Babe and Buvver ate their breakfast, Muvver took the poor, touseled little bunny and sewed another eye on him. It wasn't a pink

MARTIN METAL STACK COVERS

Save All the Hay—Pay Big Profits

Galvanized—Corrugated—Extra Quality Coating

More economical than barns or permanent sheds. Easy to put on and take off. Made in sections, thus occupying little space when not in use. Made in all sizes. Are water-tight and rust-proof. Can't blow off.

Mr. Hammitt, Hardy, Neb., says: "Your cover preserved my hay fine. I got $1 a ton more for stack protected with your cover than for other stacks in same field."

The saving on the first stack of hay will more than pay for your Martin Metal Stack Cover. With ordinary care will last 15 to 20 years and save its cost or more on every stack

SPECIAL OFFER Write today for free, illustrated literature and special introductory price.

THE MARTIN METAL STACK COVER CO. 327 N. Mosely St. Wichita Kansas

Stocks carried in Wichita, Kan.; Portland, Ore.; Omaha, Neb.; Canton, Ohio.

PATENTED APRIL 6, 1914 AND JULY 14, 1914

Rawleigh's WANTED A MAN

To retail Rawleigh Products, town and country. Some good old vacant territories. Largest and best line. One of the oldest and largest companies in the world. Six Factories and Branches. All Products supplied from new Pacific Coast Branch. Quick Service. Low Freight. We want only industrious men capable of earning $100 and up per month and expenses. Must have means for starting expenses and furnish Contract signed by 2 responsible men. Address W. T. Rawleigh Company, Oakland, Cal., giving age, occupation and references.

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates From All Points Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

Are You Troubled with Ants?

Their Extermination Now a Simple Matter

One of the most exasperating afflictions the housewife has to contend with nowadays is a house overrun with ants. Many remedies have been devised, but none of them produced the desired results until a baker in Los Angeles, whose place was overrun with this pest, prepared a paste which seemed to have almost supernatural powers, as far as ants were concerned, ridding his entire place of them in one day.

So great a demand was immediately made upon him by his neighbors and friends that it was decided to put up the remedy for general use, under the name of Kellogg's Ant Paste. It can be obtained at all druggists and thousands of testimonials from all over the country testify beyond question that a real exterminator of ants is now available.

Get a package from your druggist today and your ant troubles will be ended forever. But be sure it's Kellogg's.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

DEWEY, STRONG & CO. SCIENTIFIC PATENT PRESS AGENCY PATENTS 581 Crocker Bldg., S. F.

Circular containing 100 mechanical movements mailed free.

eye because Muvver had no pink beads, just common black ones; but it was an eye, anyway. Then she mended his poor stubby tail and fastened some brand-new whiskers to his nose. After this she put him in her tub of suds and scrubbed him with a stiff brush until he was sore all over, then rinsed him and hung him out to dry in the sun. Bunny Bobtail never looked so funny in all his life as he did pinned to the clothesline by his two long ears. He was glad none of the other bunnies were around to see him. When Muvver took him down, he was clean and white and dry, as good as new, if his tail was nothing but a stump. That was why Muvver called him Bobtail.

Bunny Bobtail was never lonesome after this. Babe carried him about all day long, and talked to him in her sweet baby way. He could not understand what she said, at first, but he soon learned. When she ate her dinner, he sat on the tray of her high-chair right beside her. When she played at the window, he sat on the window-sill and looked out. When Babe went out in the little yard to watch Muvver hang the clothes, why, Bunny Bobtail went, too. Babe had no carriage; but, when Buvver came home from school, he took them to ride in his soap-cart. They went ever so far, past the playground where many children were swinging and playing in big boxes of sand, far, far out to a grove of hickory-trees, under which Buvver got a bag full of nuts to take home. They had a lovely ride, and, when they got home, Babe's eyes would not keep open hardly long enough to eat her bread and milk. Muvver put them both to bed in the little crib.

It had been such an exciting day that Bunny Bobtail couldn't go right to sleep. He had to think and think and think, and, the more he thought, the happier he felt. "If I'd gone to live with some rich little girl, she'd had a Teddy bear and some dolls, and perhaps a live dog or cat, while here, why, **Babe's just got me.**" With this happy thought Bunny Bobtail closed his one pink eye and his one black eye, and, cuddled up in Babe's arms, all snug and warm, fell fast asleep.

Summer Visitor—"How did 'Old Home Week' go off?"

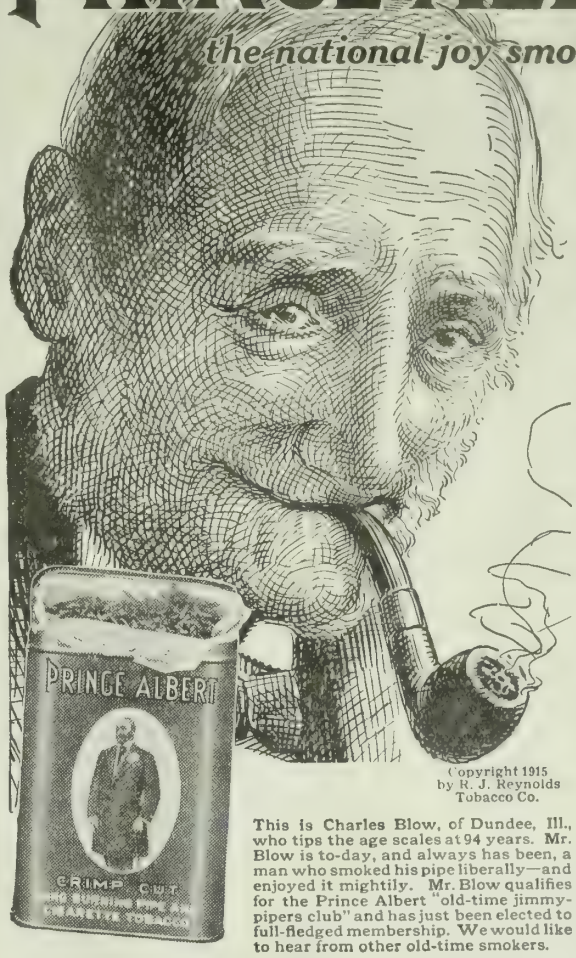
Uncle Si—"Well, now, mister, kinder so-so. Them that come back with money put on so many airs you couldn't touch 'em with a ten-foot pole, and them that didn't have none, borrowed from us all around to get away with."—Harper's Weekly.

"Who is that lady dressed in black, Mother?" asked Bobby, as he sat with his mother on a ferry-boat. "That is a Sister of Charity, my boy," replied his mother. Bobby pondered deeply for a moment, and then he said, "Which is she, Mother, Faith or Hope?—Bazar.

Geraldine had told Gladys that she had seen Mabel at an exhibit of paintings. "Well, Mabel," said Gladys, the next time they met, "I understand you're interested in art." "Me?" exclaimed Mabel, in surprise. "Art who?"—Exchange.

PRINCE ALBERT

the national joy smoke



Copyright 1915 by R. J. Reynolds Tobacco Co.

This is Charles Blow, of Dundee, Ill., who tips the age scales at 94 years. Mr. Blow is to-day, and always has been, a man who smoked his pipe liberally—and enjoyed it mightily. Mr. Blow qualifies for the Prince Albert "old-time jimmy-pipers club" and has just been elected to full-fledged membership. We would like to hear from other old-time smokers.

has this to say to you:

You get busy and smoke some pipe, or roll a makin's cigarette with Prince Albert tobacco that'll make you wish you could hark back to your first days of smoking.

Because, no matter how pipe-shy any man is, no matter how tender his tongue, *he can* smoke a pipe, and *he will* smoke a pipe if he smokes Prince Albert tobacco!

Why, smoking P. A. is like having breakfast in bed Sunday morning! You just pack that joy'us jimmy pipe with load after load. The first few puffs *prove* P. A. can't bite your tongue or parch your throat. That's because it is made by a patented process owned exclusively by the R. J. Reynolds Tobacco Co. *No other tobacco can be like Prince Albert.*

Prince Albert is sold everywhere. Just say, "P. A. for mine." In the toppy red bags, 5c; tidy red tins, 10c; pound and half-pound tin humidors; crystal-glass pound humidors.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

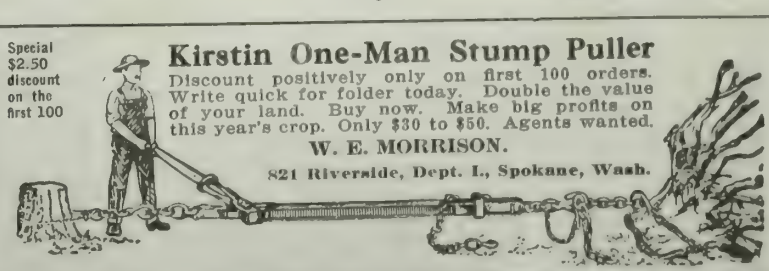
Don't be deceived by appearances. The ground mica in

MICA AXLE GREASE

forms a silvery coating that makes the spindle appear dry and shiny. But this coating is slippery to the touch, for ground mica is a good lubricant in itself. It clings to the spindle and makes easier turning. That's why a little Mica Axle Grease goes a long way. Dealers everywhere.

Standard Oil Company (California) San Francisco

Special $2.50 discount on the first 100



Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

821 Riverside, Dept. I., Spokane, Wash.

CALIFORNIA FRUITS $3.00 POSTPAID, PACIFIC RURAL PRESS, SAN FRANCISCO.

The Markets.

San Francisco, April 14, 1914.

(Grain quotations are for round lots, delivered San Francisco.)

WHEAT.

The local trade is marked by extreme dullness, and with practically no vessels available for export, the northern market is rather easy, though foreign demands are strong.

Cal. Club, ctl.	$2.35@2.40
Forty-fold	2.40@2.45
Northern Bluestem	2.40@2.45
Northern Club	2.35@2.40
Northern Red	2.37½@2.40

BARLEY.

A fair tonnage has just left for export, but there is little new shipping business, and trading is mostly limited to jobbing sales of feed. Offerings are fairly plentiful, and prices show little firmness, though unchanged since last week.

Choice feed, per ctl.	$1.25@1.32½

OATS.

According to northern reports, there is an export demand which is keeping prices firm, though it is hard to ship any quantity. Local trade is very quiet, and prices largely nominal.

Red Feed	$1.55@1.60
White	1.85@1.90

CORN.

Offerings of Oriental stock are rather large, but so far have caused no break in the price of good corn. The movement locally is very light.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80

BEANS.

Prices on several lines have been marked down a little this week, and dealers now predict a slight further recession from the previous high prices on most lines. Stocks, though not excessive, are too large to warrant the figures that have prevailed recently, and especially in the face of a very quiet market. A big sale of white and pink beans for foreign shipment was reported recently, but seems not to have affected values. Reports from the south are that the movement of limas has stopped, with a large acreage being planted, and a large output is expected all over the State.

(On Wharf.)

Bayos Cal., per ctl.	$4.90@5.00
Blackeyes	5.50@5.65
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	4.75@4.90
Large Whites	4.65@4.75
Pink	3.75@3.90
Limas	5.00@5.10
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

Trading in all lines is quiet at present, with prices largely nominal at the former level.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

The most interesting feature in the hay situation is the recent report of a heavy demand for shipment to Australia, owing to a drought in that country. It is reported that Australia could use 100,000 tons of Pacific Coast hay. That, however, would depend very largely on the price, and it is hard to see how transportation facilities can be secured for any really large quantity. This foreign demand may cause a little firmer feeling in some quarters, but has not visibly affected the local market, which remains dull and depressed, with liberal arrivals.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.00@10.00
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@11.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.30@ .45

FEEDSTUFFS.

Values have not changed since last week. Business is almost entirely of a small jobbing nature, with buyers following a hand-to-mouth policy, and prices in most lines are easy.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa Meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	27.00@28.00
Rolled Oats	33.00@34.00

VEGETABLES.

A good many lines of summer garden truck are coming forward more freely, with some offerings from nearby points, though in most lines the stock is too small to bring prices down much. Supplies of asparagus for the last few days have been hardly as heavy as last week, and fancy stock is slightly higher, though the demand is moderate. Peas are a little lower, with fairly large supplies; and shipments of string beans are fairly large. Bell peppers are again offered at lower prices from nearby points, though Florida stock still commands high figures, and tomatoes are high. Rhubarb from around the Bay is very plentiful and cheap, and ordinary lettuce is easy, while good celery is firmly held. Eggplant has dropped sharply, and summer squash is becoming more of a factor.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 c
No. 2	30 @40 c
Asparagus, box	$1.25@2.00
Peas, lb	2 @ 5 c
String Beans, lb	10 17½c
Peppers, bell, lb., local	5 @ 7 c
Tomatoes, repack'd crate	4.00@5.00
Celery, crate	1.50@2.50
Rhubarb, box	45c@1.00
Lettuce, crate	75c@1.00
Cucumbers, doz	90c@1.00
Eggplant, lb.	7 @10 c
Summer squash, crate	1.25@1.50

POTATOES AND ONIONS.

Good potatoes are getting very scarce, and everything on the list is higher, with Lompoc stock selling up to $2.50, and the best Delta goods at $2. New potatoes are a little easier on large offerings. Onions stand about as before, with some Australian stock offered at higher prices. Texas onions are expected soon, but it is hard to forecast values.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75@2.25
Lompoc	2.35@2.50
River Burbanks, ctl.	1.60@2.00
New Potatoes, lb.	4 @ 6 c
Sweet Potatoes, ctl.	2.25@2.50
Onions, yellow, sack	75c@1.00
Australian, ctl	3.75@4.00
Garlic, per lb	17 @20 c

POULTRY.

There is no very heavy demand at present, and arrivals of California stock have been rather excessive, causing easier prices on several lines. Broilers will hardly bring over 30c, and hens have dropped rather sharply, while good smooth young roosters are higher.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @18 c
Broilers, small	27 @30 c
Fryers	22 @24 c
Hens, extra, per lb.	17 @18 c
Small Hens, per lb.	16 @17 c
Smooth Young Roosters, per lb.	22 @25 c
Squabs, per doz	$2.50@4.00
Geese, per pair	2.50@3.00
Ducks, young, lb.	18 @20 c
Old	15 @17 c
Belgian Hares	8 @ 9 c

BUTTER.

After dropping ½c from the last quotation, extras have stood all week without change. Lower grades were maintained most of the week, but now show a slight decline, arrivals being quite large but fairly well absorbed.

(S. F. Dairy Exchange prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	23	23	23	23
Prime	22½	22½	22½	22½	22½	22
Firsts	22	22	22	22	22	22½

Removal Notice!

After April 1, 1915, our offices will be in the Insurance Building, California and Battery Streets, San Francisco, California.

California Almond Growers Exchange.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground — Shield Brand — High Grade

Phosphate Rock

The Phosphate of Lime.

Efficiency and Economy are Inseparable Everywhere.

UNITED STATES PHOSPHATE CO.

405 Marsh-Strong Building, Los Angeles.

California Farms Orchards Dairies

For Sale Rent or Exchange

LAND FOR SALE.

FARM OWNERS—ask for special rates in this department.

26¼ ACRES in Santa Clara Valley, near Saratoga mostly in young prunes and apricots; some bearing prunes; one acre in citrus. Pumping plant, plenty of water. Fine building site, view and climate unsurpassed. New barn, poultry houses and cabin. ¾ mile from steam and electric cars; 1½ hours to San Francisco. Full particulars from Owner, care Pacific Rural Press.

FOR SALE at a bargain—20 acres of land at Greenfield, where we grow the prize apples. About 7 acres in orchard, mostly apples 7 years old; about 7 in alfalfa balance suitable for fruit or alfalfa. Good drilled well some buildings. Cheapest water system in State owned by colony. For particulars write or call on Ernest Thayer, Greenfield, Cal.

RANCH FOR SALE—1200 acres level land, of which 200 is irrigated from gravity ditch at no cost. No hardpan, alkali, bog-wallow, or malaria. Land suitable for grain, beans, potatoes, alfalfa, corn, fruit and nuts. Located 3 miles from State highway in Monterey Co. Price, $50,000. Terms. P. O. Box 97, Salinas, Cal.

FOR SALE—20 acres of best sandy loam land. 18 acres in alfalfa, four room house, good barn, cream house and good well, all fenced. Near good school, abundance of water. 4½ miles of Modesto. Address Route 1, Box 30, Modesto, Cal.

FOR SALE—Three mountain ranches in Calaveras county. Apply A. M. Davis, Esmeralda, Cal.

FARMS WANTED. We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property. Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

CALIFORNIA LAND—Money-making little farms. High-class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—40-acre ranch. 34 acres alfalfa, remainder in grain. Good buildings, fences, good soil, abundance of water. Fruit and shade trees. For particulars, write to John Walter, Dos Palos, Cal.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit. Everything goes. Address, Owner, Leland, Galt, Calif.

FOR EXCHANGE—One-quarter section improved, irrigated land, near Greeley, Colorado, in exchange for farm or fruit land in California. E. A. Kirk, Orland, Cal.

DIRECT FROM OWNER—A choice 5-acres in full bearing Thompson's Seedless, with 17 Phillips Cling Peach trees. Old age, reason. Address, Fair Haven Vineyard, Clovis, Cal.

FOR RENT—300 acres of alfalfa land on Dixon Ridge, abundance of water for irrigation. Apply J. H. Glide, Dixon, Cal.

EGGS.

All grades have stiffened a little, but show very few changes for the week. Arrivals are large, but there is a good demand, especially for extras, a good many of which are wanted for storage.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	22	22	22	22	22
Firsts	18	18	17½	17½	17½	18
Sel. Pul.	17	18	18½	18½	18½	18½

CHEESE.

Arrivals of all grades have been excessive this week, and prices have been reduced on a large selling movement, all grades sharing in the decline.

(S. F. Dairy Exchange prices on flats and Y. A.'s)

Y. A.'s, fancy	12 c
Fancy Calif. flats, per lb.	12½c
Monterey Cheese	9@11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	22	22	22	22	22	22
Eggs	20	21	23	23	23	23
Cal. Cheese	12½	12½	12½	12½	12½	12½

DECIDUOUS FRUITS.

The apple market shows a little improvement. Most of the deteriorated stock has been moved off, and at present the stock in storage is about the same as last year, with prices much lower. At present values, accordingly, the market is rather strong, and business is picking up, with some sales for export. Fancy Newtowns bring better prices than for some time. Offerings of strawberries are rapidly increasing, with arrivals from many districts, and prices are dropping. The variety of packages in which shipments from different points are made make it rather difficult to compare values.

(Wholesale prices, San Francisco.)

Strawberries, L. A., crate	$1.00@1.35
Fresno, large crate	1.75
Local, drawer,	50 @85 c
Apples, Newtown	75 @90 c
do, fancy	$1.00@1.25
Other varieties	30 @75 c

DRIED FRUITS.

The dried fruit market is quiet and uninteresting. With actual business dull, there are numerous conflicting reports as to the market situation. In some quarters there appears to be a good deal of stock of all kinds, and numerous concessionary offers are reported, with no buyers. On the whole, however, there appears to be very little stock left over, except in peaches. It is too early to make predictions on the new crop, but packers are looking for lower prices in most lines. Apricots appear to be an exception, as a short crop is expected in several sections; but future prunes are reported very easy, and in other lines there is no particular firmness. It is to be expected, however, that offers of futures will be put out in the east at

low prices with the object of influencing the Coast market; and so far very little contracting has been done in the country. The New York Journal of Commerce says: "The market for all varieties on the spot or for future shipment remains dull, buyers taking only what is absolutely necessary to keep stocks intact. In California prunes for future shipment an easier feeling prevails. Peaches remain dull and weak on the spot under conditions previously noted and so far as can be learned no forward shipment business is being put up from here to the Coast. Nor is it learned that packers are getting any business to speak of from the more important markets in the South and Southwest. Little interest is manifested in spot apricots, the market for which, however, remains fairly steady, except on the lower grades, prices for which are in buyers' favor. In forward shipments from the Coast no business in apricots is being offered by buyers in this section so far as can be learned. California loose and seeded Muscatel raisins are still inactive for both immediate or forward delivery, but the market is steady and prices are unchanged. The seedless varieties are steady to firm under light holdings on the Coast and a quiet, steady demand for spot stocks."

Evap. Apples, 1914	5 @ 5½c
Apricots, 1914	6 @ 8½c
Figs: White, 1914	3 @ 3½c
Black	2½ @ 2¾c
Calimyrna	5 @ 6 c
Prunes, 4-size basis, '14	5 @ 5½c
Peaches	3 @ 3½c
Pears	6 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

Eastern auctions are paying a little higher price for California oranges. At New York, Monday, April 12th, thirty cars sold at prices averaging from $1.50 to $2.90 per box. Other auction points showed about the same as New York on that date. At Chicago navels averaged from $2.10 to $2.50 and Valencias $2.50 to $4. Lemons $2.50 to $2.90. Shipments are going east rapidly, averaging over 200 cars daily.

The San Francisco demand in the citrus line shows some improvement, and better prices are being realized in several lines, fancy navel oranges selling up to $2.50, and lemons at $3, while the best grapefruit is lower.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.25 @ 2.50
Tangerines, small box	75c @ 1.75
Grapefruit, seedless, bx	1.25 @ 2.00
Fancy	2.50 @ 2.75
Lemons, box	1.75 @ 3.00

NUTS.

Some Manchurian walnuts, said to be about 1500 bags of good stock, arrived recently, coming into a practically bare market, and desirable offerings in this line are held at an advance. Local stock is scarce, and good prices should be available for first-class stock.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:	
IXL	14½c
Ne Plus Ultra	13½c
Drakes	12½c
Texas Prolific	12½c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
No. 2	12 c
Ungraded	12½c
Manchurian	9 @ 11 c

HONEY.

A few good sized sales of light amber extracted have been sold at the inside figure, but there is still a great deal on hand, and the demand is light. In other lines the movement is very slow.

(Prices on cars, San Francisco.)

Water White, comb	10 12 c
Light Amber	8 @ 10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

Little change has been made in quotations this week, except for the elimination of yearling lambs from the list and a slight further reduction in suckling lambs, which are now coming in freely.

(Prices at Butchertown, S. F.)

Steers, No. 1	6¾ @ 7 c
No. 2	6½ @ 6¾c
Cows and Heifers, No. 1	6 @ 6¼c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 @ 9½c
Medium	8½ @ 9 c
Heavy	7 @ 8 c
Hogs: Grain-fed:	
225 to 300 lbs.	7¼c
100 to 225 lbs.	7½ @ 7¾c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½c
Shorn sheep, less by	¾ @ 1 c
Suckling lambs	7¾ @ 8 c

DRESSED MEATS.

Steers	10¾ @ 11½c
Veal, large	13½ @ 14 c
Small	15 @ 15½c
Prime Wethers	13 @ 14 c
Ewes	11½ @ 12 c
Suckling Lambs	14 @ 15 c
Hogs	12 @ 12½c

WOOL.

Wool remains nominal, and the market seems to be deadlocked in this district, though some large sales have been made in nearby states. The spring clip is finished in a good many places, and some growers in the north are said to have accepted 12½c, though most are holding for much higher prices.

Wool ..... Nominal

HORSES.

Few horses are appearing in the local market this week. The results of recent sales have hardly been up to expectations, in regard to the values realized on the majority of stock, and local requirements in this line appear to be rather below normal.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275 @ 300
Light drafters, 1550 to 1650 lbs.	175 @ 200
Chunks, 1350 to 1500 lbs	150 @ 175
Wagon horses, 1050 to 1350 lbs.	100 @ 140
Green Mountain range horses, 950 to 1200 lbs	50 @ 90
Farm workers	60 @ 75

MULES.

1200 lbs. and up	$225 @ 250
1100 lbs.	200 @ 225
1000 lbs.	150 @ 175
900 lbs.	125 @ 150

HIDES.

While a little better feeling is noted in some eastern markets, the local situation shows no change, as there is considerable stock on hand and tanners are buying only what is urgently needed.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @ 15½c
Medium	15 @ 15½c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lb.	15 @ 15½c
Light Cows, 30 to 50 lb.	14½ @ 15 c
Kip	15½ @ 16 c
Veal	16 c
Calf	16 c
Dry Hides	25½ @ 26½c
Dry Kip, 10 to 15	24½ @ 25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

Publisher's Dep't.

Although our latest book, "California Garden Flowers," has been on sale for only a few weeks, dealers are already sending in duplicate orders. We have received more complimentary notices and letters regarding this book than of the others we have published. Evidently people love flowers and are eager to learn better ways of cultivating them.

At this time when the price of poultry food is high the need of practical, scientific methods of feeding is more necessary. Our new book, "California Poultry Practice," covers the questions of feed and feeding very fully and the information along these lines will be worth many times the cost of the book to you. Send to this office for a copy—$1 postpaid.

RAIN WELCOME AT NAPA.

To the Editor: We have had a splendid rain up here which has been welcome, and we think, beneficial. Most of the prunes and cherries were set and, as plowing was well under way, the ground has taken it all in. Thrips have not been much in evidence except on pears, which are a light set anyway. Apples will also be a much lighter bloom than last year, though of course they are not out yet. The blossoming season is from seven to eight days later than last year and is altogether, so far, full of promise. Perhaps you can make use of it as an item.

John J. Fox,
Horticultural Commissioner.

ATOMIC SULPHUR.

Best preparation known for control of powdery mildew on apple trees and grape vines and to control red spiders and mites on all classes of fruit trees. The sulphur is finely divided, dilutes easily in water and is adheisve, thus giving protection to foliage and fruit over a long period of time.

It may be safely combined with ORCHARD BRAND arsenate of lead when spraying for codling moth control on apple and pear trees. The combination is effective and safe and will produce satisfactory results.

Full information, together with valuable up-to-date literature, furnished free on application. Each inquiry or order receives prompt and careful attention. **General Chemical Company, 201 Sansome Street, San Francisco, Cal.**

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING instruction book free. Explains honey production, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Gill Ave., Nordhoff, Cal.

WANTED.

WANTED—Position as Foreman or Superintendent of large dairy farm. On May 1st I am severing my connection with the Stanford Vina Ranch, where I have had charge as foreman of their large pure-bred herd of Holsteins for more than three years. I have also had wide experience in the dairy business, both in the East and on the Pacific Coast, including all leading dairy breeds, certified and market milk, butter making, balanced rations, breeding, official records, farming, etc. Am familiar with the most up-to-date methods and apparatus; in fact am competent to assume complete supervision of any kind of a dairy proposition. G. L. Stearns, Vina, Cal.

WANTED TO RENT or on shares by young married man, 20 to 40 acres dairy, fruit, or truck ranch. Must be stocked. Best of references. L. L., Box 692, Nevada City, Cal.

I WOULD LIKE to have position as manager of ranch in raisins or fruit. Will accept place in nursery. Can furnish best of references. Frank Henry, Fowler, Cal.

WANTED—Mule team four years old, not over 900 lbs. each. Must be sound and broke. Reply, giving description and lowest price. P. O. Box 118, Healdsburg, Cal.

POSITION WANTED—Ranch Manager, Superintendent or developer, possessing eight years' practical California experience, applying the practical portions of the scientific side of the work of general agriculture and its constructive and engineering features. Credentials. Box 47, Pacific Rural Press.

FIREMEN, BRAKEMEN WANTED—All railroads. $120 monthly. Experience unnecessary. Railway Association, care Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

FOR SALE—Burbank's genuine spineless cactus of the best forage varieties. Large selected slabs in quantities to suit; prices packed F. O. B. cars, Napa, $10 per hundred, $42.50 per five hundred, $75 per thousand. Special prices on lots of five thousand or more. William Watt, Napa, Calif.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

GENUINE FRANQUETTE GRAFTING WOOD for sale. Also Willson's Wonder and Genuine Franquette Walnut Trees, grafted on California Black. Splendid roots. F. C. Willson, Encinal Nurseries, Sunnyvale, Santa Clara Co., Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

BURBANK SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

SWEET POTATO PLANTS—Yellow Jerseys, Early Red, and Texas Pumpkin Yam. 25 cents per hundred, carefully packed and delivered to express office. D. L. Threewit, Hemet, Calif.

RECLEANED ALFALFA SEED—Free from Dodder and Johnson Grass, high germination, excellent color. 17c per pound, F. O. B. your railroad station. Send for sample. E. F. Sanguinetti, Yuma, Ariz.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

FETERITA CORN—The coming hog-feed; yield 32 to 25 sacks per acre. Write for sample and prices. The corn that puts the Du in Duroc-Jersey. Jno. P. Daggs, Modesto.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier.

FOR ACACIAS, Budded Loquats, Roses, Evergreens, Feijoas, Palms; in fact, anything for the garden. Send for our new catalogue. Robertson Nurseries, Fullerton, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

BURKANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

SOUDAN GRASS SEED—Pure, recleaned. Grown in Santa Clara county without irrigation. In 100 lb. lots, $25. Geo. W. Lane, Morgan Hill, Cal.

SOUDAN GRASS SEED—The wonderful new forage. Reliable seed. Reasonable prices. Responsible grower. T. W. Buell, Krum, Texas.

FOR SALE—Burbank's Santa Rosa variety Spineless Cactus Slabs, $15 per 100, F. O. B. Hollister. S. G. Button, Hollister, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

EUCALYPTUS—We have our usual stock of high-grade, well-matured trees, and invite correspondence. Stratton's Nurseries, Petaluma, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING.—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

"**SMITHS' PAY THE FREIGHT.**"—To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

WINDMILL FOR SALE—16-ft. Power Aeromotor with 40 foot steel tower. A1 condition. Cheap. Address Ogden Bolton, Jr., Santa Rosa, Cal.

FOR SALE—About 100 tons of choice baled alfalfa hay; also 35 tons of choice red oat hay in the bale. Address Box 57, R. R. 2, Modesto.

THOROUGHBRED SCOTTISH STAGHOUND puppies; best dogs for deer or coyotes. Cragwood Kennels, Palo Alto, Cal.

between the covers

Between the covers of this booklet is a fund of information valuable to every farmer—no matter what kind of crop he raises nor where.

It deals with the problem of hauling-power and emergency stationary power—and presents a solution.

The Yuba Ball Tread Tractor is one of the most highly developed machines of its type. By the use of steel instead of weaker and bulkier materials—high-duty roller and ball-bearings instead of the bronze or babbitt type, and the most efficient power plant and transmission system we can buy or build, the tractor has been made more powerful, more compact and more economical to operate and maintain.

THE YUBA BALL TREAD TRACTOR

This booklet tells how well The Yuba Ball Tread Tractor is designed for work in an orchard, vineyard, hopfield, on grain or alfalfa land, on the road—and so on down the list.

Every page between the covers is instructive and vitally interesting.

As the first step toward bigger profits, fill out and mail the coupon.

- - - - - - - - - - - - Cut Here - - - - - - - - - - - -

THE YUBA CONSTRUCTION CO.
433 California St., San Francisco
Dept. C 1f

Gentlemen: Kindly send me a copy of your booklet "The Yuba Ball Tread Tractor."

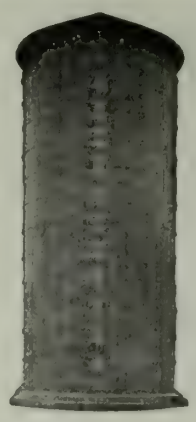
Name.....*P. O. Box*.....

Town.....*State*.....

Size of Farm..... *Acres.* *(Check main crop raised.)*

Fruit ..... *Rice* .....
Grapes ..... *Alfalfa* .....
Grain ..... *Hops* .....
Hay ....

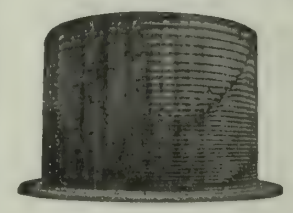
SILOS



BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS



Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

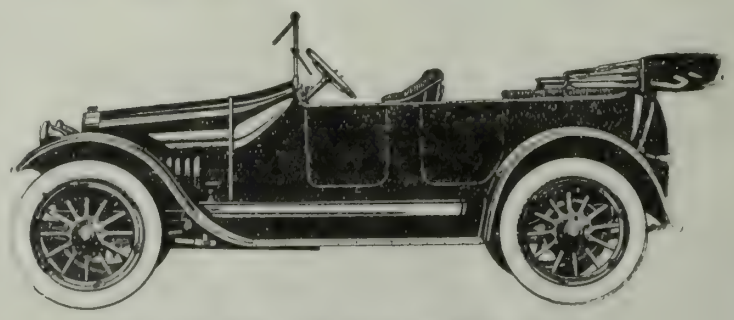
1608 Hobart Bldg., San Francisco.

1915

Mitchell

First at the Show

Your presence is requested at the MITCHELL BOOTH at the Exposition, to look over the beautiful 1915 line of Four and Six Cylinder cars—Cars that are the present sensation in the automobile world—unequalled in distinctive appearance and superior construction.



LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.

1st & St. James Sts., San Jose.

Vol. LXXXIX—No. 17 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, April 24, 1915 LOS ANGELES

State Library 7-1-16

Fruit Thinning Necessary This Year.

[Written for Pacific Rural Press.]

All commercial growers in Stanislaus county thin their peaches, according to Horticultural Commissioner A. Rutherford. They know from bitter experience that it is necessary on account of the absolute loss through difficult marketing of all poor stuff produced. The widespread reports of a full crop of peaches throughout the State this year, if no unfavorable conditions arise, make it probable that only the very best of this crop will sell at all next fall. This unfavorable market condition might not be so bad, except for the war and for the fair crop prospects in other varieties of fruit. Small, misshapen, irregularly ripened, diseased fruit, whether for the cannery, for fresh shipment, or for drying, is very likely not to sell at a profit next fall. For this reason, everything must be done by the growers to produce all first-class fruit and as little second-class and poor fruit as possible.

SHAEFER APRICOT ORCHARD—STANISLAUS COUNTY.
Apricots are already a little farther advanced than they ought to become before thinning. Pits ought not to be allowed to harden.

FRESNO COUNTY PEACH THINNERS.
All of these men are needed in the 120-acre peach orchard of C. F. Walker, Fresno county. They can handle the work on account of the different stages of development in the different kinds and varieties of fruit.

One of the prime factors in producing first-class fruit is thinning, without which fruit on well-set trees is more than likely to be small because the tree cannot mature more than its normal limit of fruit weight without injury to the tree itself. The same weight of small stone fruits on a tree is far more exhausting to the tree itself than large-sized peaches. With small peaches, a large part of the fruit weight is made up of seeds, which require a relatively far greater amount of the expensive and less readily available commercial fertilizer elements. This extra use of plant food elements overworks the tree and uses material that properly should be used in developing healthy fruit buds for next year; and in storing away reserve in the trunk and roots to give the tree a vigorous start the following spring. Alternate bearing is usually due to maturing a lot of pits. In large peaches, a goodly percentage of the fruit is water, which is relatively inexpensive, and carbon which is taken entirely from the air.

Nobody Wants Small Fruits.—Markets for small fruits are a minus quantity when there is enough large fruit to supply the demand and they always go at second-rate prices or worse, anyway. Canners cannot use small fruits because of the trouble in peeling and pitting them, and because the consumers demand the larger sizes most. For shipment fresh, the smaller sizes, being less attractive to the consumer, sell at lower prices, which often make the difference between profit and breaking even, for the freight on little fruits equals the freight on large ones, the cost is greater for handling, shook is the same, and more fruit is lost. For drying, the man who is known to raise small peaches finds hard work getting cutters at any price within his means, and a proportion of the fruit is likely to waste on this account, besides the loss of profits due to paying higher prices for the cutting. Fruit buyers avoid such a man until the better fruit is cinched.

Moreover, it is almost as much extra trouble to pick the smaller peaches as it would have been to thin them and then pick the larger peaches.

Nobody Wants Misshaped Fruit.—Without thinning, when the crop sets as it did this year, there will be many misshaped fruits, partly on account of doubling, which is noticed often on the freestones and much worse on the clings, and partly on account of crowding. Where so many fruits grow in a bunch, they do not have a chance to grow right until they have crowded some of the others loose, and performed imperfect natural thinning at a time when much of the plant food of the tree has already been used in making the solid materials in the pits. Often, too, when they thin themselves in this way, they are too nearly full grown to regain their shape. Canners do not want misshaped fruits on account of the difficulty in peeling them, as well as the unattractive appearance of the canned product. Fruit-dryers, especially those handling peaches, are coming more and more to peel their fruit before it is dried; and the same objection to misshaped fruit applies here. Shippers of fresh fruit cull out the misshaped ones, because they cannot pack them, either to carry well or to look well on the market.

Crowded Fruit Ripens Irregularly.—Earlier ripening on one side of the fruit than another is objectionable on account of the

(Continued on page 498.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., April 20, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	0	39.99	41.35	62°	42°
Red Bluff...	T	31.82	22.69	86	52
Sacramento	0	14.06	18.43	80	50
S. Francisco	0	23.92	20.88	70	50
San Jose...	0	19.15	15.72	76	42
Fresno.....	0	9.42	8.57	80	42
Indep'nd'ce.	0	2.93	8.46	80	41
S. L. Obispo	T	23.83	18.77	76	42
Los Angeles.	T	15.35	14.87	66	50
San Diego..	T	12.99	9.36	66	52

T means trace.

The Week.

Nearly all the prophets have blown into the Exposition during the week and they are all saying, with Ezekiel: "This land that was desolate is become like the Garden of Eden." The only prophet we miss is Jeremiah, and he probably mistook the Mexican Central for the Southern Pacific—which is not so bad, on the whole, for they need him in their business down there. But just listen for a moment to the prophets who came through on the right lines.

First, there is the major prophet, Sir Thomas Shaughnessy, an Irish native of Milwaukee; eminent financier and president of Canada's most powerful corporation, the Canadian Pacific Railway. Standing on the prow of the Oakland ferry-boat the other day, and exclaiming praise of the new San Francisco which he beheld for the first time after a score of years, he said: "The opening of the Panama Canal will greatly strengthen the position of the cities on the West coast and I expect to see them become leaders among the world's great distributing centers."

And after him came Prophet Jacob H. Schiff of New York, who, since the death of J. Pierpont Morgan, is regarded as the biggest figure in American finance. "Finance on the Pacific Coast," said Prophet Schiff, "is always conservative. It has been in good shape all through the war, in better shape than in the Eastern States. The Pacific Coast is wonderful. California, Oregon and Washington are sure to become the leading States in the Union. Before long they will be in the ascendancy."

And then there is James J. Hill, the great transportation prophet, whom we ought modestly to call a minor prophet, because he is largely one of our own coast people. We excuse him from local praise. His optimism may take a wider range. Foreseeing the end of the war during the coming summer, he predicts national prosperity for the United States, saying: "There is one all-important fact to remember. The agricultural crops of this country have a yearly value of $10,000,000,000, or more than the gold mines of the world produce in twenty-five years. With a production like that no one or no one thing, unless it be the cheap, demagogue politicians, can keep this country back."

Another minor prophet is John C. Eastman of Chicago, who, after experience in the management of the Chicago World's Fair, says our Panama-Pacific "is indeed the most sumptuous of all Expositions," and most timely also, for he adds: "You are fortunate in holding the Exposition at a time when the whole country is on the verge of the greatest boom America has ever known. The new banking system gives the West a chance to grow, to employ its wealth for the purposes of its own expansion, and this Exposition proves that among your citizens are men with sufficient imagination and courage to make the most of the prospect."

It is proper to class also among the prophets ex-Governor C. S. Osborn of Michigan, whose testimony of California's attitude toward the Exhibition-visitor should be spread over the country. He says: "For the past twenty years I have visited all our home Expositions and many abroad, and I want to say that things cost less here than I have found them to cost at any other Exposition or in any other Exposition community. I am pleased and charmed to find conditions normal and prices rational, both within and outside the Exposition grounds."

Surely the prophets are with us in the effort to make our Expositions of national significance and importance, and to attain, as the reward for such great patriotic service, the recognition of our own coast as worthy of the most enthusiastic and generous upbuilding by the great nation of which we are loyal and capable citizens. It may really be that 1915 will prove the year of the birth of the farthest west into the consciousness and affection of the United States.

Government Aid in Marketing.

As we seem to be drawn strongly by the foregoing prophecies into matters of finance and trade we may as well follow along those lines in this week's cogitations. Our subscribers have written from time to time that if we could get trade under regulation in such a way that the producer could get his fair return and the consumer could pay a fair price (both return and price based on the cost of production, and not on the profits desired by handlers) all other difficulties of farmers would remove themselves. We are not sure but that is broadly true, and therefore we are quite content that the agitation should take that direction, as it seems clearly to be doing at the present time. If both producers and consumers could be protected from highway robbery, by which we mean undue exactions, along the avenue between them, it is quite possible that questions of rural credit, interest rates, high cost of labor and living, etc., would adjust themselves to a rational basis, and that is probably what our readers who look upon marketing as the principal thing, really mean. We are not quite ready to admit the practicability of that view, unless it be urged on the ground that if producers and consumers could gain mastery of things which are of their clearest mutual advantage, they would have force enough to remove all collateral difficulties. On that ground we would concede the point. The present pertinence of the matter is that while our local organizations of producers pay scant heed to propositions of rural credit, they are quite outspoken on government aid in marketing. We have really received more copies of resolutions adopted by local meetings on that subject than we have found space to print and we must conclude that legislation along this line would meet a long-felt want. Mr. McPherson's measure now pending in our State Legislature has been very widely approved by those who are anxious to make a trial of public marketing. Naturally no one can be exactly sure that this particular plan will succeed. In an effort so new, it is perhaps impossible to lay out a straight road to a desirable destination, and that is not the most important thing. Evidently most people do not care so much about the direction, but they do earnestly desire to be on the way.

A National Push Toward Marketing.

California seems to be in a leading position in this impulse toward government regulation of marketing. The telegraph reports that David Lubin's plan, which we may call Californian by virtue of his citizenship, is now receiving most careful attention from President Wilson, and Congressman Kent of this State is keeping him in mind of it so far as he consistently can. Mr. Lubin's plan provides for the creation of a national marketing commission to devise a better system for the distribution of agricultural products; investigate conditions of warehousing throughout the country and to work out all problems affecting the nation's food supply and demand. Several members of Congress and officials of the Department of Agriculture are co-operating in the movement looking toward the establishment of such commission. What is desired immediately is definite information on which to base legislation at the next session of Congress. Although President Wilson has made no announcement, it is known that he is giving the subject serious consideration. It is very sure that the majority in the present Congress strenuously desires to do something rather 'cute in the matter of farm finance and commerce before another presidential campaign rises above the horizon and this makes the outlook very favorable for putting this matter ahead.

The Way to Market Is to Market.

Readers can take that remark geographically or commercially, as they see fit: it is true either way. For instance, the Turl[illegible] farmers are taking it commercially. They [illegible]dently think that although it may be very [illegible] to talk about legislation and investigation, the way to market your own stuff is to get together and do it and philosophize on your experience afterwards rather than beforehand. There is much common sense in that view of it, which the Turlockians are acting upon.

They held a meeting last week and organized the "Turlock Merchants and Growers' Corporation," designed to improve agricultural conditions in that district by a system of co-operative marketing. They have about 150 members, and as soon as the stock subscriptions reach $15,000 the articles of incorporation will be filed and the organization will be ready for the season's business. A manager is to be employed and the work of contracting the season's crop will be taken up. While the scope of the organization is broad enough to cover all the products of the district, it is planned to confine operations this year to melons, cantaloupes, sweet potatoes and Egyptian corn, of all of which the Turlock district produces large amounts.

And Satan Came Also.

It will, of course, be a shock to some readers that we should for a moment consider a co-operative marketing organization which included local storekeepers. It is rather shocking, we admit. Has not the storekeeper had the tourniquet on the wrist of the poor farmer all these years—or is it the fleam and bloodstick that we are thinking of? We cannot explain how the farmers of Turlock came to take in the merchants unless it be through the emotion of reciprocity for those who have been taking them in so long. And yet, strange as it may appear, that seems to be the coming way of it, for there is arising a neighborhood spirit and feeling which is convincing many people that the way to push a neighborhood ahead is for all who are of good moral standing in that community to come together for promotive and protective purposes. Really, the country merchant can do a better business if his customers can sell their crops at good prices and get honest and quick returns, and, the other way 'round, the farmers will make much safer ventures if associated with those who know how to catch rogues—never mind how they learned it. But the Turlock farmers are in such a combination and are waiting for experience to philosophize over, and so shall we. We have to remark that associations, including farmers and straight local traders, are becoming fashionable and are being urged by exhorters. "The chambers of commerce of every industrial city in America could be made of vast help in developing their outlying communities and would find it satisfying and profitable work," said J. F. Marsh, in Washington recently. Mr. Marsh of West Virginia is a well-known leader for rural improvement and was one of the bunch with which the writer studied such things in Europe in 1913. Mr. Marsh rightly says: "In Germany, Italy and elsewhere in Europe, there are compact and effective organizations of farmers and those directly affected by farming," and when he made the remarks from which we have quoted he was passing through Washington on his way to preach the gospel of rural merchant and farmer combination at the Southern Conference for Education and Industry at Chattanooga, Tenn. It is of course satisfactory to remember that local boards of trade and chambers of commerce in California communities have long worked for the advancement of local agriculture, and California has led in the way which is now being marked out for the South. The Turlock people are on to the new way; watch them.

California Cereal Advancement.

We have often urged that California, with all her achievement with fruits and all her opportunity with live stock, should not forsake grain-growing, for which she has abundant land and exceptional climatic advantages. California has been for two decades at least the greatest barley State in the Union and can do still more with barley—unless all Europe should give up beer as George has. California has fallen down on wheat and should immediately rise again. The way to achieve this is to learn how to grow a better wheat for the miller and more of it to the acre. We are glad to note that all whose land calls to this enterprise may find inspiration and edification through attending a "Cereals Conference," to be held at the College of Agriculture, in Berkeley, beginning May 15. Besides a program of papers to be read at the University, there will be a session, also, at the University Farm at Davis, and inspection trips to cereal-growing sections of the San Joaquin and Sacramento valleys; also to the rice experiment station at Biggs and the plant introduction station of the United States Department of Agriculture at Chico. Among distinguished specialists to participate are Dr. Ravn of Copenhagen, Denmark; M. A. Carleton, in charge of the cereal investigations of the United States Department of Agriculture, Carleton R. Ball of the same department, and a number of other experts from the University of California and from various other universities and experiment stations. The discussions will cover many phases of cereal production in California, including the problems of plant diseases, of tillage methods, of seed improvement, and the miller's special difficulties. It is expected that the conference will be of benefit to all who are interested in either the marketing or the using of cereal crops.

Queries and Replies.

Querists must give name and address.

Transplanted Beets and Fall-Grown Onions.

To the Editor: Will stock beets stand transplanting? Would it be advisable to transplant in September after sweet potatoes had been dug from a sandy, decomposed-granite soil? I have trouble getting them up in hot weather. And would September be too late to set onions to use dry?—A Subscriber, Hemet.

All kinds of beets are transplanted readily during the rainy season, by growing the seedlings in light soil, from which they could be easily lifted without much loss of roots. If they are then planted with a dibble, or otherwise, so the long thread-like roots will hang deep in the moist soil, they catch on very easily. This can be done on the coast in September if rains are early or if the soil is well wet down by irrigation. Whether you can do it as far from the coast as you are depends upon how fierce your September heat and drouth are. If you start the seeds with partial shade and then harden them to the sun and moisten the land well after the potatoes are dug you ought to get a better stand by transplanting than from the seed at that season, if the work is well done. You can turn about the same trick with onions and in about the same way: that is, by transplanting. The difficulty will be in getting a stand from the seed under interior September conditions, but this can be done in a partially shaded seed bed. You ought to get a mature early onion, like the Red Wethersfield, if you can keep the soil moist enough to grow the plant and then dry enough to mature it. You can learn a lot about whether this is possible in your locality or not by trying it.

Hollyhock Rust.

To the Editor: I have some double hollyhocks which are affected with blight or disease. Am sending sample hoping you may be able to tell me what it is, also to give me a remedy. The leaves curl up, wither and die, ruining the plant. I am using sulphur on them but have noticed no effect as yet.—Mrs. A. C., Monticello.

The disease is hollyhock rust (Puccinia malvacearum). Sulphur does not reach it. Its spread can be checked by spraying with Bordeaux mixture, but that makes your plants look worse than the disease. If you begin early and remove and burn all affected leaves you can reduce the pest very much, providing you also give the plants plenty of water and manure. Vigorous growth seems to give some resistance. It is a grievous trouble and not easily controlled. Plants which are pushed through the spring may look very well in midsummer.

Training New Canes of Bush Berries.

To the Editor: Kindly let me know in your next issue about Mammoth blackberry suckers. The plants are one year old and have already suckers 4 to 5 feet long. If I cut them off now will they grow again? Kindly let me know the time you would advise to let them grow; also the same for raspberries and Loganberries.—J. S., Bellflower.

The new canes which are now growing will be your bearing wood for next year, or in the case of raspberries, this growth may go into fruit next fall or winter, if your local temperatures favor it. The new growth should be preserved and tied up to stake or wire in such a way that the canes which may fruit this summer may be cut away, without the trouble of pulling it out from among the canes which you wish to keep for next fruiting. There are many good ways for training these berries which are described in detail in "California Fruits and How to Grow Them," and new ways are described from time to time in these columns. Although the canes now growing should not be removed, they may be pinched at the tips to cause a growth of lateral branches and thus secure more bearing wood within reach instead of such long training.

Cutting Back to Improve Form.

To the Editor: I have an umbrella tree that has grown lopsided and I would like to know how to trim it. Which side should I cut back, the enlarged side or the stunted side? I believe to make a walnut tree grow even it is better to trim the stunted side.—A Reader, Lodi.

While it is perfectly true that to get a better growth at a certain point a weak limb should be cut back to secure a stronger start from a lower bud, it is also true that when a tree has grown badly out of shape large growth making in wrong directions should be removed. This is done by removing large branches, not by cutting back smaller ones which might thereby be encouraged to make stronger breaks. Of course treatment would effect little if the side now weak is prevented from good growth by shade from other trees, buildings, etc. Whether you can cure a misshapen tree depends then upon what has thrown it out of symmetry.

Present Condition of California Crops.

[Written for Pacific Rural Press.]

The crop reports and figures given below are based on and averaged from reports made directly for Pacific Rural Press by county horticultural commissioners, farm advisers, private fruit and grain growers, cooperative associations, and by our own men in the field. They must be taken as showing the present condition of the crops and not as in any way forecasting what the crop will be. This is a matter which only the harvest can determine, on account of the chances for storms, frost, disease, etc. We wish to make these reports as comprehensive and valuable as possible and will welcome all contributions from our readers, which will be used in making up our final judgment as to the crop conditions, in a large way each month, and in a more incidental way each week through the season. Fruits not mentioned are not far enough along to justify any estimate now.

In General.—As a general estimate for all deciduous fruits there is every reason to believe it will be nearly as heavy as last year. Many counties, such as Butte, San Joaquin, El Dorado, Fresno, Los Angeles, Mendocino, Riverside, Sacramento, Santa Clara, and Stanislaus, report fine prospects, with exceptions in only one or two fruits.

Almonds.—In almonds, practically all of the heavy producing counties report normal conditions. Exceptions to this are Sacramento, with 95 per cent; San Joaquin, with 75 per cent; and Yolo, with 75 per cent. In San Joaquin, the setting is poor in certain localities due to the February rains.

Apples are scarcely far enough along to base good judgment, yet Nevada and El Dorado counties are the only ones which report a large acreage and a light crop. The northern apple sections report a later blooming season than last year, and consequently less danger from frost. The U. S. Dept. of Agriculture, reports a decrease in the apples in storage of 73.8 per cent since December 1, about one-half of all remaining March 1 having been taken out during that month. There were 15.6 per cent fewer apples in storage, as estimated by the Department, April 1, 1915, than there were on the same date in 1913.

Apricots.—In quite a number of districts which have a heavy acreage of apricots, a light setting is reported. Reports vary more on this crop in the various sections than any other. In Orange County, the bloom is reported as two weeks later than usual and a smaller crop set than last year. The calyx, however, dropped readily, so the chance of rot and disease is small and the fruits are likely to be of large size. An east wind while apricots were setting in Ventura county reduced their prospects by 25 per cent. Fresno, with a heavy acreage, reports full setting; and Kings, more than full. Los Angeles, Riverside, and Tehama, all report 100 per cent; while Yolo, Ventura, Stanislaus, Santa Cruz, San Joaquin, Santa Clara, Sonoma, and San Benito report settings averaging 25 to 80 per cent of a crop.

Cherries.—Cherries seem to have done well in most of the districts with the exception of Sonoma county, where heavy rains in bloom made the setting doubtful, in San Joaquin where heavy rains during April hurt the young fruit to some extent; and in Santa Cruz county, where half a setting is reported, with no reasons given. The San Joaquin county report is conflicting, for one man tells us that it will be the biggest crop in years on account of the wet winter of two years ago. The rest of the state still has prospects for all that the trees can properly mature.

Peaches.—Stanislaus county is the only one with heavy acreage of peaches which reports less than 100 per cent crop. Sonoma also is light. Eastern and southern conditions may make prices better for California than they were last year. In southern Georgia, Alabama, and South Carolina a freeze late in March killed over half of the buds; and it was reported worse than that in Texas. Otherwise, normal conditions are reported.

Plums.—Sacramento county plums were hurt to some extent, and San Joaquin county worse. Placer county reports some damage due to the hot days in March; while those in Sonoma county are reported only half a crop.

Prunes.—With prunes, the greatest growing section, Santa Clara valley, seems to have been hit by the rains during blooming season, though at this time definite reports cannot be made. Sonoma and Mendocino counties also were hurt; but Napa and Glenn report normal conditions. Yolo and Sacramento also have been hurt to some extent.

Walnuts.—Walnuts in the South are showing more staminate blossoms than last year; and on account of the light crop that season, stand a good chance for more walnuts this year. They are also blooming in the San Joaquin valley in fair shape.

Small Fruits.—Berries and grapes are reported as starting out for a heavier crop than usual, though the strawberries in San Joaquin county are somewhat delayed by the spring rains. The Loganberry acreage in Oregon is doubling this spring.

Pears.—Something happened to pears in Yolo county where only 60 per cent crop is reported. In Napa, it is 90, and San Benito, 75. Pears in some orchards along the Sacramento river seem to have been reduced to 25 per cent crop by the thrips and in the Suisun and Vacaville districts to about 50 per cent.

Field Crops.—Cantaloupes are reported in 100 per cent condition in the Imperial valley, but in south Stanislaus county they are being replanted because it was too cold for them to grow after the rain. Lima bean acreage in Santa Barbara county has been greatly increased. Asparagus shipments for the State are estimated to approximately equal last year, though the crop in all counties except Sacramento is lighter than usual. The total will probably be about 400 cars, with three times as much to be canned later in the summer.

Alfalfa.—Alfalfa seems to be fine in all sections, with the first cutting still under way, except in Glenn county, where 80 per cent of normal crop is reported. Santa Barbara is enthusiastically estimated at 125 per cent. Plowpan in San Joaquin county is noted as hurting some spots of alfalfa by holding the moisture.

Grain and Grain Hay.—By the U. S. Department of Agriculture's reports, California wheat was in a 95 per cent condition April 1, as compared to 88.8 per cent for the whole United States and 88 per cent as a ten-year average for California. Floods have drowned out some grain in Napa, Colusa, Glenn, and perhaps other counties, while the wet winter and inability to get onto the land to prepare the seed bed is responsible for reduced acreage for the State as a whole. In the south San Joaquin valley and south of the Tehachapi, they have had a fine opportunity to get it in, but are anxiously looking for rain. In Santa Barbara, Kings, and Tulare counties wheat and barley, however, are reported as being 25 per cent short. The rest of the reports indicate a smaller acreage than usual, but the grain is looking fine.

"THE selling of futures in fruits is a very bad practice because it is a matter of gambling blind, on a proposition which is likely to be altered materially in a short time by conditions over which we have no control. Fruit should not be sold until we are in a position to know approximately what the crop is going to amount to.

"The growers who have large fruit will get just as much weight with less labor and more money as those who have a large quantity of poor under-sized fruit. You can always sell good fruit when you cannot get the buyer to talk to you about poor fruit."

We wrap fruits in paper to ship East, so moisture will be absorbed and bruises avoided, but it's a question whether we might not sell nearly as much without the wrappers. They sometimes hide defects and buyers must be a little suspicious. They surely are not much of a cushion against bruises.

BEARING ACREAGE AND PRESENT CONDITION OF CROPS IN PERCENTAGE OF NORMAL.

COUNTIES	Almonds	% of Full Crop	Apples	% of Full Crop	Apricots	% of Full Crop	Cherries	% of Full Crop	Peaches	% of Full Crop	Pears	% of Full Crop	Plums	% of Full Crop	Prunes	% of Full Crop
Alameda	500	...	136	...	5000	...	2000	...	200	...	565	...	75	...	116	...
Butte	1800	100	500	100	80	100	75	100	3000	100	400	100	100	100	2000	100
Colusa	300	100	....	100	30	100	....	100	303	100	30	100	...	100	1000	100
Contra Costa	1737	...	160	...	500	...	200	...	600	...	800	...	100	...	1100	...
El Dorado	....	...	350	...	....	...	6	...	300	...	500	...	300	...	....	...
Fresno	....	...	....	...	2750	100	....	100	43151	100	136	...	343	100	981	100
Glenn	150	70	78	90	200	70	....	...	93	90	17	...	....	...	201	90
Humboldt	....	...	1100	100	....	...	....	100	.....	...	....	100	....	...	.....	...
Imperial	....	...	....	...	110	100	....	...	32	...	36	...	18	...	.....	...
Inyo	....	...	1000	...	25	...	10	...	450	...	250	...	65	...	50	...
Kern	....	...	100	...	200	...	....	...	600	...	190	...	50	...	200	...
Kings	....	...	....	...	1700	110	....	...	7950	100	....	...	....	100	560	100
Lake	53	100	135	100	27	100	16	100	65	100	360	100	....	...	347	100
Los Angeles	600	100	1100	100	2039	100	....	...	1600	100	350	100	600	100	250	...
Madera	40	...	200	...	100	...	....	...	650	...	5	...	....	...	60	...
Mendocino	25	...	948	100	12	...	16	100	55	100	650	100	10	100	320	85
Merced	400	...	60	...	200	...	5	...	4000	100	75	...	36	...	40	...
Monterey	20	...	4500	...	395	...	....	...	50	...	40	...	....	...	20	...
Napa	....	97	....	100	....	95	....	96	.....	100	....	90	....	100	.....	100
Nevada	10	90	1500	75	15	100	75	100	350	100	600	100	110	100	110	...
Placer	250	...	450	...	420	...	350	...	7000	...	1500	...	5500	...	.....	...
Riverside	818	100	498	100	1995	100	25	100	897	100	235	100	6	100	318	100
Sacramento	921	95	344	...	170	95	330	100	1650	100	2900	100	1250	95	650	95
San Benito	125	...	325	100	1500	70	70	100	525	100	250	75	....	...	2400	100
San Bernardino	....	...	1024	...	1618	...	41	...	5666	...	36	...	8	...	54	...
San Diego	45	...	1110	...	113	...	18	...	6621	...	....	...	17	...	48	...
San Joaquin	1500	75	....	...	1000	85	1500	95	4000	100	700	75	300	80	500	80
Santa Barbara	....	...	400	100	110	100	110	100	75	...	20	...	....	...	.....	...
Santa Clara	321	90	430	...	5701	75	2457	80	6120	80	1321	100	2750	...	52950	80
Santa Cruz	....	...	15000	100	1200	50	100	50	50	...	....	90	....	...	300	75
Shasta	50	75	300	...	6.5	90	8	15	300	90	110	75	20	....	750	80
Siskiyou	....	...	800	...	45	...	40	...	950	...	....	...	36	...	.....	...
Solano	1000	...	....	...	1300	...	700	...	4200	...	1000	...	2521	...	4345	...
Sonoma	152	50	6968.8	100	408	25	935	25	803	75	1077	100	99	50	7629	75
Stanislaus	625	100	113	100	525	75	25	100	2520	75	233	100	210	100	45	100
Sutter	1200	...	200	...	100	...	150	...	3100	...	251	...	250	...	500	...
Tehama	350	100	500	...	600	100	....	...	3877	100	350	...	100	...	1300	100
Tulare	....	75	....	100	....	75	....	...	.....	100	....	...	....	100	.....	100
Ventura	200	100	....	...	2830	75	....	...	.....	...	....	...	....	...	.....	...
Yolo	2250	75	25	...	1850	80	....	...	1900	100	975	60	600	100	1350	90
Yuba	135	70	430	...	80	70	25	90	765	100	495	100	260	100	280	100

Don't Waste Citrus Fertilizer.

[Written for Pacific Rural Press.]

"With citrus prices low as they have been of late, the grower wants the most economical system of raising his fruit in order to break even or make a little profit. In other words, he wants to reduce the cost and get the same or better crops. The first important reduction from the systems now in common use is in the matter of fertilizers. We do not want to accomplish this reduction by feeding the trees less, but by feeding them only what they need and avoiding the application of expensive materials which are unnecessary. There are several sources of avoidable waste," says G. P. Von Stein of Los Angeles county.

Do Not Fertilize Dirty Trees.—"Scale-infested orange trees are in the same class as vermin-infested poultry. Most of the feed you give them is utterly wasted. My experience shows that the orange grower ought to make one budget which would include the cost of both fertilizing and keeping his orchard clean. The amount set aside for this budget will depend on what each man thinks he can spare and what he thinks will yield a profit. About $100.00 per acre is a representative figure. When the amount has been decided, then we must first appropriate out of that budget all that is necessary to keep the trees clean by fumigating, spraying, and pruning. After these appropriations are made the rest may be used for fertilizer with the assurance that the trees will be able to use all that is applied to the best advantage if it is applied in intelligent proportions.

"The first money out of the amount left for fertilizing should be spent for a soil analysis if one has not been made. One of the greatest sources of waste in our present methods of fertilizing is in the application of elements of which there is plenty in the soil, but not in the form to be taken up by the tree."

Despite the assertion of the Experiment Station that soil analyses are not even suggestive of the fertilizer needs of the trees, Mr. Von Stein believes it is a most valuable aid in determining what plant food elements to buy, though he ranks it only as one step in the fertilizer problem.

Three years ago he applied a ton of sulphate of potash at a cost of $65.00 to his ten-acre orchard of 20-year orange trees set in 20-foot squares. The following spring he had the soil analyzed at a cost of $23.50. The soil chemist said that potash was not needed so none has been applied since, and a net saving of $171.50 has been made because of an abundance of potash being in the soil.

Soil analyses should include not only the plant food elements contained in the soil, but also its acidity, which is likely to exist in some of the citrus sections of the South because the lime leaches away by irrigation.

If the soil lacks lime, which means that it is sour, there is no use spending money for potash and phosphoric acid which, according to Mr. Von Stein, do not become available except where lime is present; nor for nitrogen on account of incomplete nitrifaction of decaying organic matter. He notes that in correcting the acidity of an orchard with lime it is not necessary to apply it under the trees, for several reasons. One is that less irrigation water flows under the trees so there is less carrying away of the lime that has been there. Another is that in the application of organic manures which is a prime cause of soil acidity, very little of them get under the trees. Another is that the leaves which drop mostly under the trees contain sufficient lime to neutralize any acidity which might be there.

Acting on his own ideas, Mr. Von Stein last year bought 90 tons of hydrated lime, which is the cheapest and best form, in his opinion. It was obtained from the beet factories of southern California at a low cost and hauled from the car in an ordinary wagon and spread between the trees with an irrigating shovel.

On a test with phosphoric acid last fall, two tons of bone meal were applied to 400 trees in addition to the regular fertilizer, and there was a bigger crop there than in any other part of the orchard. Yet under ordinary circumstances, raw rock appeals to this gentleman as being a cheaper form and fully as good.

"For nitrogen, which I consider sets and sizes the fruit and makes the tree grow, I would recommend first of all, a cover crop of purple vetch. Last year, at the Riverside Experiment Station, test plots showed that it deposited nitrogen to the value of $35 per acre. It made a better stand and 50 per cent more tonnage, as well as 50 per cent more nitrogen, than any other crop." Melilotus is doubted on account of its small seed failing to germinate in gravelly soil. It is, however, placed next in value after purple vetch in sandy and heavy soil; while grain cover crop in Mr. Von Stein's estimation is of value only in a heavy soil for humus, as it adds no fertilizer value.

Lima Bean Straw.—An economy for agricultural communities, as well as for individual fruit growers in this section, is to use lima bean straw. It contains two per cent of nitrogen and costs about $6.50 per ton f. o. b. Santa Ana, and $2.50 per ton freight to Pomona. In using this, one farmer buys the by-products of another and all are benefited. It can be fed partly to cattle or used for bedding and the manure applied to the orchard. This makes the nitrogen cost about 22½ cents per pound, but he gets the benefit of the cow feed and also the humus. Black-eye bean straw is too long and stiff for good feed or for application directly to the soil because it catches in the drag teeth and bothers in the cultivation. Lima bean stems are small and brittle so that they work up fine.

A cover crop should be grown every year and whatever manure, bean straw, blood, or high grade tankage are available should be added for organic nitrogen. Then if quick action is wanted in setting the fruit or in sizing it for the market, nitrate is the best thing, but only for such emergencies. Nitrate is consumed in about six weeks, when applied as Mr. Von Stein does. He throws it into the furrows after irrigation and then plows the furrows full of dirt. Not over a pound per tree is used at an application, but if more is needed, it is applied about six weeks later.

INTRODUCTION of carbon dioxide into the soil by a German investigator studying its effects on spinach, showed that when it was constantly supplied through a buried pipe, the crop yielded 12.2 per cent more than that on untreated soil. This suggests that an important reason why organic manures increase crop yield is the carbon dioxide generated in its decomposition.

Picking Strawberries By Stem.

[Written for Pacific Rural Press.]

"It is some temptation to pick strawberries too early, in a half ripened condition, but we know that it spoils our market later when we will have good ones, for we stamp every package, 'A. Roberts & Sons,'" says Mrs. A. Roberts of Ripon.

They have seven acres of Longworth, Jessie and Banner strawberries from which they have gained a wide local reputation by shipping them to Manteca, Modesto, Brentwood, and Stockton. The Longworths and Jessies ripen together late in April; the Banner, for which the Roberts had to send to Oregon and pay at a rate of $50 per thousand plants, is a later bearer and a better shipper, besides being well known in California markets. Mr. Roberts has shipped some of them to Santa Rosa, where they arrived in fine shape, and he expects to extend his market to San Francisco. This will require some experimenting as to the best condition for the berries to be picked.

Do Not Touch Berries in Picking.—The Roberts' stamp on the boxes is of worse than no value if the berries are carelessly picked. Careless picking is avoided as much as possible by watching the pickers. A beginner practically always grabs a berry between his fingers and thumb and gives it a pull. This mashes the berry besides pulling off the calyx. Some of the juice runs down over the rest of the berries in the box and they mold and rot sooner than necessary.

All of the Roberts' pickers are instructed and watched to see that they take hold not of the berry, but of the stem; and pinch it off with the finger-nails, dropping the berry into a three-inch box with the stem and calyx on.

For shipment to the local surrounding cities, the berries are colored all over uniformly, but not too deep a red; and each box contains berries of practically a uniform size. This is necessary to sustain the reputation of their brand.

Similar System at Sebastopol.—Carl Crystal of Sebastopol does not rely on his pickers to grade the berries. They are picked into field baskets and carried to a shaded packing shed where professional packers put them up in first-class shape. Mr. Crystal adds to the appearance, as well as to the expense of packing, by running a blue ribbon diagonally across each box inscribed with the variety name of the strawberry, as well as his own name and address. The quality of berries, however, makes this added expense profitable and enables him to sell them for fresh berries when unbranded berries in the same market are unsalable or are going to the canners. All of his berries which are picked in the afternoon are packed the same day, but left open to the night air in open sheds and delivered in town the next day. The morning's picking is delivered every afternoon. In his words:

"I have three excellent reasons for being in the strawberry business: first, because I live in a section where conditions are nearly as perfect as I would ever expect to find for production of fancy berries. They certainly have the size; there can be no mistake about the magnificent color; and now all that remains for me to prove the perfection of this berry is to prove the flavor. The second reason is because I am really in love with my job. Who could imagine more beautiful surroundings than practically living in a strawberry patch? The third, and you will perhaps say the most important reason, is because there is an income attached to it sufficient to well repay all the hard work and attention.

"Under conditions so favorable as mine, I produce as high as five tons to the acre. Such results as these are not accomplished without a lot of extra painstaking effort, as well as a considerable cash outlay for tools, fertilizer, machinery, pipe, etc.

"Please bear this in mind—strawberry growing is not a lazy man's job."

Thin Plums After Last Drop.

"Be careful not to thin plums too much early in the game," advises M. Sharpe of Vacaville. "Wicksons and Santa Rosas thin themselves until ¾ inch in diameter. In thinning Wicksons be careful in pulling one off not to loosen others, for they may hang a few days, then lose their bright color, wither, and drop. Santa Rosas always turn a bright yellow before they drop." In that section, they do not thin plums by beating the limbs with clubs, but thin one limb at a time by hand. Most every year it is the same varieties that need thinning. A two-inch space is left between them; for color is a prime factor in their ready sale, even though it may not be developed at the time of shipment. Stronger limbs would be allowed to carry more fruit than spindly ones. On H. A. Bassford's ranch, the cherry pickers were thinning early plums May 9 last year to keep them busy while cherries were ripening slowly on account of cool nights at that time.

Sulphuring Vines Thoroughly.

[Written for Pacific Rural Press.]

Some people shake the sulphur onto grape vines from cloth sacks, as we have seen it being practiced in Sonoma county. This is wasteful in several ways. A great deal of the sulphur goes on the ground; very little of it goes on the under side of the leaves, where the mildew thrives as well as anywhere except within the bunches, and it irritates the man who is applying it so that there is still less thoroughness in the work done.

Some sort of blower is necessary in connection with a nozzle which can be poked around within the vine to sulphur the under sides as well as the upper. H. J. Cooper of San Joaquin county prefers what he describes as the French sulphur machine which many of his neighbors also use. This blows the sulphur all through the vines and need not allow very much to get on the ground. Sulphur is best applied when there is a gentle breeze to help spread it all through the vines, but a strong wind will blow it off and waste a great deal, besides leaving much surface untouched.

To do its work properly, the sulphur must stay on the vines four or five days if the temperature does not get over 90 degrees. It will do it in a day or two if the temperature is about 100 degrees. For this reason, wind or rain for the time mentioned after sulphuring is likely to undo the work, in which case, the application should be repeated in order to save the crop.

Because the sulphur should stay on them some time to do its maximum good, some people believe in applying it only when there is dew on the vines in order to make it stick. For this purpose, they will often get up at three o'clock in the morning, which is really unnecessary, and oftentimes results in poorer distribution of the sulphur.

Wherever there is a drop of water on a leaf, the sulphur tends to collect in a sort of film and is washed from the other parts of the surface. Since its most effective action depends on its even distribution over the whole surface, this, of course, results in missing some of the mildew.

The well sulphured vine should show the sulphur on every part of the green surface the size of a quarter inch square. It should, however, not be thick enough to be noticed at a short distance because such extra use is simply a waste and may sometimes harm the fruit.

Sulphur When Dry.—Mr. Cooper prefers to sulphur when everything is dry and as early in the year as the temperature gets high enough to make it fume. With big vines, he finishes one vine at a time by walking around it to get all sides thoroughly. With young vines, he can simply walk up a row and reach over enough to get the whole vine. Last year he began sulphuring about the first of June and sulphured once a week all through July. This kept the mildew down so that a large crop was harvested, even in that section of great loss from this cause.

Chas. Weber, also of San Joaquin county, sulphured six or seven times last season, using 110 pounds each time on 12½ acres. It required one man one day to go over the patch.

Prof. F. T. Bioletti believes that in the interior, a sulphuring in the early bloom would be enough for the whole season if everybody did it. The trouble is that not everybody does it; so that the growers who have killed it are liable to re-infection from their neighbors, especially on moist parts of their vineyards. For this reason, every two or three weeks an inspection of most susceptible parts of the vineyard should be made and sulphur applied again on general principles when the grapes are about the size of buckshot. Later applications will be made whenever mildew apears. Another sulphuring should come on general principles after the crop is off, to kill the crop of mildew which forms the over-wintering spores which are entirely resistant to sulphur fumes. The summer spores of the mildew are killed by proper sulphuring, but this does not have any effect on the winter forms which live on the canes or in the soil, often as much as two years.

SUCKERING GRAPES NOW.

[Written for Pacific Rural Press.]

Shoots now growing on grape wood older than last year's growth are suckers and will become woody about May 10 in Stanislaus county, according to M. J. Strahl. It will then be necessary to clip them out with shears, and it will take double the work to do it then as now. Dormant buds will have developed at their bases then, too, so that a multiplication of shoots will result by cutting them off at that time.

Now is the time to pull them off with the hands; they will break easily at the base, and no basal buds have yet been formed. If they are not taken off now or later they will surely rob the fruit-bearing canes, and reduce the possibility of a crop.

Mr. Strahl is managing the Campin & Moffitt ranch, on which there are 47 acres of Malagas, 21 of Tokays, and 12 of Thompsons, and he finished suckering about April 18.

A combination of operations was recently observed in the vineyard of A. S. La Sell in San Joaquin county where the dirt was being plowed away from the vines and one man was pulling out the sections next to the vine with a prong hoe. This exposed many surface roots, some of which have already grown this season. All of these are cut off at the time the dirt is hoed away. All of the suckers are broken off with the fingers at their junction; and the vines are tied with new binder twine to their stakes. A sucker is of use and should be left this season if it grows on the side of the vine where no fruit bearing cane is located, so that the crown of the vine is one-sided, but only under such conditions. It may be cut back to a spur next winter and will bear a crop in 1916, bringing the vine into full balance again.

"The Almighty gave us fruit pests to reward industry and give us good prices," says T. R. Fiala of Sonoma county.

A LEAMING CORN ADVOCATE

[Written for Pacific Rural Press.]

To further demonstrate the value of Leaming corn for silage in this State, Geo. W. Shaw, Agricultural Engineer of San Franciso, has the following to say of his experiences while connected with the California Experiment Station. He states that "while with the University, many varieties of corn were under trial for several years—some thirty varieties altogether.

"Data were taken both as regards the yield of corn as grain and with respect to the varieties for silage purposes. Our data showed that for silage purposes there were none of the many varieties under trial which seemed to equal the Leaming variety. It makes a tall growth of stalks which are very leafy, and not as coarse as most of the varieties under trial, and matures for silage relatively early. The best results will probably be obtained from seed which has been acclimated, as none of the eastern varieties do as well with us as do varieties which have been grown in our climate for a few years. For silage purposes, I regard the Leaming variety as the best for the purpose, all things considered, especially when grown from acclimated seed."

WASTES IN SPRAYING PEARS.

[Written for Pacific Rural Press.]

Lack of economy in spraying appears to us to be increasing the cost of pear production for a Santa Clara valley grower who has several acres which he sprays seven times between the first week in April when they are the size of a pea, and the latter part of June several weeks before picking begins in August.

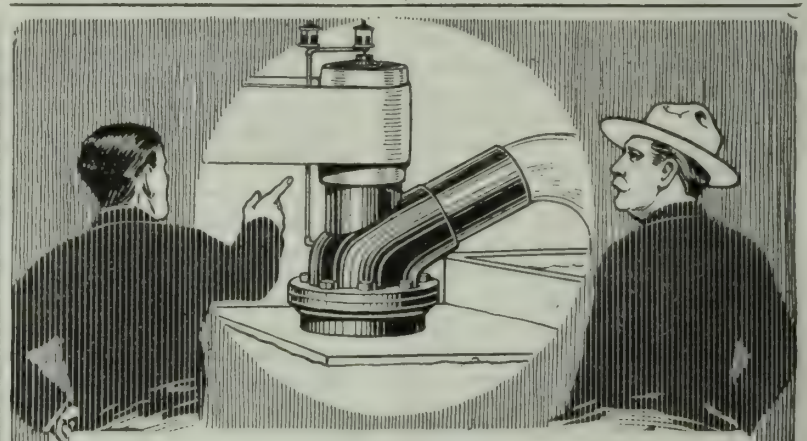
He uses three insecticides in this spray and the same mixture for the entire seven applications. His success in keeping 95 per cent of the fruit free from worms last year might as well have been attained at considerably less expense.

He uses one pound of Paris green, ten pounds of arsenate of lead, one pint of black leaf 40 (cost, $1.65) per two hundred gallons. The arsenate alone would do the work in about three applications on the pears, which are of four or five varieties.

FRESH OR ROTTED MANURE?

To the Editor: Which is the best for general fertilizing, fresh or rotted manure?—J. W. B., Goshen.

[Rotted is richest, but considerable fertilizing elements have been wasted in producing it. Fresh manure is most economical in general. —Editors.]



Cheap Water

If that's what you want and you're looking for a dependable water system, then be sure and install

The

Layne & Bowler Pump

See exhibit of our pumps at San Francisco Exposition. Write today for Catalog No. 25.

Layne & Bowler Corporation

900-910 Santa Fe Ave. Los Angeles, Cal.

"Campbell" Gates — Anderson Flume Gate Company — Diamond Gates

Redlands, Cal. Phone Black 96

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

CITRUS TREES

Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries Inc
Established 1890 by R M Teague
San Dimas, Cal. U.S.A.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices.. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer
624 CALIFORNIA ST.,
San Francisco. California.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,
58 Sutter St., San Francisco

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.
NEWCASTLE, CAL.

California Vegetables. $2 postpaid. Pacific Rural Press.

Florida Citrus Balances California.

California is not so much smarter in a citrus way than Florida, according to tables compiled by the Citrus Protective League of Los Angeles and printed herewith, covering the period from the beginning of the Florida season to March 29. It will be noticed that the daily average of carload shipments is only one better from California than from Florida. This looks a little better when we remember that the Cal. carload is 50 per cent heavier than that from Fla. As against the same period of 1913-14, Fla. has increased 10.5 per cent, nearly twice as much as Cal. On the other hand, 5,717 cars or more than ¼ of the total from Fla. in 1914-15 have been of grapefruit. So. California oranges hold the lead.

WEEKLY CITRUS SHIPMENTS OF TWO SEASONS.

Week Ending	Florida Cars	California North	California All	Total Florida & Calif. Cars	% from Cal.	Per cent Increase or Decrease in 1914-15 as compared with Season 1913-14 Florida	Cal.	Total
Sept. 1914								
20	101	....	361	462	78.2	....	195.0*	....
27	64	....	418	482	86.7	83.0*	265.6*	221.4*
Oct.								
4	82	....	467	519	84.2	3.5–	333.0*	179.1*
11	173	....	467	640	73.0	12.2–	431.0*	124.7*
18	328	....	470	796	58.9	106.3*	671.0*	263.0*
25	433	1	389	822	47.3	29.7*	826.0*	118.7*
Nov.								
1	562	2	260	822	31.6	5.4–	1268.0*	34.1*
8	726	19	189	915	20.7	28.0-	101.1*	17.0-
15	780	55	114	894	12.8	39.3–	64.7–	44.4-
22	791	205	225	1016	22.2	46.0-	61.9–	50.6-
29	1185	751	775	1958	39.6	31.0*	4.6–	14.1*
Dec.								
6	1480	1137	1274	2754	46.2	47.7*	14.2*	30.1*
13	1936	1195	1467	3403	43.1	20.4*	23.4*	21.7*
20	1754	753	856	2610	32.8	13.5*	49.6*	28.3*
27	394	648	741	1135	65.3	74.3*	201.2*	140.4*
Jan. 1915.								
4	254	456	647	901	71.0	26.8–	46.4*	6.8*
11	744	166	401	1145	35.0	9.5*	61.0–	33.0-
18	868	100	794	1662	47.8	16.6–	25.0–	20.8-
25	989	84	1135	2124	53.4	4.3–	76.2*	27.0*
Feb.								
1	934	37	692	1626	42.6	15.7*	13.5*	14.7*
8	915	17	737	1652	44.6	4.5*	48.1–	28.0-
15	981	29	1092	2073	52.7	54.5*	24.4–	0.4-
22	980	24	1336	2316	57.7	59.4*	120.0*	89.5*
Mar.								
1	1097	35	1588	2685	59.2	57.2*	71.5*	65.3*
8	1155	21	1310	2465	53.2	53.6*	18.4–	4.7*
15	763	20	1108	1871	59.2	7.9*	40.0–	26.6-
22	678	15	1277	1955	65.4	31.5*	34.6–	20.8-
29	810	26	1556	2366	65.8	21.1*	15.4–	5.7-
Totals	21955	5789	22116	44071	...	....	....	....
Daily Av'ge	131	....	132	....	50.2	10.5*	5.8*	8.1*

NOTE—* means increase over the ship ments of a year ago; —means decrease.

To Teach Old Citrus New Ways.

[Written for Pacific Rural Press.]

Why does an old citrus orchard go back without any apparent reason? To find out the answer to this question, the Citrus Experiment Station at Riverside is planning to use an orchard about twenty years old which has been very productive in its youth, but is now badly mottled and not profitable in production.

Definite plans are being laid to learn how a tree in any old orchard can overcome mottling and retain productivity. Dean Webber has charge of the experiment, Dr. Kelly will do the laboratory and chemical work, and W. M. Mertz will have charge of the field work.

They believe that by increasing the organic content of the soil by manure and alfalfa hay brought in from elsewhere and with cover crops, they can correct the mottling. This will be tested carefully in several ways. Nitrogen from several sources and potash and phosphoric acid to some extent will be applied to different plots as in the young orchard at the Station. Various complete fertilizers will be applied also, with and without organic material.

Shallow versus deep cultivation, and none at all, may be important in locating the cause of mottling because it may help determine the location of available ntirogen, showing whether the roots must come up or down to get it under different systems of cultivation. One or two plots will be kept in alfalfa continually.

The value of frequency of irrigation and the methods of applying the water will be tested in the old orchard; also severe pruning versus "hygienic" which means the removal only of dead interfering branches.

Station experiments have been conducted on young trees, but different results with the same treatment may be found as they grow older. At any rate old orchards, grown while citriculture has been experimental in California, probably require different treatment than the old orchards of the future will; and it is to meet the present problems of bearing citrus orchards that the experiment mentioned is being undertaken.

FAUN LILY NOT A MARIPOSA.

To the Editor: Will you kindly tell me if there is any authority for calling the enclosed specimen "The Mariposa Lily"? Also what authority for calling the Butterfly Tulip The Mariposa Lily.—Reader, Merced.

[Answered by Prof. W. L. Jepson, University of California.]

[Your plant is an Erythronium or species of Faun Lily. I will be glad to make a determination of the species for you on receipt of complete material including leaves and roots.

Mariposa Lily belongs to the genus Calochortus. This genus is represented in California by near forty species. The ones with open bell-shaped flowers and butterfly-wing spots on the petals are called Mariposa Lily. You can translate Mariposa Lily literally into Butterfly Lily.

The genus Tulipa in its natural distribution belongs exclusively to Europe and Asia. No California species of Chalochortus can properly, that is botanically, be called Butterfly Tulip. Nevertheless in popular language we have the usage Butterfly Tulip or Globe Tulip for certain of our native species. Consequently botanists may make record of these common names as being in use by the folk, since common names are determined by popular usage.]

It is a long time until pear thinning is due, according to A. Morley of Sacramento county. Two years ago there was a heavy setting, but a great many dropped about April 30, when they were as big as a man's thumb, and there was another heavy drop at the end of June.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

Saves Money in Handling Hay

The problem of quickly and economically handling loose or baled hay is easily solved by using this derrick. No modern farm should be without it. It can be moved from place to place as easily as a farm wagon. Can also be used for hoisting dirt, raising building materials or heavy loads of any description.

If You Write Us

we will explain in detail just how this derrick can save you time, labor and money.

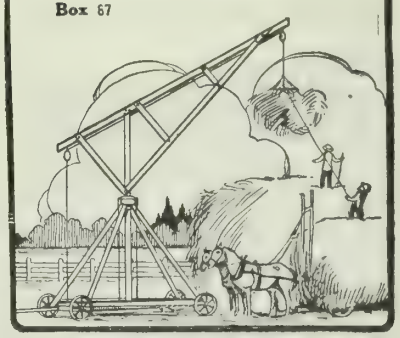
Write us NOW.

Piles up Hay and Piles up Profits.

Schmeiser Manufacturing Co.

Davis, California

Box 67



California Vegetables

In Garden and Field

By E. J. Wickson, A. M.

"California Vegetables" is handsomely printed, contains many cuts, has over 300 pages, and is bound in cloth. The contents cover every phase of vegetable growing, including farmers' gardens, California climate, vegetable soils, irrigation, drainage, cultivation, fertilization, protection, weeds, seed, growing, location and arrangement, planting season, propagation; also description and methods of handling all varieties of vegetables grown here.

PRICE, $2.00,
Postpaid Anywhere.

Pacific Rural Press
Publishers.

525 Market St., San Francisco

Test Oil Flashpoint Out-doors.

To the Editor: In the issue of March 20 you have an article on page 360 headed "Understanding Oil Sprays." Under the caption, "How to Find the Flash Point" is found the following:

"Set a small dish of the oil to be tested on the stove so it will heat slowly. Have enough oil to cover the bulb of a reliable thermometer. Be careful in testing gasoline or lighter oils, as their flash point is near that of summer air and they may explode if tested at too warm a temperature."

The writer is a reader of your paper, being interested in agricultural matters, but is also in the insurance business, and this method of finding the flash point of oil is one that is wrought with serious danger, both to the person and to the building in which it may be tried.

Some people consider a small dish of oil, that which might be a very large and dangerous quantity of an oil containing a great deal of gasoline. Further, enough oil to cover the bulb of a reliable thermometer might also mean a great deal of oil, provided the bulb was situated quite a distance from the end of the material to which the bulb was attached.

Realizing the great danger of this kind of an experiment, I wish for the sake of your readers that you would call attention to this and advise those endeavoring to find the flash point of oil to do so on a stove in the open and away from any inflammable material. It would be much safer to use indirect heat, thus avoiding the danger of the open flame. Frequently a kitchen is small and if the windows and doors should happen to be shut it would not take much gasoline vapor to form a very explosive mixture with the air in the room; and, on the other hand, if there was air enough to avoid an explosion, as gasoline gas is heavier than air it would immediately seek the fire in the stove on its way toward the ground, and would cause a flash fire which would more than likely injure the person and set fire to the building.

I certainly would not like to hear of any one in the country losing their home on account of their having unconsciously attempted a very hazardous thing in a building not equipped for such purposes.

John A. Faull, Inspector.

HEAT KILLS TREE ROOTS.

[Written for Pacific Rural Press.]

Richard Hunt of Sonoma county points out the fact that deep plowing forces all the big apple roots to grow deeply so that they are not injured by the severe heat of the summer sun which penetrates the top soil to some distance and kills the feeder roots about July and August. Where this heating of the soil is severe and roots have been allowed near the surface, it is noticed that the fruit stops growing and matures small and early, highly colored and lacking in flavor, and some of it drops prematurely. He figures that the roots do not commence to grow until about the first of May; that a large portion of them will grow near the surface while it is moist and then die when the surface dries out, just when they are needed most by the maturing apples.

CRUSH BORER EGGS ON BERRY TIPS.

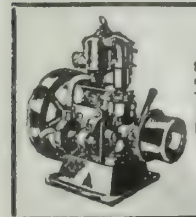
The raspberry cane borer lays its eggs on the tender growing tips at this season. If the eggs are pinched slightly, not enough to hurt the tips, but just to crush the eggs, it will save the withering of the tips which results when the eggs hatch and the borers enter them. Should any of the tips wither, the only thing to do is to cut off the canes at some distance below the withered part and kill the worm by burning or otherwise.

BUCKWHEAT SUMMER COVER.

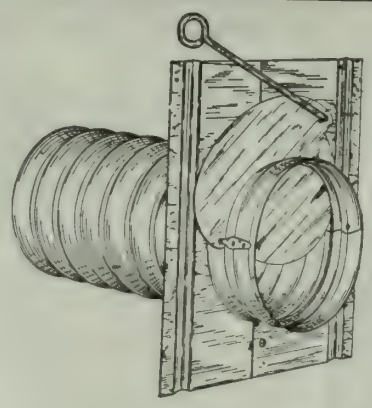
To the Editor: Is buckwheat a good summer cover crop for a five-year-old orange orchard to add humus to the soil? My idea is to let the crop mature, then disk it well and raise another crop, then disk that in; then perhaps follow with a winter cover crop. I have been told buckwheat is hard on the land. Is that true where none of the crop is removed from the orchard?—A. S. H., Lindsay.

[Buckwheat will add humus and won't hurt the land if not taken off and if the soil is not too light already. For working into sandy soil, it should not be too much matured. Whether two crops can be grown before time to sow the winter cover will have to be demonstrated.—Editors.]

Permanence
IN FARM STRUCTURES
is absolutely assured if you make them of
Concrete
Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for **Portland Cement Concrete.**
Your local dealer can tell you about them.
REMEMBER
That if you make it of
Portland Concrete Cement
The first cost is the last cost.


CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Light Weight.
Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

California Garden Flowers. $1.50 postpaid. Pacific Rural Press.


4-C
Irrigation
Gate
Reduces labor of irrigating.
Easy and quick to install or move to new locations.
Does not wash out.
Saves water and stops scalding of crops.
Can be removed, ditches cleaned with teams and gates replaced without loss.
DURABLE because made from **RUST RESISTING**
Armco Iron
Five other types of Gates:
Culverts, Siphons, Flumes, Stock and Water Troughs.
Write us.
California Corrugated Culvert Company
417 Leroy Street, Los Angeles. 406 Parker St., Berkeley.

FINEST
NURSERY STOCK
IN CALIFORNIA
20,000 Valencias, 20,000 Washington navels, 20,000 Eureka lemons, 2,000 seedless grapefruit. All selected buds on sour stock, grown on famous Lemon Heights—Tustin. Finest lot of thrifty, clean trees in California. Must be seen to be appreciated. Write for prices or telephone for appointment to see trees, to
TUSTIN PACKING CO.
TUSTIN, CALIFORNIA.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

GIANT WINTER RHUBARB
NOW BEST TIME TO PLANT.
Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.

California Garden Flowers

Trees, Shrubs and Vines

By E. J. Wickson, A. M.

The newest, most comprehensive book on California gardening. You need this book every day in your garden work. Every part of growing flowers is given attention and you will be richer and happier by having a copy at your elbow when you need it.

C. H. Shinn of Fresno county, in writing of "California Garden Flowers," says: "But Professor Wickson, toiling slowly, methodically, for a lifetime, has given us in "California Fruits," "California Vegetables," and other books to which list the present volume belongs, as safe, complete trustworthy a review of the entire field as is possible now and here. His name is written across our horticulture, and it is no small literary achievement for him to have done this with his many years of work at the university and as editor of the Pacific Rural Press."

The San Francisco Bulletin says: " 'California Garden Flowers' is the best book of its kind ever published. Prof. Wickson's book concerns flower-growing in this particular state, while the great majority of books are general in their scope and the information they contain is of little benefit to local readers. It is a thoroughly practical book for California gardeners, in which every phase of the subject is discussed in detail."

If you are particularly interested in bulb plants, or roses or lawns, soils, fertilizers, or if you have bacterial or insect troubles, "California Garden Flowers" will assist you. The book contains nearly 300 pages of closely printed text, besides numerous illustrations, is handsomely bound in cloth and will be sent postpaid for $1.50 per copy.

PACIFIC RURAL PRESS,
Publishers.
525 Market Street,
SAN FRANCISCO.

Off Grade Walnuts Eleven Cents.

[By J. G. Berneike Tustin.]

That check received some time ago of 11 cents per pound for off grade walnuts looked particularly good to members, especially when they remembered that some outside growers had sold their orchard run crop as low as 10 to 11 cents. To be sure those off grade nuts were really good. The buyer was not cheated. The percentage of off grade nuts the past season was quite small, and members of the association will find this year that not a single outsider fared as well as they themselves have fared. In years before it has happened that some few outsiders have received better prices than members, while of course the bulk of outsiders fared worse. There is not a single instance of an outsider this time who can truthfully boast that he got more for his walnuts than members of the association.

The payment on the outside on the basis of orchard run, and in the association on the basis of grades is a little confusing. But when by a little computation the member's receipts for his crops are converted to orchard run basis, it is seen that he received a better price for orchard run than did his neighbors on the outside. When this fact begins to sink a little more deeply into the cranium of outsiders there will be fewer outsiders at the beginning of the next walnut harvest.

The move of the California Walnut Growers' Association to dispense with the coast brokers has proved very successful to the extent of saving 3 per cent in selling expenses. This does away with the argument heretofore made by outside growers that the selling expense of the associations was too large; that the packers to whom they sold had a smaller selling expense, and consequently could pay the growers a better price than the association could pay. As an argument it seemed good, as a fact it amounted to nothing, because it was this very difference which the packer had to make for himself whether he sold the outside grower, or the association growers' nuts. He could not afford to do business just for his health. The California Walnut Growers' Association has eliminated him as an unnecessary and expensive cog in the selling machinery. The outside grower, however, must still use this cog and pay the price for its use, which the association has found to be 3 per cent of the selling price (or half of the former selling cost).

Can I make the matter plainer by making the statement this way? viz.: Out of every $100 worth of nuts (selling price) the association member now gets $97, whereas the outsider gets only $94, the difference of $3 going to the coast broker for the part he had in the deal.

If the outside grower does not like this he has no right to blame the packer to whom he sells. He has only himself to blame. It took some years of education for the directors of the Walnut Growers' Association to find out that the coast brokers were an unnecessary cog, an expensive luxury that might be dispensed with. And dire results were predicted when the step was taken. But we will never go back!

The California Walnut Growers' Association proposes to handle cull walnuts for the growers hereafter. It is well that this matter is coming to a head at last. For the past two years I have urged that the local associations take up this matter. It will be better, however, if it is handled by a central packing house for all associations because of economy in handling and selling, and the obtaining of a more uniform grade. Walnut culls the past season should have brought growers a good price but failed to do so. Of course, each grower's culls must stand on their merits, and no one may expect to get good money for trash.—Santa Ana Blade.

A spraying outfit for use on walnut aphis if they show up serious is all ready for the bugs in Mr. Marble's orchard. They were there all last season, but did not get bad, since they cannot stand hot, dry weather and a north wind more than three days. But if there are two or three weeks of warm, foggy weather, the aphids "multiply to beat the band." They hurt the walnut growers about as much as the blight, in Mr. Marble's estimation. He uses a tobacco spray or whale oil soap emulsion.

ATOMIC OR LIME-SULPHUR.

To the Editor: Will lime sulphur 15-30-200 accomplish as much as atomic sulphur, and will it be safe to use on the foliage?—H. R. B., Fulton.

[Such a diluted lime sulphur ought not to harm the foliage, but since its insect and fungus killing properties are due to the sulphur, all the chances are that atomic sulphur would be surely effective where such weak lime sulphur might not, and the atomic sulphur is safe.—Editors.]

DOESN'T SKIM CURING OLIVES.

[Written for Pacific Rural Press.]

To get the flavor of imported green olives in small Missions produced in California, which could not be sold or account of their small size last year, B. A. Goodwin of Ripon took about half of the bitterness out of them with lye and then packed them in tight barrels with only the bung hole open, and it on the top side. Weak salt water was poured over them until the barrel was full and small amounts of salt have been added gradually during the two months since. It was expected that three or four months in the brine would work out the bitter element and gives the olives the imported flavor. At the age of two months, they were already delightfully near the goal.

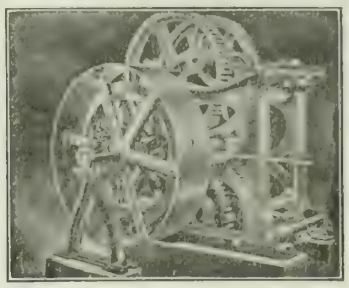
The theory of this practice was explained in our office some months ago by Mr. Wetmore, who had made special study of foreign methods of curing. He says it is a mistake to skim off the scum which rises when olives are being cured because this scum is analagous to mother of vinegar. It is the breeding place of bacteria which perform the fermentation which gives the vinegar or the olives the proper flavor.

Sacramento county asparagus rust is controlled by dusting with sulphur.

Sulphur applied in the summer has proved ineffective for brown mites on almonds and plums in Contra Costa county.

POMONA DEEP WELL PUMPS

For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.



Write for Catalogue 104, with valuable information on irrigation.

Pomona Mfg. Co.
Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.

Easy to own an Engine Now

Direct from Factory to User

2 H-P, $34.95
4 H-P, 69.75
6 H-P, 97.75
8 H-P, 139.65
12 H-P, 197.00
16 H-P, 308.80
22 H-P, 389.65
Portable Engines Proportionally Low.

WITTE Engines

Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Long-wearing, separable, semi-steel cylinders and 4-ring pistons; automobile ignition; spark shift; vertical valves; variable speed; and other merits without which no engine is now high-grade.

Liberal 5-Year Guaranty

Cash or Easy Terms. Why pay double price for any good engine, or take a poor one, for any price, when the WITTE costs so little and saves you all the risk?

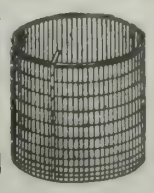
New Book Free. Tells you the "inside of engine selling as well as *manufacturing*. Get the facts whether you buy from me or not.

THIS BOOK FREE HOW TO JUDGE ENGINES

F. M. Witte, Witte Engine Works, 2868 Oakland Ave., Kansas City, Mo.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.

Orders Now Being Booked.
Write for prices and particulars.
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.



REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers,
Steel and Wood.
Prices the lowest.
BROWN & DYSON,
640 So. Center St., STOCKTON, CAL.

Fruit Thinning Necessary This Year.

(Continued from page 489.)

extra trouble in picking, and because individual fruits too ripe on one side and green on the other make poor quality product for any purpose.

This irregular ripening is due in many cases to crowding and lack of even circulation of air and sunlight around the fruit, and of sap within the fruit. A few half-ripened peaches in a lot of dried fruit knocks the price badly because they always dry into white chunks which are very noticeable, and also objectionable from the consumer's standpoint.

Crowding Breeds Disease.—Crowded fruits are more subject to disease which destroys their marketability, on account of decreased vigor to resist the spores and germs, as well as to the increased chances for lodgment of moisture which clings between them and furnishes a protected breeding ground for all diseases which may reach the fruit on dust or otherwise. There is also increased transmission of disease because the fruits are so close together.

Thin Before Stones Harden.—On account of the waste of energy, fruit should be thinned shortly before the stones begin to harden; but not much earlier on account of the chance for frost, heavy wind, disease, natural dropping of some varieties, and other unfavorable conditions which might reduce the crop after it had been sufficiently thinned by hand. Otto McClure of Stanislaus county thinned his 1170 four-year Tuscan clings and 700 Phillips last year too late, in his estimation, and will do this work about May 1 this spring.

Thins to Save Trees and Fruit.—M. J. Strahl, in charge of the Campin & Moffitt orchards at Ceres, expects to begin thinning late in April. His forty acres of four-year-old Blenheim and Tilton apricots were already beginning to harden their pits in early April and would have been thinned at three-quarters of an inch in long diameter if help had been available. This orchard contains also 40 acres of six-year Muirs, 40 of Lovells, 40 of Tuscans, 40 of Phillips, and 20 of Elbertas, the latter only three years old. Mr. Strahl thins his peaches with two ideals in mind: One is to prevent the fruit from breaking the limbs; the other is to permit proper development of individual fruits.

A general rule is to leave them three or four inches apart; but this is subject to modification, leaving more fruits on vigorous twigs where the fruits are located on the sides or underneath and where the twigs project on a level or hang down from their junctions. Peaches on top of the limbs are less likely to mature before falling, and limbs which project upwards and are heavily loaded, are most likely to break. This latter is especially true where the fruiting twig comes from the stub of another, rather than directly from a main limb. For this reason, Mr. Strahl does not believe in stubbing back the young growth in pruning, but simply thins it out if there is too much of it. A six-inch twig hanging downward from a main limb may mature three or four large peaches of first quality, but one projecting upward ought not to have more than one or two.

Take Off the Doubles.—Wherever double peaches are found they are thinned off if that leaves enough fruit properly spaced on the twig. "Double" means that two fruits have grown from one bud and are more or less united. Where they rest against each other the surface is always flattened. If a double peach is so located that it is needed to properly space the fruit on the twig, the least thrifty part is pulled off, and the other is likely to mature into good shape if the thinning is done early enough.

As a rule, all doubles should come off unless that would seriously reduce the possible fruit weight on the tree, for it is too expensive to "split" them. And unless one part of the "double" is much larger than the other, there is danger of loosening the one left so it will be scrubby anyway.

FARM TESTS OF VETCH.

[From Ventura Farm Bureau.]

A cover crop demonstration plot was seeded September 22, 1914, on the Hardison Ranch Company's place at Sespe. Black purple vetch, black bitter vetch, common vetch, barley, and rye were seeded according to the following plan:

Plot 1—Black bitter vetch; 80 lbs. per acre.

Plot 2—Black bitter vetch, 80 lbs.; barley, 40 lbs. per acre.

Plot 3—Black purple vetch, 50 lbs. per acre.

Plot 4—Black purple vetch, 40 lbs. rye.

Plot 5—Black purple vetch, 40 lbs.; barley, 40 lbs. per acre.

Plot 6—Common vetch, 50 lbs. per acre.

Plot 7—Common vetch, 40 lbs.; rye per acre.

Plot 8—Common vetch, 40 lbs.; barley, 40 lbs. per acre.

When planted the ground was in good shape, and a good stand was obtained in all cases.

At a Farm Bureau field meeting held on the Hardison Ranch March 16, 1915, the following data was obtained: Comparing all plots with the best plot it was found that the black bitter vetch did not make a satisfactory growth, was smothered by the barley and was injured by aphids. The common vetch made a fair growth, but was badly injured by aphids, and partly smothered by the barley. The black vetch made an excellent growth, climbed up well on the barley, was only slightly injured by the aphids, and in all seemed the most satisfactory. The rye made only a slight growth, and did not compare with the barley as a crop to plant with the vetch.

It was decided that 40 pounds of barley was more than is desirable to plant with the vetch, and that 25 pounds would be better.

The black purple vetch did better at Nordhoff than the common vetch and from the demonstrations conducted so far this plant appears to be the superior vetch to use in the county.

Rice is now being planted on five hundred acres of land in the Oakdale irrigation district.

BROWN BEETLE IN TWIGS.

To the Editor: A brown beetle ½ inch long and ⅛ inch wide, with a head half as long as his body, and with six legs, bores into the buds on the twigs of my four-year prune trees and works down inside the twigs.—N. B., San Martin.

[It is the Polycaon confertus, commonly called "olive twig borer," which works on many orchard trees and vines. Remove the branches below the burrows, or be sure the beetles are destroyed and the injury protected from the weather.—Editors.]

A meeting was held recently to perfect the organization of the Turlock Merchants and Growers' Corporation, an association organized for the co-operative marketing of the products of that section of Stanislaus county.

Notable Exhibits at the Exposition.

[Written for Pacific Rural Press.]

[The Panama-Pacific Exposition is too great for systematic description of its contents. It would require a hundred volumes of large size to present even condensed descriptions of all displays with detail enough to be interesting and intelligible. We shall, however, undertake to feature from time to time exhibits which seem to us worth record of character and contents, which may serve our readers as reminders of what they have seen, or assist them in conveying to others some adequate conception of particular features of exhibits which are clearly notable in style or material. We shall, of course, give most attention to exhibits which have agricultural relationship and significance.—Editors.]

Horticultural Display of C. C. Morse & Co.

Nearly everything in California begins with a plant. For fear our readers may think that we are playing on the words and intend to include mining plants, manufacturing plants, educational plants, etc., we state frankly that we intend to say that all the greatest things in California are based upon a growing plant—that is, a vegetative organism. As such plants are thus fundamental in California's leading industries, it is natural that our first glance at fair displays should include a feature of the seed, bulb and plant exposition which California horticulturists have created with great enterprise and expenditure.

Such an exhibit is that of C. C. Morse & Co. of San Francisco, consisting of both booth and garden. Their booth is situated on Avenue D at Fourth Street, in the Palace of Horticulture, and with the help of the architect, William Knowles of San Francisco, has been made one of the most attractive booths in the Exposition, and seems to be drawing a larger attendance than any other booth in the building.

The booth is so constructed that one-half of it is an attractive garden having plants in flower all the time. The other half shows the manner in which seeds are put in packets for the buying public. The floor is all brick, and a brick wall with garden gates separates the garden section from the working exhibit. In the garden section the furniture is all of handsome cement, as are the columns and counters surrounding the booth.

In the back there is a pool of water in which stands a pretty statue of Pan. Water lilies are growing in the pool, and water is spouted through the months of frogs. This is a very refreshing and cool corner for the tired visitor, and here they come to sit and rest, and admire the display of flowers.

In the center of the garden booth on a large bench of brick are displayed the plants in flower. They are changed every week from stock specially grown at Hayward. The supply of this garden means the growing of many thousand pots and pans of flowers, and special frames had to be erected for their care.

The season commenced with bulbs, and the results have been notably fine.

About five hundred different varieties of annuals are growing to keep this booth supplied. There will also be included fine specimen vegetables, roses, dahlias, etc. The lettuce exhibit will include some eighty-five varieties. During sweet pea season all the newest varieties will be displayed.

The garden booth is artistically decorated with hanging baskets, palms, and vines. This exhibit, in conjunction with the garden outside, will prove to be an education to those interested in having a good garden.

In the working section of the booth there is a bag-filling machine at work putting up packets of seed. This machine is almost human in its working. It takes the packet, opens it, fills it with seed, puts the glue on the flap and closes it, then deposits it in a receiving box, besides counting the number of packets filled.

There is also demonstrated the manner in which seeds like peas and beans are put in cardboard cartons and pasted. By means of a patent paster the operation is very quickly performed.

In the front of the booth are two handsome concrete tables on which are souvenir packets of California poppy, which are presented free to visitors. This poppy packet was specially made and lithographed in natural colors, and the packet is filled with specially selected poppy seed. Morse's stock was developed from the largest and richest colored poppy they could find in Alameda county. They selected one plant several years ago and from this one plant had half an acre of wonderful poppies last year, the seed of which is placed in the visitors' souvenir packets.

The Open Air Display. — Morse's exhibit garden, situated behind the southeast corner of the Palace of Horticulture, has been the delight of all who have seen it. First came hyacinths and daffodils and the grand Darwin tulips. The hyacinth beds were wonderful, and the size of the daffodils was freely commented upon. It did not seem possible that the waste and ugly piece of land which looked so repellant only eight months ago, could be made to produce such quality.

This garden is laid out in medium sized beds of varying shapes and sizes and the lawn paths so arranged that several beds can be seen in one view. Among the bulbs were some rare daffodils in flower, costing $5.00 and $6.00 for one bulb, and naturally these attracted much attention.

Immediately the spring flowers are over, the garden will be transformed into a summer garden, full of the wonderful annuals, biennials and perennials which are not seen very often in local gardens. The summer garden will be followed by a fall garden, and then the winter garden.

One great feature of the garden will be the sweet peas. They will be grown on the new Cordon system and are expected to produce enormous blossoms. This is believed to be the first time this system has been seen in California.

Visitors to the garden during the summer will be amazed at the variety and quality of the exhibit. The results obtained are, under the circumstances, extraordinary, but it is within the power of every one possessing a garden to produce similar results from good seeds and intelligent culture.

It has been the endeavor of Morse & Co. to have their exhibits in keeping with the high quality of the Exposition in general. Beautiful and attractive to the eye, without being glaring, and complete attention given to detail. The exhibit can also be surely classed with the many hundreds of educational features of the great Exposition.

ROSE MILDEW.

To the Editor: A disease has lately come on my rose bushes. The leaves curl up and are all white. Please tell me a remedy.—M. S. J., Yettem, California.

[The trouble is rose mildew: a fungus to which some roses are very susceptible and others resistant. Some amateurs get around the disease by growing only those which are resistant in their localities as determined by experience. The best remedy and preventive is sulphur dusted on the foliage, but it is not effective in all cases.—Editors.]

The Agency of a United People

A striking comparison between a homogeneous country and a heterogeneous group of countries is obtained by placing over the map of the United States the map of Europe. These represent the same area—about 3,000,000 square miles—if a few of the remote provinces of Russia are omitted.

Europe has the advantage in population, with more than four times as many people as the United States; in the number of large cities, with two and a half times as many cities of over 100,000 population.

Yet the United States, a comparatively young country, has outstripped Europe in the diffusion of civilization, because of its wonderfully greater means of communication between all parts of its area. The United States not only excels in transportation facilities, but it has nearly three times as many telephones as Europe, or about eleven times as many in relation to population.

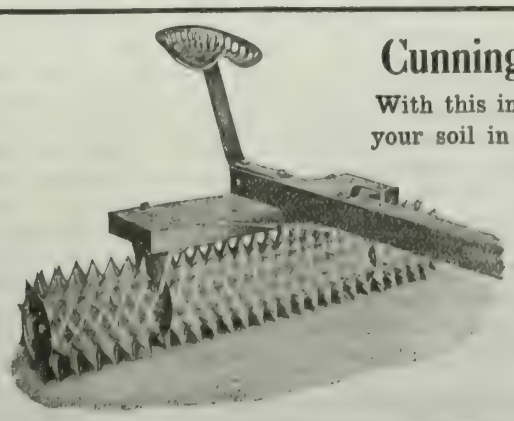
By the completion of the Transcontinental Line we now talk from one end of this country to the other, while in Europe the longest conversation is no farther than from New York to Atlanta, and even that depends on the imperfect co-operation of unrelated systems.

Europe, with twenty-five countries and many different languages, serves as an illuminating contrast to the United States, with one language and a homogeneous people, despite the fact that our population has been derived from all parts of the world.

During the last forty years the steadily extending lines of the Bell System have contributed in no small measure to this amalgamating of different races. The latest achievement—the linking of coast to coast—has given greater force to the national motto, "E Pluribus Unum."

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Servi*



Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

Sweet Potatoes on Sand.

[Written for Pacific Rural Press.]

"You can make money with sweet potatoes on soil that is too sandy to raise almost any other crop," said George Oertly of Orange county, Cal., who was "furrowing" his acre of the vines for irrigation late in July on what seemed pure sand. "This is the third season we have raised sweet potatoes on this ground, and the new tubers were beginning to form a week ago. Last year we sold the early ones at 2½ cents a pound. The price fell later to one cent a pound, and there is good money in it at that."

"About April 15, a month before the frost would let us transplant the vines, we make our hotbeds, six feet wide, thirty feet long, dug a foot deep. Six inches of hot horse manure goes into the bottom of this, and then two inches of dirt on which we lay the potatoes close together and cover them with two inches more of dirt. If the plants "shoot" too early before frosty weather is over, throw on some more dirt. That will keep them back.

"Transplant them as soon as it is safe, for the earliest are the best priced. They will be four inches high in an ordinary season here. I put mine out this year about June 1.

"The ground was plowed, leveled, and two furrows were thrown together every four or five feet to make ridges on which to set the plants. These ridges were leveled off with a plank drag to a foot wide on top. "We pulled the healthy strong plants from the hotbed at once, holding and leaving the potatoes in place so they would send out new sprouts. The plants don't need trimming unless the runners are exceptionally long. One of us dropped them a foot or eighteen inches apart and the other set them with a dibble. Some people use regular sweet potato planters, but more in this country set them by hand, using no water.

"As soon as we finished planting, we ditched the field, irrigated it, and cultivated with a shovel cultivator.

"The vines should never be allowed to wilt; it sets them back. Give them plenty of water; getting them wet doesn't hurt. In a wet climate this might bring on blight, but we are not bothered here. The roots go deep; make the ditches deep so the moisture will get to them quickly. Give it to them every week or ten days, and a little oftener when they begin to set tubers and until the vines cover the ground so they hinder evaporation.

"Give them another cultivation late in June or sooner if weeds bother; and then about the middle of July furrow out the rows with a "bull-tongue" like I'm using. From this time to digging about the middle of September, there will be nothing to do but alternate furrowing and irrigation. Drop the furrowing when the bull-tongue tears the vines. (The "bull-tongue" is handled like a plow. It has a steel nose about nine inches wide and steel wings flaring to 16 inches apart at the rear.)

"About the middle of September we turn the potatoes out with a regular plow running 14 inches deep to get under all the tubers, and then we pick them out by hand. There are sweet potato diggers, but we don't use them. We can't use the ordinary potato digger on account of the vines and because it is likely to bruise the tubers.

"Sweet potatoes are most marketable if they are one to 1½ inches in diameter and six to twelve inches long. A small per cent are larger, and they do not take so well. The few small ones are fed to cattle.

"Those sold at once are put in 100-pound sacks. Those we wish to hold a while are packed in layers alternating with dry straw or sand where they will not freeze. No sweet potato should lie on top of another, but they may touch sides, and will keep all winter, even into March."

COMMUNITY AGAINST GOPHERS.

To the Editor: Your favor of Apr. 2 inquiring as to the approximate amount of damage done by gophers and ground squirrels to growing crops in this section, received; and from personal observation, do not hesitate to say, that between the two pests they destroy 25 to 33⅓ per cent of the crops. I have known whole fields of alfalfa where there was a fine stand to be almost totally ruined in two years' time. Trapping and drowning are too slow; there should be some better and more effective way of getting rid of them. Unless everybody joins in a war of extermination, it is almost useless for a few to attempt to get rid of them, when a neighbor furnishes the pest with a breeding ground on his ranch. Hope you can devise some effective means for ridding our fair State of two of the worst evils to agriculture that we have to contend with. Frederick Brand.

Los Molinos.

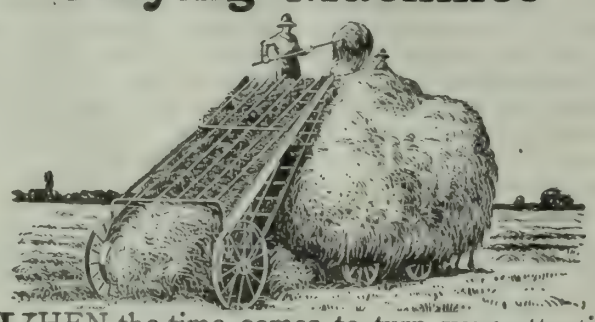
[You touch a most important phase of the gopher problem when you say, "Unless everybody joins in a war of extermination, it is almost useless, etc." Swifter ways of ridding a community of this pest than by trapping or drowning were described in Pacific Rural Press May 2, 1914. By making it a community proposition to buy machines and supplies in large quantities, greatest economy and efficiency would be effected.—Editors.]

OILED PAPER FOR STINK BUGS.

To the Editor: Can you give a remedy for the "stink bug" which attacks squash and pumpkins? The bugs stay on the pumpkins and squash vines which shortly wither and decay.—A. C., Live Oak.

[Aside from the prescriptions already printed in Pacific Rural Press, you might adapt the methods used by Imperial Valley cantaloupe growers to protect early plants from frost. Make arches of baling wire big enough so that by the time a paper laid over the arch would be in the way of the growing vines, the vines would be big enough to escape damage. Put such an arch over each hill and cover it with a square of thin tough wrapping paper which you will have dipped into high grade distillate or heavy kerosene. Lay the paper cornerwise on the arch and fasten the corners down with dirt. It will allow light to pass through and will keep off any migrating bugs.—Editors.]

International Harvester Haying Machines



WHEN the time comes to turn your attention and your energies to the hay harvest for this year you will have to take the weather and the hay crop as you find them—but on you and your methods and machines will depend the amount and quality of the hay you get into barn and stack.

As to hay machines, many years of trying out in many fields have proved that you cannot do better than make your choice from the International Harvester lines.

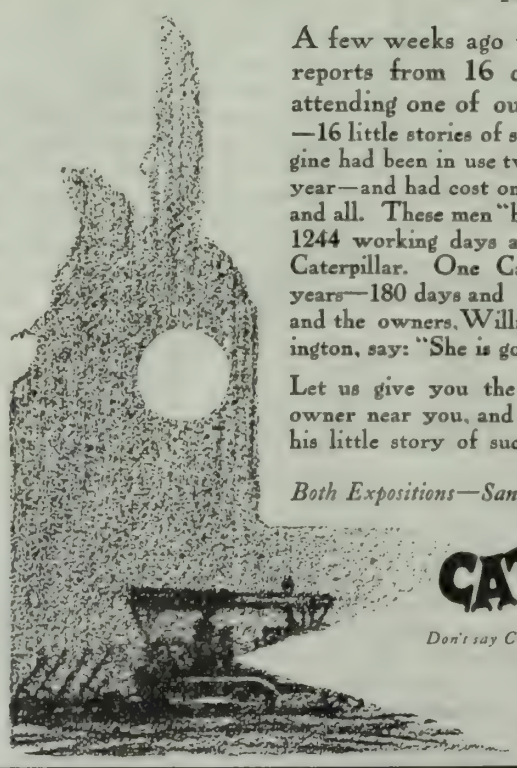
International Harvester haying tools are carried in stock or sold by local dealers who can take care of you quickly in case of accident. It is their business to see that you are satisfied with the International Harvester haying machines and tools you buy from them. You cannot go wrong if you buy only haying tools with the I H C trademark.

Write us, and we will give you the name of the nearest dealer handling International Harvester haying tools, and we will send you catalogues on the machines in which you may be interested.

International Harvester Company of America
(INCORPORATED)
Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

Little Stories of Success

No. 6



A few weeks ago we got signed upkeep reports from 16 owners and operators attending one of our Caterpillar schools —16 little stories of success. The average engine had been in use two years—190 days each year—and had cost only $155 in extras, track and all. These men "behind the engine" figured 1244 working days as the life of the average Caterpillar. One Caterpillar had run five years—180 days and 150 nights each year—and the owners, Williamson Bros., of Farmington, say: "She is good for a lifetime."

Let us give you the name of a Caterpillar owner near you, and let him tell you direct his little story of success.

Both Expositions—San Francisco and San Diego

CATERPILLAR
Reg U S Pat Off
Don't say Caterpillar unless you mean Holt

The Holt Mfg. Co.
(Incorporated)
Stockton Los Angeles

No Matter What Crop You Grow
YOUR SOIL MUST BE RIGHT ALWAYS
California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is
Finely Ground High Grade
Shield Brand
Phosphate Rock
The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

Farms 1500 Acres of Lima Beans.

[Written for Pacific Rural Press.]

"Some fields in this section have raised lima beans continuously for the whole fourteen or fifteen years I have been farming here. Beans help the land. We have never fertilized except with what manure is produced on the place, but if we plant beets before beans we get about half a crop. The average yield on our 1500 acres of lima beans is about twenty sacks. There is a good market for them, too. They are selling now (March 11) at $5.50 per cwt. They are the nicest thing you can eat when shelled green and they are good to can, although there is no cannery here. We bale the straw and feed it to the cattle. It is worth $5 that way when alfalfa is worth $8 or $9." Thus spoke Jas. Gill of Oxnard.

Weeds are not bad, according to Mr. Gill, because the beans soon cover the ground, and there is no trouble with weevils either. The beans grow on all kinds of soil, but do better on medium heavy. A light soil is better than very heavy. If there is sixteen inches of rain, they do not irrigate.

Mr. Gill plows with a caterpillar gang plow eight inches deep during the winter. Then in March or April, he "chisels it up" with disks, and plants the beans about the first of May four to six inches apart in rows thirty to thirty-six inches apart. When the plants show two leaves, they are cultivated, using shields on the cultivator. After two or three weeks, fifteen or twenty men hoe out the weeds between the plants, though there are not many of them because the cultivator gets most. A week after the hoeing, the beans are cultivated again and a week after that, they are hoed for the final time.

The vines are cut late in August with a three-horse sled which has long knives sloping at an angle from each side of each runner of the sled so that they cut off the plants just below the ground and lay them in winrows. About four men follow each sled and pile three winrows together in small piles in which the vines and beans lie for two or three weeks. The knives must be sharpened about every two days.

After the vines have cured in piles, they are threshed in a machine which resembles a grain thresher, but has three cylinders. The fog which covers the country every morning until 10 a. m. prevents threshing early in the morning. If the vines are much wet they clog the machine, which is built locally especially for this crop.

The beans are sacked at the machine and piled in the field, to be hauled away at the earliest convenient time with a caterpillar which takes 600 sacks per load, as recently mentioned in the Mechanical Power Department of the Pacific Rural Press.

Ventura county Horticultural Commissioner A. A. Brock made a census of the bean crop last year in this county and found a production of 1,200,000 80-pound bags from 67,000 acres.

FETERITA A GOOD DRY LAND CROP.

[Written for Pacific Rural Press.]

In line with the great interest that is being taken in the new forage crop, feterita, by farmers and stockmen in all parts of the State, it is of interest to recite the experience of Mr. T. B. Owen, manager of the Labranza Ranch in Merced county, who raised a large acreage of this sorghum last year for silage purposes, and who expects to plant several hundred acres again this spring.

The soil on this ranch is a heavy loam, a part of it being irrigable, the balance being dry farmed. The feterita which was planted last year was sown in the early part of May, after all danger of frost was over and the soil had warmed up nicely. The seed was planted 16 to 18 inches apart, from one to two seeds being planted in a hill. The rows were three and a half to four feet wide, allowing sufficient room for liberal cultivation.

No water was used in irrigating the feterita, three cultivations being all that was required to maintain sufficient moisture for continual growth of the plants.

A part of the crop was siloed, the grain being allowed to harden before siloing, as it is the belief of Mr. Owen that the reason of so much complaint against sorghum silage is due to the siloing of the crop before it has fully matured. That portion of the crop which was not siloed was used as a pasture for beef cattle, which, to quote Mr. Owen, "licked up everything in sight," eating the grain and foliage alike, down to the ground. This, so thinks Mr. Owen, is a great advantage for the dry farmer with livestock, as he manures his ground in the fall of the year when it does the most good, harvests his crop at a profit, and by disking his land after the cattle are taken out it is ready for winter wheat planting.

While the different varieties of sorghum crops have been tried out on this ranch it is the belief of the manager that feterita is the best dry climate crop, as it has yielded more grain to the acre than either white kafir or milo maize, where moisture was hard to retain during the summer growing months.

Instead of siloing the crop this year with the heads on, it is the intention to first harvest the grain and then silo the stalks. Only part of the crop will be disposed of this way, the balance being pastured off by beef cattle, for which the ranch was primarily designed.

SORGHUM IN ALKALI RECLAMATION.

To the Editor: Dr. Hilgard mentions sorghum as an excellent grain in reclaiming alkali lands, as it stands copious irrigation. To what sorghum does he refer? Milo Maize, Egyptian corn, Feterita etc., are all recommended, "especially for use in non-irrigated sections".—W. W. M., Dixon.

[Professor Hilgard probably refered to Egyptian and Kaffir corn for they were chiefly used at the time of his experiments. But be sure and note that he did not commend sorghum for alkali but for its ability to make use of lots of water put on to wash out alkali. Sorghums do not like alkali but take kindly to a place after the alkali has gone. The newer sorghums are commended for drouth but not for drouth and alkali.—Editors.]

Make Your Farm Make More Money

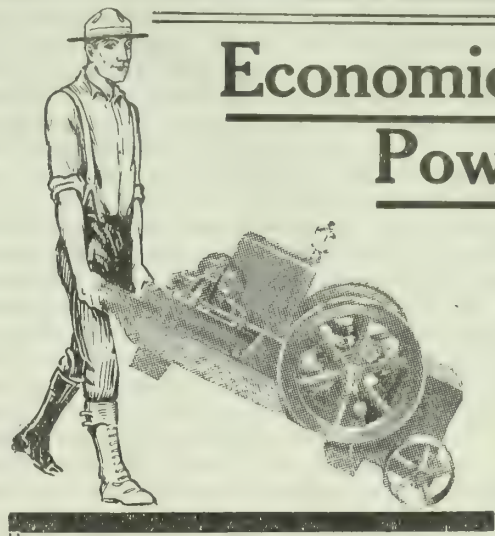
Western Simplified Farm Record

You can make more money off your farm by using this simplest, easiest and most satisfactory of farm accounts ever devised.

It's the Record that is Making Hundreds of Farmers Independent

It lets you know just what money you are making—tells you at a glance just where you are losing money—shows you the leaks—just where your money is going. It places your farm on the same sound basis the successful city business houses are. IT IS SO SIMPLE A CHILD CAN KEEP IT. It is endorsed and recommended by all Bankers and Farm Experts—Banks make quicker and more liberal loans to farmers who use it. Send for full information about this simple system today. It contains six years' records substantially bound—500 records sold around Stockton in 90 days to 500 satisfied users. Costs only 10c a month to systematize your farm business. Every day you are without this money-saving system it is costing you many times its cost. Use it one whole year—if you are not satisfied we will return your money. Written guarantee to that effect. Don't delay. Write today for sample sheet. State and County Territory open to a few reputable, wide-awake men.

WESTERN FARM RECORD CO.
322 Humboldt Bank Bldg. San Francisco, Cal.



Economical Power for You

Mr. Farmer—

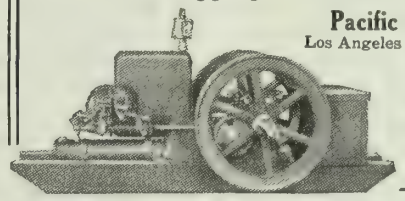
No longer is it necessary for you to pay out most of your profits for hired labor. You can get all the **power** you need for practically every kind of agricultural work from these **simple** little engines—and move them around—and operate them **yourself**. Each one will do the work of at least three hired men and **save** you the cost of their wages. About 2,000,000 "internal combustion" engines are now in daily use upon American farms. The

FULLER & JOHNSON
Type "N" Gasoline Engine

combines all the good points of high-price engines (up-to-the-minute design, finest materials and unusually high-class workmanship) into a strong, light, durable engine of **moderate price.** There is no need of paying more for an engine than the price of a **Fuller & Johnson.**

For operating an alfalfa or ensilage cutter, cream separator, pump (for household and irrigation purposes) electric dynamo, churn, washing machine, wood-saw, etc., the smaller sizes of the **Fuller & Johnson Type "N" Engine** are ideal. You can also get it in portable sizes up to 15 horse power which will run a threshing machine.

If you want to reduce your "high cost of labor" or increase your profits, don't fail to write for our illustrated catalog giving full details by return mail. Use this coupon to save time.



Pacific Hardware & Steel Co. Pacific Coast Distributers
Los Angeles 700 Seventh St., San Francisco, Cal. Portland

Send me full information about **Fuller & Johnson Type "N" Engine**, at once.

Name .....

Address .....

SALT LAKE ROUTE

YOU WILL LIKE THIS WAY GOING EAST

For the service is excellent and the scenic attractions are very pleasing—through Nevada and the Rocky Mountain country. Our fast trains, the Los Angeles Limited and the Pacific Limited, run every day in less than three days to Chicago, over the Union Pacific Ry. with through Standard and Tourist sleepers and dining cars; also through sleepers to Denver, St. Paul, Butte and Kansas City.

The Overland Express, daily, has a through tourist sleeper to Chicago over the Denver and Rio Grande and Burlington Route, stopping at dining stations for meals.

Your certainly will be pleased if you go East over the

SALT LAKE ROUTE

Full particulars at all of our ticket offices.

SAN FRANCISCO OFFICE is at 643 MARKET STREET.
LOS ANGELES at 601 SO. SPRING ST.

NOTE—Eastern Excursions commence June 14th. Low fares for the round trip.

Agricultural Review.

BELATED CROP REPORTS.

Contra Costa.—Almonds are reported fair; apricots, good; peaches, fair; grain, with half the usual acreage planted, fair; and hay, fair, with the acreage equally divided between wheat and barley.

Tehama.—Almonds are reported as 100 per cent of a crop; apricots, 50 per cent; peaches, 100 per cent; pears, 25 per cent; plums, 25 per cent; prunes, 100 per cent; olives, 150 per cent; oranges, 100 per cent; alfalfa. 100 per cent; grain hay, 50 per cent; wheat, 100 per cent; and barley, 100 per cent.

San Luis Obispo. — Almonds are reported as 75 per cent of a crop; apples, 80 per cent; apricots, 85 per cent; plums, 75 per cent; prunes, 75 per cent; alfalfa 60 per cent, grain hay, 75 per cent; wheat, 50 per cent; and barley, 50 per cent. Natural grass is good; on account of the shortage of late rain, grain is backward and not in good condition for summer crop.

BARLEY HOLD-OVER AND GRAIN CONDITIONS.

The carry-over of the California barley crop is estimated annually about June 1 when the new grain is ready to be harvested. Last June 53,000 tons of 1913 barley were carried over. John Cook of Moore, Ferguson & Company gives us the estimate that unless new, unforeseen business develops, the carry-over this year will be 100,000 tons.

Nearly a complete cargo of barley has been sold from San Francisco to be shipped to Australia, but a scarcity of ships gives the ones that are running a chance to make exceedingly high rates, 75 shillings per ton, and this nearly prohibits shipment, especially at present prices. Australia needs barley badly and can hardly get it more advantageously elsewhere; so that it may be hoped that more or less of the estimated 100,000 tons will have been shipped thither in spite of the high rates. Europe also needs our barley badly, but boats are lacking to carry it. Very little of the barley is still in the farmers' hands.

A cargo of alfalfa and also a cargo of oats have been shipped to Australia. The amount of wheat previously raised in California is nominal and the State has to import a large percentage of what is milled here. Last winter the confidence in wheat prices led to the planting of a greater acreage of wheat than has been put out in California for a number of years. But much of it had to be sown in winter on account of the lack of summer fallowed land. The increased acreage of wheat and the bad weather at seed-bed preparing time have combined to decrease the barley acreage very largely this year.

CITRUS AND SEMI-TROPICAL.

W. J. Latchford of Los Angeles recently purchased sixteen acres of four-year-old lemon trees belonging to I. H. Mann of San Fernando.

Placentia, Orange county, is rapidly winning fame by its grapefruit of unusual size and weight, exhibits of which are to be found at the Panama-Pacific Exposition.

A large and well-equipped packing house will shortly be erected by the Olive Heights Citrus Association at Olive. It is estimated that it will cost the association about $13,000. Fully one hundred cars of Valencias will be handled by the Association this year, who plan to brand all its goods this season with the words, "Famous Orange County Valencias."

The San Fernando Fruit Growers' Association packing house is sending out an average of about three cars of fruit daily, equally divided between oranges and lemons at the present time, though the total season's shipments of oranges will outnumber those of lemons. Most of the association's fruit goes to the Boston markets.

At a recent meeting of the Porterville Citrus Association resolutions were adopted setting forth the serious conditions confronting the citrus industry, and calling the attention of the California Fruit Growers' Exchange to these problems, with the request that an effort be made to inaugurate some plan by which the consumer and the producer may be brought close together and the enormous profits of the middlemen eliminated. They further requested that a meeting of representatives of all sub-exchanges and associations be called to consider the matters mentioned above and take definite action in regard to them.

GRAPES AND SMALL FRUITS.

The old slogan, "California Raisin Day, April 30. Eat California Raisins," will be changed this year to "Fresno Invites the World to the Mammoth Raisin Day Pageant, Raisin Day, April 30."

Prof. Bioletti of the Viticultural Department of the University of California recently held at Dinuba the third of a series of lectures on vine-growing, followed by a demonstration on one of the vineyards near town.

The Louisiana strawberry crop has been severely damaged by frost this year, three-fourths of the crop having been destroyed. Last season this district shipped over 1,300 carloads of berries and had it not been for the damage mentioned it is estimated that 2,000 carloads would have been shipped this year.

OLIVES AND NUTS.

Five acres of land south of Porterville is to be set out to olives by C. B. Hunt.

In the last twelve months 103 acres have been set out to walnuts at Arvin, Kern county.

A shipment of 50,000 olive trees recently arrived in Yuba county from a Southern California nursery to be planted at the new nursery being established at Mission.

DECIDUOUS FRUITS.

The first full box of cherries was shipped to San Francisco from Sacramento by W. J. Smith and reached here on April 15th. It was sold at auction for $17.50, and the proceeds turned over to charity, at the request of the consignor.

The Durst ranch at Wheatland, recently purchased by San Francisco and Oakland capitalists is to be cut up into small tracts and placed on the market. This ranch comprises some of the richest land in Yuba county, and the purchase price is said to have been $750,000. One hundred and twenty acres will be planted to pears and prunes, and one hundred acres to olives.

GRAIN AND FIELD CROPS.

With the acreage a third larger than last year, a heavy yield of upland onions is expected in the Lodi district.

Lima Bean Day will be celebrated some time in November at the Panama-Pacific Exposition, according to Robert Newton Lynch of the California Development Board.

About four carloads of asparagus daily are leaving Antioch for Eastern markets. Growers are experiencing no difficulty in disposing of their crop this season at a fancy price.

Over one thousand acres of beans will be planted in the southeastern section of the Oakdale irrigation district. The varieties will be pink, Mexican red, small white, blackeye, and Tepary.

The Dixon Milling Company recently purchased the Orland alfalfa meal mill which has been idle for a year or so. The plant will reopen with a capacity of thirty-five tons a day as soon as remodeling is completed.

September 7th will be San Joaquin Valley Counties' Association Day at the Fair; Sweet Potato Day will also be celebrated; and as Merced county raises half of the sweet potatoes raised west of the Rocky Mountains the growers there will take an active part in the celebration.

Receipts of hay in San Francisco, according to Scott, Magner & Miller, for the past week were 3471 tons as against 2606 tons the preceding week. There is little change to be noted in the market. The first crop of alfalfa is being harvested in some sections and the crop is reported in good condition and from present outlook will be quite heavy. New crop of alfalfa is already arriving in the Los Angeles and San Diego markets from the Imperial Valley sections.

A huge rice-growing project is under way in Yolo county, one of the largest rice growers in the Biggs District having definitely concluded to lease 5000 acres near Knights Landing. Preparations for planting will commence shortly, as the owners wish to harvest the first crop this season.

Two new rice growing ventures are about to be undertaken: Near Esparto, Yolo cunty, E. S. Robinson, rice grower of Glenn county, will seed four hundred acres, and the Sacramento Valley Sugar Company are preparing sixty acres for rice planting in Sacramento county.

Sonoma county hop growers met recently to help forward the organization of the California Hop Growers' Association. Forty-four Sonoma county growers with an acreage of 1804 have already joined the Association, which is to be conducted

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK, Dept. B.
731 Market St, San Francisco, Cal.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

TRADE MARK REG'D DEC. 6, 1898 NO. 32242

PURE CULTURE

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

Gold Medal St. Louis 1904

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" – the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

See your seed dealer or write for FREE BOOKLET.

Armour Fertilizer Works, Dept. 137, 803 Central Bldg., Los Angeles 1019 Front Street, Sacramento

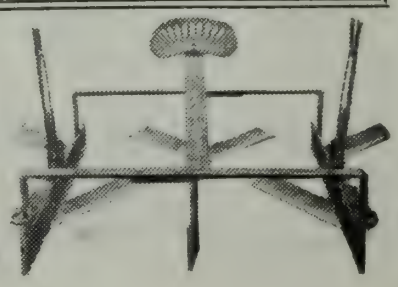
GOLDEN GATE WEED CUTTER AND MULCHER

Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.

See them at the Exposition, Block 1, Agricultural Palace.

Write for Circular.

C. G. SIGURD,
CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



along the line of the Raisin association.

MISCELLANEOUS.

Health in man often depends on health in beast.

It is reported that the cattle in the vicinity of Santa Ysabel, San Diego county, are seriously infested with ear ticks. Although no loss of cattle has occurred so far, the trouble is causing great annoyance.

The sum of $45,000 is to be expended by the San Joaquin Valley Counties' Association in advertising the great central valley in an endeavor to attract Exposition visitors to that section.

Great progress is reported from the Manteca Co-operative Creamery. It started less than a year ago with an output of 350 pounds a day and now the daily average is 1000 pounds and some days as high as 1200.

Portland Union Stock Yards' receipts for the week ending April 15 are: Cattle, 1688; Hogs, 1172; and Sheep, 3340. Steers sold at $7.50 to $7.75; a few good loads of hogs touched $7.65; and choice lambs went at $8.75 to $9.25.

A farm adviser will be appointed in Stanislaus county on July 1, everything being in readiness for his appointment. The tax appropriation of $2000 by the Board of Supervisors is at hand; and at least 700 more farmers are enrolled than the 20 per cent required.

Forest officers and government hunters and trappers on the National Forests destroyed during the year ending June 30, 1914, 4,135 predatory animals. These animals prey on live stock and cause the live stock interest of the United States an annual loss of $15,000,000.

The American Jersey Cattle Club have issued their list of special premiums to be awarded at the Panama-Pacific International Exposition. Special mention is made of silver trophies to be awarded to the Grand Champion Cow and the Grand Champion Bull. These trophies are valued at $200 each and are replicas of the famous Warwick Vase.

The Senate passed the bill introduced by Senator Rush providing that the 1915 State Fair premium appropriation fund of $20,000 be used for the exploitation of California products at the Panama-Pacific Exposition. An amendment to the law which states that the State Fair must be held each year at Sacramento was introduced which provides that in any year during which an international exposition is held in the State, and the State Board of Agriculture deems it unwise to hold a State Fair, the funds for that year only will be turned over to the management of the exposition for use in exploiting California products at the exposition.

California fresh fruits are very largely sold at auction in more than a dozen of the large eastern cities, and the f. o. b. prices of the rest of our fresh fruit are based on what is realized at the auction sales. It would be of interest to note that representatives of fourteen of the auction houses located in Boston, Philadelphia, Buffalo, Pittsburg, Cleveland, Cincinnati, Detroit, New York, New Orleans, and Kansas City met in New York on March 26 and formed the American Fruit and Produce Auction Association. Its object is to work out economies; and to educate sellers of fruits and produce to the advantage of selling at public auction.

J. M. Jensen, butter maker of the Visalia Co-operative Creamery, was awarded the grade A certificate by the Dairy Industry Division of the University of California for possessing the highest average score in butter during 1914.

An agent representing several Belgian families was in San Joaquin county recently looking over the territory there. About fifty Belgian families are interested in the project, who have sufficient competence set aside to make the first payment on the land.

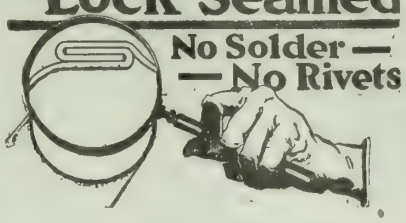
The Ayrshire Breeders' Association of Brandon, Vt., have recently published the first edition of the "Ayrshire Quarterly," an attractive little book covering the Ayrshire interests. It is their intention to issue it four times a year as the official publication of the Ayrshire Breeders' Association.

The Porterville Alfalfa Farms, owning 3220 acres in the Tipton district, have recently had a change in ownership and management. Arrangements are now being made to add materially to the equipment of the Farms. From 150 to 200 cows will be selected, and it is planned to dispose of the butter fat to the creameries.

Mr. G. O. Hillier, sales manager for the second annual consignment sale of purebred Jerseys to be held at Modesto, May 4, is busily engaged sending out the sale's catalogs. Eighty head of Jerseys and thirty-four head of registered Poland-China hogs are included in the catalog, which gives the pedigrees of all animals offered. Mr. Hillier states that a great deal of interest is being taken in the sale and that he has secured the Auditorium at Modesto, as a sales pavilion, to more easily accommodate the visitors from outside districts. Mr. B. A. Rhoades of Los Angeles is to cry the sale, he having acted in that capacity at most of the purebred sales held in the State during the past four years. The consignors of stock are: David Larson, Dr. L. J. Belknap, F. B. Wulff, C. N. Odell, Dr. S. Z. Peoples, Dudley Wall, Mrs. N. Nelander, Miss Lydia Larson, W. Fisk, R. C. Edminister, and G. O. Hillier.

Constant vigilance is necessary to keep a herd of dairy cows free from tuberculosis.

Lock Seamed



Simple construction is NECESSARY in irrigation pipe. Simplicity means strength.

Ames - Irvin Irrigation Pipe

is constructed without solder or rivets. Nothing but the sheet of metal itself is used. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Special machinery does the work.

When finished the seam is simple, solid and strong. There are no rivet holes on the steel—it can't leak. Ames-Irvin - lock - seamed irrigation pipe won first prizes against all competitors at the Sacramento State Fair in 1913 and at the Fresno and San Jose county fairs in 1912.

SEND FOR BOOKLET.

It tells all about irrigation pipe and its construction. After reading it your judgment will tell you which to buy. Get it—today.

Ames-Irvin Company
8th and Irwin Sts., San Francisco

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
524 California St., San Francisco, Cal.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO — Blake, Moffitt & Towne, Los Angeles — Blake, McFall & Co., Portland, Oregon

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres

of Good Land Along the

Western Pacific Railway

IN CALIFORNIA, NEVADA and UTAH

Opportunities for The Man of Modest Means As Well as the Capitalist

EVERY SECTION HOLDS OUT A WELCOME

Write for Copies of Our "Opportunities" and "Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.

THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

STATEMENT OF THE OWNERSHIP MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF AUGUST 24 1912,

of Pacific Rural Press, published weekly, at San Francisco, Cal., for April 1, 1915. Editor, E. J. Wickson, Post-office address, Berkeley. Manager and Publisher, Frank Honeywell, San Francisco, Cal. Owners: (If a corporation, give its name and the names and addresses of stockholders holding 1 per cent or more of total amount of stock. If not a corporation, give names and addresses of individual owners), Frank Honeywell, San Francisco. Known bondholders, mortgagees, and other security holders holding 1 per cent or more of total amount of bonds, mortgages, or other securities: (If there are none, so state). None.

FRANK HONEYWELL.

Sworn to and subscribed before me this 26th day of March, 1915.

C. B. SESSIONS,
Notary Public in and for the City and County of San Francisco, State of California.

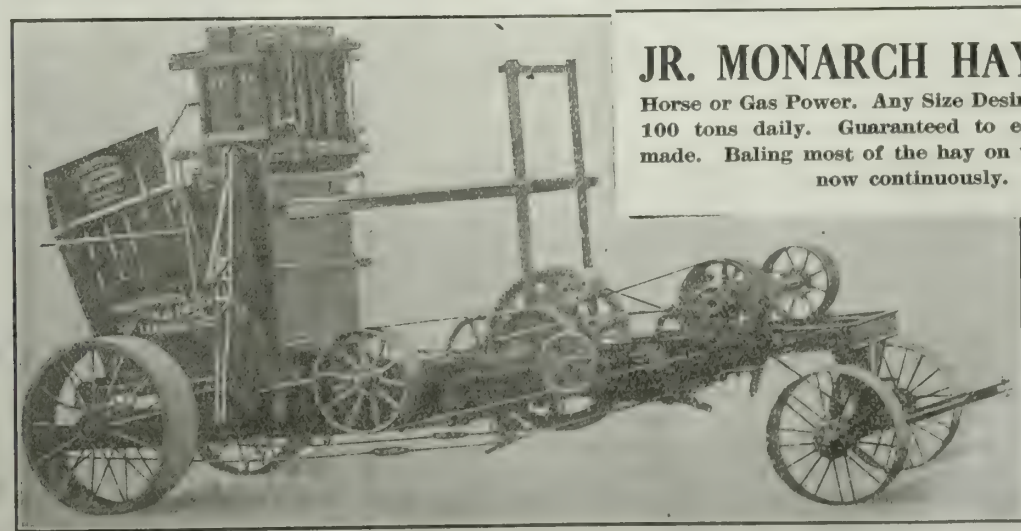
[SEAL.]

(My commission expires May 26, 1917.)

"Winter Rhubarb, Culture and Marketing"
Price 25c

Burbank's Crimson Winter and Wagner's Giant plants for sale. Best stock obtainable. Write for prices and terms.

REGINALD BLAND, SAN LUIS REY, CAL.



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

Mechanical Power on the Farm.

AUTO TRIP TO BIG VALLEY.

[Written for Pacific Rural Press.]

Pacific Rural Press took the north San Joaquin valley by storm—anyhow, we thought we had been through a cyclone rolling sideways, when our Mitchell car had brought us through Altamont Pass. But we did not need a flying machine to the rescue, on account of the skillful driving of our manager's son, Charlie Honeywell, who took advantage of every semi-dry streak in the slippery mud. Our automobile predecessors slid around sideways like pigs on cold ice; and those we met, solicitously advised us to put on our mud chains, which we didn't have any. But we had pretty good non-skidding tires and only once or twice for a few rods did our rear wheels go exploring with the evident intention of running around to the front.

But say, we did not fail to appreciate our manager's oft-repeated jubilation: "There's no use talking about it—this is the way to edit a farm paper." Every once in a while we would stop to investigate the fruit or flowers in an orchard, because we wanted to know whether the farmers were enjoying the fine weather as much as we were. In Alameda county, we found some poor settings of apricots and peaches, but on the other side of Altamont Pass, when we got to the fruit country, the crops seemed better.

Through Livermore Valley, the grain fields brought admiring ejaculations from our stock writer, and we all couldn't help but admire the wonderful fields of poppies which a few of the farmers were trying in vain to subjugate. In the hills beyond Livermore Valley, it seemed as though most of the grain had been winter sown because it was not nearly so far along and seemed thinner. But in the level country toward Tracy and along the west side of the San Joaquin, the grain seemed to have jumped up and it was already starting to head on dark green, vigorous looking plants.

"I Like Good Roads."—It had been fine going from Oakland through Dublin Canyon and Livermore Valley; and while we were supposed to be out for business, we really felt like we were on a vacation. We were out on business when we hit the Altamont Pass, which, however, will soon be fixed up as a State highway. On striking the good roads of the San Joaquin valley, our manager began an oft-repeated well considered remark, "I'm in favor of good roads." This remark was repeated with soul-feeling emphasis at the sign which read on the north side, "San Joaquin county," and on the south side, "Stanislaus." It was said that you always know when you hit Stanislaus county by the variety and magnificence of the mud holes. Our foxy steed, however, carried us through them, all the way out into the far districts which could never have been reached without an automobile until the State Reclamation Board and the Government improve the San Joaquin channel; and there, as well as along the way, we found dairy cattle and grain fields supreme. That was interesting to our stock writer, but our fruit writer begged to be dumped when we got into the country around Modesto and Ceres, for there is surely a country to delight the fruit grower's heart. The only trouble was that the horn on the car always began its melody before the fruit writer had become well acquainted with certain fruit growers who had good things to say that our readers would like to hear. Thus it is that we do not write up the fruit industry in the north San Joaquin as our stock writer has written up the dairy industry. However, they left the fruit writer behind, south of Lodi, and permitted him to talk as much as he pleased provided he would hike four miles through the warm climate to meet them in Lodi after they had gone up to the hills to look at some more Jerseys.

After the hike, it was Saturday noon, and about time to be gliding home, so our manager, himself, took the wheel and guided us very safely along the smooth highways until Altamont Pass was reached. Then the seventeen-year son had to take up his arduous duties again. This time, however, on the second day after sliding through the Pass, we caught up with a little Overland which kicked its heels about the road like an automobile colt and in doing so bedusted us of the back seat until we hit a piece of the road wide enough to get around the Overland.

By that time, Charlie was getting rather warm and two members of the staff were having a heated argument in regard to the proposed dairy law which has stirred up some milk producers by seeming to read that they will have to either pasteurize their milk before they can sell it or test their cows with tuberculin.

All this warmth required some cooling off which was generously furnished by the manager in the shape of ice cream at Livermore. It was a rather tired but well-satisfied bunch of the Rural Press staff which bowled merrily down the west side of Dublin Canyon at 45 miles an hour, in plenty of time for supper and Charlie's evening recreation. An automobile and good roads surely make a delightful way of editing the paper.

The four of us had traveled 319 miles on all kinds of country roads, without a break-down of any kind; we had used 28 gallons of gasoline which cost $3.25 and 3 quarts of lubrication which cost $.60, a total expense of about 1 1-5 cents per mile for the whole party. We felt like we had done some good work, and we had certainly a most delightful automobile outing.

ADAPT MACHINERY TO TRACTORS.

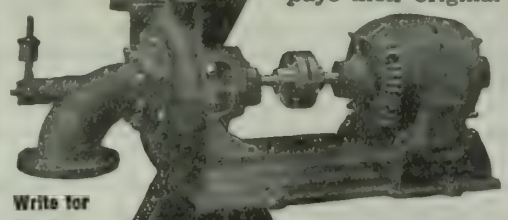
To the Editor: Can our old horse-implements, gang plows, disks, drills, etc., be adapted for use with tractors?—W. O. E., Upper Lake.

[If your old implements are built so that they can use practically all of the power of a tractor, they may be adapted economically to the tractor simply by taking out the tongues and connecting them as close as convenient, usually with chains in order to facilitate turning. —Editors.]

"Jackson MADE"

The greatest test of any pump is its ability to raise the maximum amount at lowest cost per gallon, day in and day out, year after year.

True pumping economy is one of the great features of "Jackson Made" pumps; they work economically and their freedom from repairs and power saving pays their original cost in a few months.



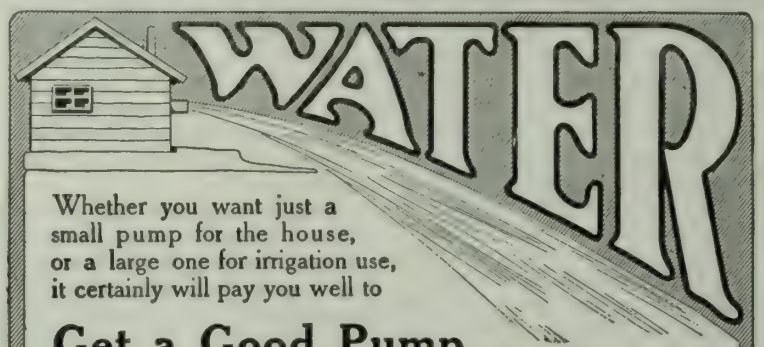
If your pumping puzzles you, tell us—our expert engineers are at your service free of charge.

Write for Catalog No. 47A

"Jackson Made" pumps are manufactured in various styles to do your particular work at lowest possible cost.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.



Whether you want just a small pump for the house, or a large one for irrigation use, it certainly will pay you well to

Get a Good Pump

The safe way is to get advice from pump specialists like ourselves. As manufacturers we have solved hundreds of pumping problems—and our accumulated experience is at your command. Our advice may save you both money and trouble. We manufacture and sell

Horizontal and Vertical Centrifugal Pumps
Deep Well Pumps, Windmill Pumps, Etc.

THE BEAN IS THE BEST — BEE-N TRADE MARK

Let us help you select a pump adapted to your particular requirements. CATALOG 28-B describes Bean Centrifugal Pumps. CATALOG 28-D describes all other pumps (also Bean Distillate Engines). A postal will bring either or both. Why not send now?

BEAN SPRAY PUMP CO.
211 W. Julian Street San Jose, Cal.

BETTER THAN ANY OTHER YOU CAN BUY

American SURFACE IRRIGATION PIPE

American Surface Irrigation Pipe is made heavy enough to last a lifetime. There are NO rivets. Riveted pipe is all right for underground work but surface pipe should NOT be riveted. Our surface pipe is made with our famous double-locked seam that NEVER leaks—even if the pipe is crushed flat and opened out again. Write for illustrated catalog and irrigation circular.

American Steel Pipe & Tank Company
354-56 PACIFIC ELECTRIC BLDG. LOS ANGELES, CALIF.
Branch 1228 "H" Street, Fresno.

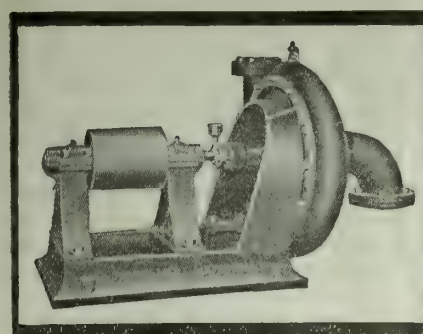
PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

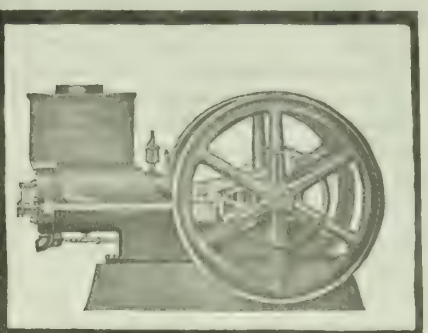
2nd Hand and NEW

Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. Main and Howard Sts., San Francisco



WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.



TRACTOR TYPES AND ADAPTABILITIES.

To the Editor: As one of your older subscribers, allow me to commend you, for the manner in which you are branching out in the good old Press, and giving us such excellent articles on the subjects which are becoming to us, so rapidly, ones of great importance. There are so many of us now who are interested in mechanical power on the farm, that I am going to ask you, if you will not go more deeply into the subject, particularly as to the merits of the various farm tractors, caterpillars and wheeled machines, their efficiencies and where one style has it over the other, and go into the different plows, discs, and other implements to be used with them.

Hundreds of us are simply waiting for the one which we consider the best, before we purchase, and I feel that the experiences of those who have used tractors would be a great help in enabling us to decide more intelligently. The demand seems to be for the smaller sizes, of 5 to 15 h. p. at the draw bar; and of a narrow enough tread to be used even in vineyards, as well as for general farm work and on the roads.—W. O. E., Upper Lake.

[There are many tractor manufacturers in California who put out machines of 5 to 15 h. p. at the draw bar, on which the wheels or tracks may be adjusted to a width of eight to thirty inches either by changing the tracks or by adding extra widths on the wheels. Most of the five "horse pull" (which means 5 h. p. at the draw bar) are newly introduced. The caterpillar types have it over the wheeled machines in soft ground where a large bearing surface is necessary. The wheeled machines have it over the caterpillar in cost of maintenance, for, as was noted in a recent number, tracks must be repaired at considerable cost about once in a year or two. Comparisons of the different makes in a general way would be unjust to some and would unduly boost others besides being unsatisfactory to the reader whose conditions might make one type more desirable and uneconomical than another, while other conditions would make the reverse true. You will notice in the article of last week on tractors at the Fair that the salient points of the exhibited makes are described, and if you will read carefully the experiences of tractor users given from time to time in the Pacific Rural Press, you will note the points which they emphasize in talking about their own machines.—Editors.]

No Pit
is required with the
Krogh Deep Well Turbine Pumps

For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company
SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

PUMPING TO UPPER SIDE.

To the Editor: The main canal runs through my orchard on one side. There is a gradual slope up hill about 300 feet and the highest part of the orchard is about 10 feet higher than the canal. Now what I want to know is, how big a gas engine and a centrifugal pump will I have to put on the canal to throw about 50 inches of water so that I can irrigate that part of the orchard. There will be no suction as the bottom of the pump will be almost level with the surface of the water. I am now putting in an 8-inch cement pipe line the whole distance.—J. W. P., Plano.

[Answered by Woodin and Little, San Francisco.]

[Your inquiry to the Pacific Rural Press, in reference to pumping 50" (450 gal.) of water per minute to an elevation of 10 ft., has been referred to us, and we would recommend that you install a 4" centrifugal pump and a 4 h. p. engine.

We can supply one of our 4 inch National centrifugal pumps complete with suction elbow and suction and discharge flanges and a 4 h. p. Waterloo horizontal engine complete ready to run for $187.50. Shipping weight 1300 pounds. The above price does not include any pipe or fittings. Neither does it include any belting. You will probably require a foot valve for the pump, which we can supply you with for $9.60, and we can supply you with 5 inch OD casing for the suction pipe at the rate of 31c per foot.]

HOW ABOUT CROPS THIS SUMMER?

Proper irrigation will more than double your crops—ask your neighbor who has tried it.

Electric motor-driven pumps will solve any irrigation problem. They need no attendant, deliver water steadily day and night and cost but little to operate. Insist on a

G-E ELECTRIC MOTOR FOR RANCH AND FARM

to do your pumping. It will pay for itself in a short time in bigger crops, perfect satisfaction and low upkeep.

A G-E portable motor can be used to drive various farm machinery, greatly reducing your labor bills and insuring you against scarcity of "help".

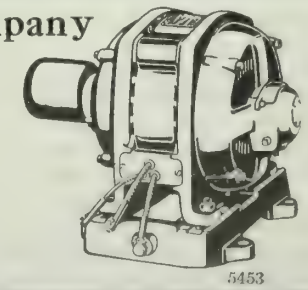
Your local power company will gladly tell you what G-E motors can do for you; or write our nearest office for booklet No. 3166 on electric farming—the request will place you under no obligation.

General Electric Company

Los Angeles Office:
124 West 4th Street
San Francisco Office:
Rialto Building

The General Electric Company will gladly answer all questions relating to the use of electric power for ranch and market garden irrigation.

Address nearest office



5453

If you want the most for your money ask for, insist on, and demand that your DEALER furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good,"—it cannot be furnished. Every sale carries with it an unqualified guarantee.

Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives power tables. Belt Speeds, List Prices, Etc.

New York Belting and Packing Co. of New York
Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

The Witte Iron Works have been laboring under a misnomer which our readers will now note has been changed to the Witte Engine Works to describe their sole commodity. There is no change in ownership or management.

How a Wisconsin Breeder Advertises.

In a State where the breeding of purebred livestock has increased so rapidly in so short a time as it has in California the following extracts of the experience of a Wisconsin breeder as set forth in a recent issue of Hoards Dairyman is timely and should be of considerable value.

He says among other things:

"Only about one man in five, who invests in a large or small herd or flock of purebred livestock, ever makes a success of the business. While many different things may enter in to cause these failures it is quite probable that a larger percentage of failures are due to poor advertising than to any other one cause, or perhaps more than to all other causes combined.

"From my personal experience I would say that advertising might be divided into three classes: general, or regular advertising; special, such as the advertising of single animals or special collections for sale at a given time, or of auction sales; and then cumulative advertising, by which I mean the effect of having had your name and your business favorably before the public in just as many ways as possible, and in the best manner possible. It is this cumulative advertising which is really the most beneficial, but which takes years of persistence, honesty, and hard work to secure. When you have your herd or flock so well advertised that when a farmer, it may be in a different state from your own, asks his neighbor or friend where he can secure stock of the breed or breeds that you happen to have, the reply will be at once, 'Why not write Mr. A? He is known everywhere as a reliable business man and as having stock of the highest quality.'

"Under regular advertising I would include first and foremost farm paper advertising, carried year after year in a carefully selected paper or line of papers; the issuing of catalogs, sale lists and stationery. For farm paper advertising there are two classes of papers that the breeder may expect to use. The first of these would be the so-called breed organs, published in the interests of each particular breed. On account of the smaller circulation it is usually true that the cost in this class of papers will be lower than in the regular agricultural press, and nearly all breeders testify to the value of such breed papers, especially for the sale of high class sires to head herds. This class of papers is, therefore, used by the oldest and best established breeders who expect to sell stock to fellow breeders. But the new beginner, and in fact nearly all breeders, find it to their advantage to use a greater or less amount of space in regular agricultural papers. The character of these papers has a great deal to do with their value as an advertising medium. Some of them go into the homes of the very best class of agricultural population, who not only have money to buy purebred live stock, but also have learned to intelligently study the advertising columns of their favorite agricultural paper. This grade of papers is the kind the farmer gladly pays his subscription for year after year and considers it a necessary adjunct to the farm household.

"The other class of farm newspapers is the kind offered for twenty-five cents a year, and a fifty-cent premium thrown in for the first year at least, and it is almost impossible to stop, even if you do not care for it longer. The breeders who advertise live stock seem to me to be able to easily discern between these two classes of papers, and if you see a copy of an agricultural paper for the first time you can almost tell by the character and quality of its live stock advertising matter which of these two classes it belongs to. Only a trial by the individual breeder can prove to a certainty just which paper will pay him the best for the character of stock he has for sale, but one trial even of six months or a year is not sufficient for an absolute decision as to which is the best. Some of the best papers carry a particularly fine line of regular, all the year round, breeders' advertisements, while others make a specialty of the short time ads, while a few are particularly strong in both classes of advertising. These latter I would consider the very best of all.

"All breeders testify from experience that the overcrowding of space in an advertisement always injures its effectiveness, and the office of the newspaper advertisement is not to fully describe your wares, but to so gain the attention of the would-be buyer that he will manifest his desire to buy by writing you. It is then up to you to convince him that the stock you have to offer is of the quality and price that he needs, and that you are in a position to fill his order a little bit better than anybody else. Nothing will convince him so readily as high class advertising matter that you may send him, ranking from a high priced catalog that fully describes your herd, your methods of doing business, prize winnings, the production of your cows, if dairy stock, and even tabulated pedigrees of every animal in the herd.

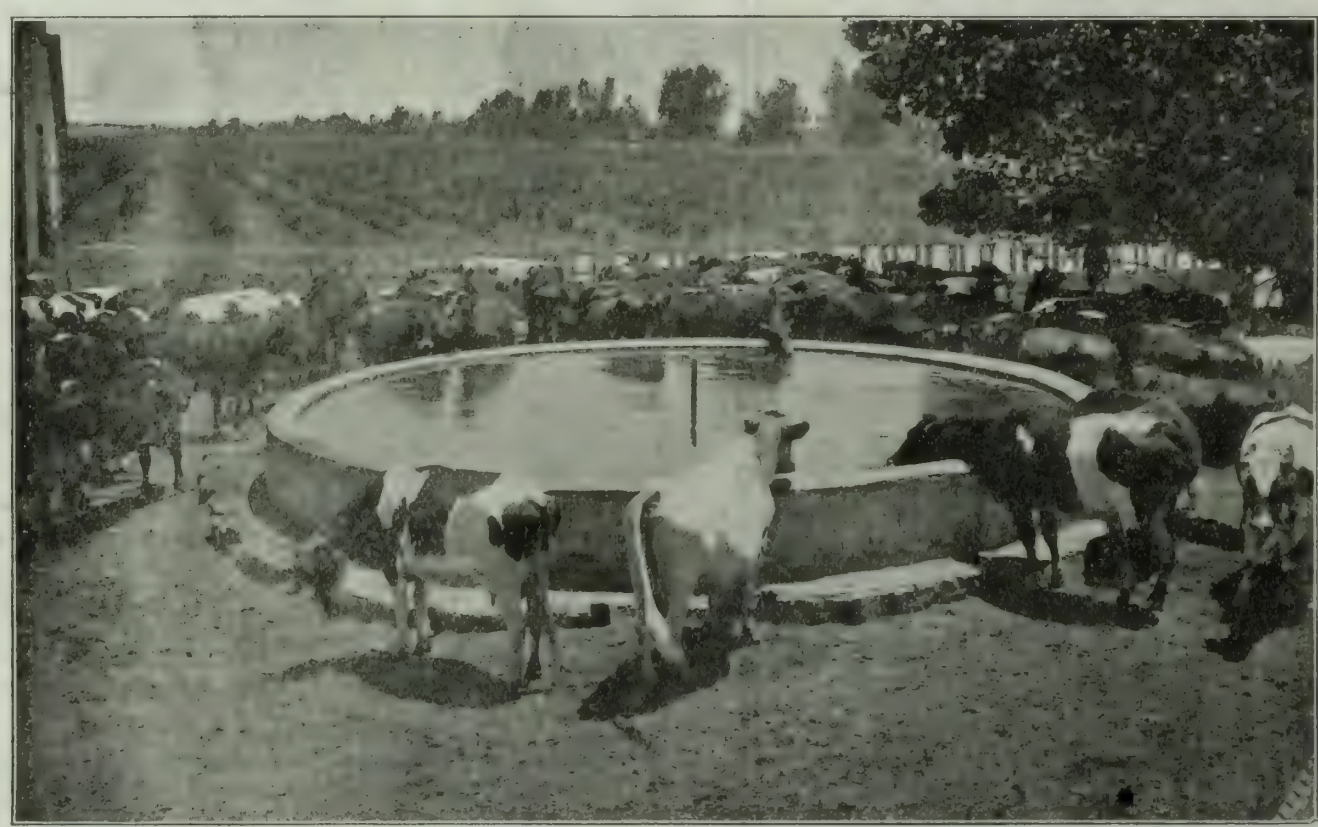
"Good stationery is also good cumulative advertising and if your letters are neatly typewritten they cannot but appeal to the best class of buyers. If the breeder can also learn the art of photographing an animal he will have a great advantage over the breeder who must call in a photographer on special occasions, and who would seldom be able to catch the animal at its best. This is especially true of dairy cows. In these days of cheap, high class halftones, no catalog or other advertising matter can be expected to appeal to the public in the strongest way unless well illustrated.

"A form of advertising that is coming into use, and that seems to be very effective is that of co-operative advertising. This is carried on through some regular organized breeders' association, or a combination of individual breeders. There can be no doubt that if an intending buyer expects to visit the herds and see the animals he is to buy he will be especially attracted to a community where there are several high class herds of the same breed. Wisconsin breeders are particularly pushing this class of advertising at this time, and very rapidly attracting breeders from other states to this state to buy purebred stock largely because of this co-operative advertising in one form or another."

SEED CORN.

To the Editor: Will Eastern corn acclimated to Southern California give good results the first year in this county? Will it throw it very late in ripening?—H. E. B., Napa.

[It would do well. Corn does not ripen earlier in coast regions of Southern California than in warm valleys in the central part of the State. Such seed would not run late with you unless it is naturally a late variety.—Editors.]



The water supply on many of the interior valley dairies is totally inadequate to supply the 100 pounds daily that each dairy cow needs for the very best results. Drinking troughs as shown in the accompanying photographs of a Stanislaus county dairy are ideal where a large sized herd is being cared for, provided measures are taken to supply fresh, cool water as the need arises.

Segis Pontiac de Kol Burke

1st Prize 2-year-old Cal. State Fair 1914.

The bull that combines the blood of the greatest producing families in Holstein history. He is an outstanding individual, weighing 2200 at just three years of age. His dam RIVERSIDE SADIE DE KOL BURKE, is the heaviest milker that the breed has ever developed. She and six of her sisters have records above 30-lbs. butter in seven days.

A few sons of this sire are now available, some of which are soon ready for service. Several are from half sisters to Aralia De Kol, 30-lbs. butter in seven days at 12½ years, 28090 lbs. milk and 1142 lbs. butter in one year. Prices reasonable.

Pedigrees and Prices on Application.

A.W. Morris & Sons Corporation

Box 398-D, Woodland, Calif.

AS A general statement, and where diversified or mixed farming obtains, no feed crops should be sold off the farm in the raw state, but should be disposed of through the animal, after having been manufactured by it into a product of enhanced value.

From the day the calf is born until the day when the matured animal is consigned to the butcher, the rule to be observed should be: Continuous progression, and no retrogression.

A New Need for the Pure-bred Beef Bull.

[Written for Pacific Rural Press.]

Alfalfa growers as well as range men are evidencing more and more interest in the possibilities of feeding range steers a ration composed of alfalfa and either grain or silage, for it has long been recognized that any such connecting link between the beef grower and the alfalfa grower would result in much good to both.

In the past two years experience of immense value along this line has been gained by farmers and stockmen in various parts of the State and the conclusions of these operators may be summed up briefly by saying that under conditions found on our local markets the man who makes the most money from cattle feeding will be the man who has better than the average bred stock which can be turned off at around 1,000 pounds as long yearlings or two-year-olds.

Mexicans, Arizonas, or poorly bred native stock will not meet these requirements, so say the experimenters. On the other hand they must be stock sired by good bulls, out of fairly decent native cows and animals that have been "kept going" from calfhood till the time they are put in the feed lots.

The condition facing the California feeder is different to those facing the eastern farmer in many respects, but chiefly in feeds and markets. The markets there, so explain the California packing concerns, are much broader than our local ones and as a result have a much wider spread, one demand being for heavy cattle while another favors lighter stock, thus consuming the ordinary run of both kinds.

In California, and especially in the San Francisco market, where most of the cattle are handled, the buying public demand a small, well finished animal, and for such stuff are willing to pay a premium.

As it is almost an impossibility for the range man to meet this requirement profitably, it naturally follows that here is the hole into which the cattle feeder can very profitably fall, providing he has the equipment for economical feeding and the right kind of young stock to feed.

What is perhaps the greatest headway so far reported along this line is on the Vina ranch in the extreme northern alfalfa country of the interior valley and on the Tehachapi Cattle Company's ranch in the extreme southern alfalfa boundary of the interior valley.

On the former ranch, as has before been noted in these columns, an endeavor is being made to turn off light steers without the use of feed lots and silos. Good breeding is considered the big essential there, although the continual forcing of the calves on good forage is considered highly important. As the nature of the ranch itself allows of feeding methods which could not be pursued in most locations the chief lesson there is the value of the constant use of purebred sires, for it has been an underlying principle with this ranch to use purebred bulls on their range stock for many years.

On the principle that when he can make two-year-olds weigh 1100 pounds it does not pay to carry them over as three-year-olds, R. G. Hill, manager of the Tehachapi Cattle Company's ranch at Bakersfield, has decided after two years' feed-lot experience that hereafter he will handle yearlings exclusively.

Before arriving at this conclusion Mr. Hill fed out over 2,000 head of steers, some of which were Arizonas and some natives, varying in weights and quality.

As was set forth in these columns after his first experience in 1914, Mr. Hill found that while he secured satisfactory gains on the common native and Arizona stock, when alfalfa hay, cottonseed meal and corn silage were used, his better bred stuff proved far more profitable.

As Mr. Hill has fortified his feeding operations with a large range where he can raise his own feeders, the matter of securing suitably bred animals has with him been mostly a matter of time in raising calves sired by purebred Herefords to an age suitable for feeder purposes.

During the past season he has finished all of the older steers at his feeding plant together with a sufficient number of young ones to demonstrate the feasibility of his future plan of turning off baby beef which the buying public has so long desired.

Red Kafir silage, alfalfa hay and cottonseed meal was the ration used this year, the steers whose average weight when feeding started in the fall was 875 pounds were fed silage from the start, the ration gradually being increased till they were receiving 33 to 36 pounds daily, 30 days after they were put in the lots. With this was fed all of the alfalfa hay that they would eat, the hay being fed in racks, adjacent to shed shelters which were built in each lot as a protection against rain and mud. The last 50 days, two to two and a half pounds of cottonseed meal was added to the daily average of each steer, the amount of silage being cut down after this date.

At the end of 155 days when the feeding was discontinued the average weight was 1275 pounds or an average gain of 425 pounds per steer.

From a financial point of view the gains made for the expense incurred was satisfactory on both this and last year's feeding operations, yet there was not the spread in price for quality either year that would naturally be expected, and it is for that reason that the well bred yearlings will be taken from the range next year, for when finished they will command the top price and the gains will, it is thought, be still more satisfactory than those secured on the average this year.

Others who are anxious to enter the feeding game are considering this same condition which Mr. Hill is allowed, through his range, to overcome before erecting suitable feed lots, silos, etc., and it is questionable whether any but those in a position to raise their own feeders will be able to profit by Mr. Hill's experience till such time as the man on the range who is raising the cattle can be shown the money loss which is resulting from his breeding to mongrel bulls of little or no merit.

MAKING GOOD BUTTER AT HOME.

To the Editor: Can you give directions for best way of making home-made butter? The butter I have made is always made from cream only two or three days old and it always tastes strong. Is there any way it can be made to resemble creamery butter?—Subscriber, Modesto.

[Answered by F. W. Andreason, Sec'y State Dairy Bureau, San Francisco]

Very fine butter can be made in the home where two or three cows are kept. It is hardly necessary to call attention to the fact that scrupulous cleanliness must be exercised in the process of milking as well as in the handling of the milk. If the milk is to be set in pans it should be strained into them immediately after the cows are milked and the pans should, at once, be placed in a room that is well lighted and ventilated, where no other food articles are kept. The room should be free from flies and dust. The temperature of the room should be about 62 degrees F., or between 60 and 65 degrees F. The purity of the air in the room and the temperature at which the milk is kept will be the greatest factors in giving your butter a fine flavor, provided nothing was wrong with the milk before it was placed in the pans (cows may have a disease and give bitter milk).

After the milk has stood in the pans for thirty-six hours it should be ready to skim. The cream should be so that after cutting it around the edge of the pan and tipping the pan a little, it should slide over the edge like a piece of very soft leather. If you must scrape the cream off with your skimmer, the milk is not ready to skim and the temperature in the room must have been too low at some time. If your milk is ready to skim after standing thirty-six hours, you will find that it is sour but not clabbered. A little sour, or clabbered milk may stick to the bottom of the pan. This is generally the case when milk is in the best condition to skim. If you cannot get the milk ready to skim in thirty-six hours, but must let it stand longer, the flavor will not be so good. If the milk is sweet, and the cream soft, so that you must scrape it off, and a lot of milk with it, you will lose too much cream in the skim milk and get too much milk in the cream can. This sweet cream will not churn well if mixed with the older cream unless kept until it also is sour.

The important thing is to get the cream sour as quickly as possible without getting the temperature up to 70 degrees. At this higher temperature it is apt to become gassy and also to become clabbered. Care should be exercised so as not to get any cream upon the sides of the cream can where it will be exposed to the air and become bitter. It should be well stirred twice a day (every time you skim).

If you use a separator for skimming, the cream should be kept at a temperature of 60 to 65 degrees F. until it is sour, which should be about forty-eight hours. (A stone jar is a good receptacle to keep it in.) The cream from the separator should be cooled before it is added to the older cream. The mixed cream should be stirred twice a day. All utensils should be thoroughly washed and submerged in boiling water each time they have been used.

The first cutting of alfalfa throughout the San Joaquin valley is now being cured. The hay is indifferent, as usual, on account of the weeds, but would make good silage if cut before the foxtail beards hardened.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Copro
The Feed That Still Sells At Before-the-War Prices
Look for this name on every sack

A Natural Food Product For Hogs, Dairy Cows and Poultry
Contains 16.4% Protein
All Digestible
Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.
Address Department B
PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.
If Your Dealer Can't Quote Prices Write Us Direct

Short Horn Bulls
20 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

TEATS INFLAMED.

To the Editor: I have a young cow approaching time for her second calf. In late summer I noticed blood in the strippings. The past winter I used a milk tube and soon got infection, resulting in some slight inflammation, and some hard lumps. These teats recently dried up completely. One of the remaining teats then started to get bloody, and has since been inflamed and is now dry. Today the last teat which I have tried to dry off is full of garget and the quarter has become swollen. I have tried iodine and lard and straight iodine, besides massaging the bag. One of our State veterinarians has seen her and doesn't hold out much hope of her recovery by the time she freshens. What do you think might be of benefit? She is a very promising heifer.

One cow of my herd has reacted to the tuberculin test. She is a very thrifty appearing animal and has not altered her appearance in a year and a half, and is about five months with calf. What would you advise to do with her?—V. F., Hazen, Nev.

[Apply the following to the affected parts once only: oleate of mercury, 2 ounces; adeps lammum, 2 ounces. Give internally the following: red iodide of mercury, 90 grains; potassium iodide, 4 ounces, water enough to make one pint. Dose: one tablespoonful twice daily.

By all means, get rid of tuberculin reactors.]

SWELLING ON HORSE'S THIGH.

To the Editor: I have a three-year-old filly which about three weeks ago had a swelling come on her thigh about the size of a fist. After about three days, it broke and has been matterating and running since. The pus exuded is of creamy color and consistency and occasionally carries a little blood. About a week ago, another swelling, somewhat smaller, arose about four inches above the original and for a while drained through the old break. However, it does not drain now, and is swelled tight and about ready to break itself. These places do not make the mare lame and they have apparently had no effect on her life or appetite, though the swellings are tender and in a sensitive place.—L. T. J., Tehachapi.

[These abscesses may have so many causes that it is impossible without an examination to give the precise cause. Get a syringe and wash out abscess twice daily with a 2 per cent solution of liquor cresolis compositus. Explore the abscess with your finger to be sure there is no pocket formed from which there is not good drainage, and also for foreign bodies. Have a veterinarian test this mare for glanders and destroy her if she reacts.]

ANTHRAX AND "RED WATER."

To the Editor: In the number for April 3 you say in a reply regarding anthrax, that prevention "consists of vaccination before the period or time at which it usually breaks out." Does this imply that after this disease has once appeared in a place, it remains, so that we may expect a new outbreak every year? What is "red water"? My neighbors tell about a disease, raging more or less all the time among the cows, which they call red water, and which attacks the same animal two or three times before its results are disastrous. What is the cause of it? And does it make the meat unfit for use? —E. S., East Sound, Wash.

[Once soil becomes infected with anthrax it stays for an indefinite period of years. However, cattle may graze on infected premises during winter and spring without becoming infected as the disease does not usually break out till summer or fall. Thus by vaccinating them in late spring, they become immune before the time the disease usually breaks out. Different localities usually show different periods for the outbreak of anthrax which may also be governed by that particular season, which may be late or early. Vaccination gives an immunity for about one year so that on infected soil animals should be vaccinated early.

"Red Water" is another name for Texas fever caused by the Piroplasma bigeminum, which is carried by the tick Margaropus ammulatus. Meat of sick animals is unfit for use. Washington, I believe, is free from this disease.]

WHAT IS LIGHT DIET?

To the Editor: Referring to query "Swollen Udder," page 432 (April 3d issue): What is a "very light diet"? What is the proper way to dry up a cow?—Subscriber, Orange.

[A "very light diet" consists of just enough nutritive elements to barely support the actual needs of an animal. As there is such a wide range of rations and amounts, it may be said that a "very light diet" in any specific case would be just about one-half what that animal has been used to having. This slim ration would do no harm for a period of two weeks, which was advised.

To dry up a cow, do not milk out fully, but leave a small quantity of milk in the udder, gradually decrease the amount of milk taken at each milking, until finally a day or two may be skipped between milking. Always be on the watch for a hardening of the udder, which means that not enough milk has been taken out.]

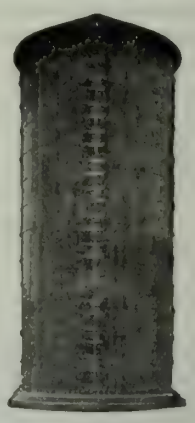
HEAVES.

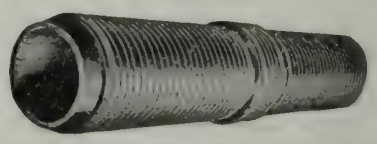
To the Editor: Is "heaves" in horses caused by the poison in mildewed straw or by the action of mold spores, mycelium, and other dust on the breathing organs? What is the cure?—Sub., San Jose.

[The causes of heaves are various. Some of the following are given: Heavy work, long continued and convulsive cough as in chronic bronchitis, predisposition, age (as it is rarely seen in horses under five years), and disturbance in nutrition, which can be ascribed to many causes, such as the fungi you mention, dust, and other detrimental substances found in the feeds. There is no cure for heaves; at best one can but alleviate the symptoms by the following treatment: Give Fowler's solution of arsenic in one and one-half ounce doses three times daily. Reduce the bulk in the ration, feeding more grain and less hay. The latter should be chopped and all feed and mangers moistened to prevent dust being inhaled. Green foods are especially beneficial. When improvement is shown, the animal should be used at light work only.]

CAMPBELL
IRRIGATION
We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Tubo-Irrigator, and the new Automatic Oscillator for overhead pipes.
J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.

Looking for Registered Holsteins?
of the Highest Quality and of Faultless Conformation
Then Don't Miss the P. F. SCHUMACHER
Dispersion Sale
75—Registered Holsteins—75
Ascot Park Los Angeles May 12, 1915
They are bred in the highest producing strains and include the highest record cows ever offered at public sale in the West, including White House Belle, 660.2 lbs. milk, 29.27 lbs. butter, 7 days; Alba Sadie Cornucopia Creetia, 612.3 lbs. milk, 28.85 lbs. butter, 7 days; a 20-lb. 4-year-old; an 18-lb. Jr. 2-year-old.
A great lot of bulls to head your herd. They are faultless individuals, young and well-marked and second to none in breeding.
A noteworthy feature of this sale is the fact that nearly 20 cows and heifers will be in calf to TILLY ALCARTRA SON, the famous young herd sired of McAlister & Son's herd, a son of the only cow to make over 30,000 lbs. of milk in one year.
TERMS: $500 and under cash, over $500 one-third cash, balance in three equal payments in three, six and nine months' time with note and approved security and 8% interest. 5% discount for cash on time sums.
JAMES W. McALISTER, JR., Sales Manager.
Chino, Calif.
COL. BEN A. RHOADES, Auctioneer,
15013-5 South Main St., Los Angeles, Calif.

SILOS
BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS
16 x 36 Redwood Stave Silo manufactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.
PIPE
MACHINE BANDED OR CONTINUOUS STAVE
For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.
ASK US FOR PRICES
REDWOOD MANUFACTURERS CO.
1608 Hobart Bldg., San Francisco.

PIGS COUGH AND DIE.

To the Editor: We had about thirty pigs all born about the first of the year, which did fine until about a month ago, when some began to get thin and cough. Their eyes got sore and would close. Breathing seemed to be very difficult, and they became very weak in their hind quarters; some would wobble so badly that they fell down. They would act this way for a few weeks then die. They ate very well up till a day or so before they would die. In post mortem examination everything seemed all right except their lungs, which would be very much discolored in spots, or the whole lung would be almost black or rather blue, and inside there would be a sore spot of a white froth-like matter. After one sow died we found a growth nearly the size of a person's head in her stomach. This seemed to be rather hard and like gristle with a red streak through it. It seemed to have grown from the large intestine.—R. D., Cottonwood.

[Your pigs are affected with lung plague, which is an infectious, contagious disease. There is no cure, and prevention is the only means of combating the trouble. This consists of hygienic and sanitary surroundings. Separate the healthy animals from the sick ones. Provide good, dry sleeping quarters free from draughts. Place the following substances in containers where animals can have access to them: Powdered iron sulphate, salt, potassium nitrate, powdered charcoal, and slaked lime. Disinfect your premises with a 5 per cent solution liq. cresolis compositus. Dip your pigs once a month in a 2 per cent solution of the same, covered with one-half inch crude oil. The hard growth you mention was a tumor. These growths appear without apparent cause and do no damage until they interfere mechanically with the vital functions.]

MULE LAME AT STIFLE.

To the Editor: I have a mule that is lame in the left hind leg. She seems to be out of joint in the stifle. She only bears her weight on that leg a little when she walks.—E. W. C., Crows Landing.

[If you are sure your mule is lame in the stifle, clip hair off for about six inches around the joint and apply the following blister: pulverized cantharides, two drachms; red iodide of mercury, two drachms, benzoinated lard, three ounces. Rub this in well over the clipped area for ten to fifteen minutes. Tie the mule up so he cannot bite the blister and wash blister off in 48 hours with warm soap and water, then apply vaseline to blistered area. Rest mule one month after blistering.]

IMPOTENT BOAR.

To the Editor: I recently purchased a registered Berkshire boar that was farrowed July last. I think he is plenty old enough for service, and he is large enough, but when the sows are in heat he pays no more attention to them than he does any other time. I have eleven sows, and bought him because I needed him, but he won't act. What can I do with him?—S. C., Madera.

[Impotent animals of both sexes are often found. Give your boar one and one-half pounds of yohimbine three times daily until its effect is shown by a desire for the opposite sex.]

COW BLOATS.

To the Editor: I have a young cow not quite two years old, and she came fresh the first part of February and got along fine until about a month ago, when she bloated on dry hay in the barn. She got hold of too many leaves, and when I found her she was so far gone that I had to use the trocar needle in order to save her life. For two weeks after that I had to keep the sheath in her, for every time I would feed her she would bloat. I had a veterinary in to see her, and she got better for a few days and was able to eat without bloating. Then she started to bloat again, and I had another veterinary in to see her, and he gave her some medicine that has done her good, but I dare not feed her any hay at all, neither green nor dry. I just feed her linseed meal, and I had tried to get her to eat alfalfa meal, but she will not eat it, nor bran. I have to drench her with bran, or at least I make her eat it, by putting it down her, and I do the same with the linseed meal. I make a solution with it and pour it down her. The only thing she wants to eat is the hay. I sometimes get her to eat a little grain. Can you tell me anything I could give her that would regulate her stomach so that she could eat hay again. She gives quite a lot of milk yet—R. M., Los Molinos.

[Your cow has chronic indigestion. Give her two pounds of epsom salts in enough water to put it into solution. Have the following put up: Fluid extract ginger, 8 ounces; fluid extract nux vomica, 2 ounces; salicylate of sodium, 8 ounces; water, 8 ounces; and aromatic spirits of ammonia, enough to make one quart. Give two ounces of this twice a day before feeding.]

HEIFER HOLDS MILK.

To the Editor: I have a heifer that has been fresh two months, and she holds her milk in the morning. I would like to know if there is any remedy for the fault.—J. E., Richfield.

[Thorough massage of the udder is the best remedy for a cow which holds up her milk. Spend ten minutes at this night and morning over a period of several weeks.]

SORES ON RABBITS' FEET.

To the Editor: Sores come on the bottom of my rabbits' hind feet. At first there seems to be a small lump and in a short time the hair comes off of this lump; and then a thin skin peels off. This leaves the sore almost in the form of a blister, which gradually grows larger until nearly the whole bottom of the foot is affected. This disease just affects the old rabbits, and does not come from wet pens, for I keep mine perfectly dry. I would appreciate any information that you could give me as to the cause and cure of this disease and whether or not it is contagious.—A. S., Campbell.

[This is Necio Bacillosis. Disinfect your pens with a 5 per cent liq. cresolis compositus solution, as the disease is infectious. Paint the sores on the rabbits' feet with tincture of iodine once a day.]

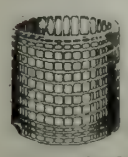
Paul Hunt of Sebastopol recently purchased the 120-acre dairy ranch in Stanislaus county belonging to Roy Howell.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal



Redwood Tanks

I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. Wilson, Stockton, Calif.

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price. Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hard-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.

Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules, which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.

W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us,

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

A 40-ACRE EQUIPPED FARM

in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: With a plow, a harrow and a cultivator, a pumping plant, complete, trees and seed.

SPECIAL: Land absolutely above all flood from rivers: titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,

552-556 SOUTH FIRST STREET, SAN JOSE, CAL.

With the Live Stock Men.

DAIRYING.

Kings county creameries paid the dairymen $150,000 for butter fat delivered in March.

Dairymen of Tulare county were paid $72,059.43 for cream delivered during the past month.

The Danish Creamery of Fresno paid 800 dairymen the record sum of $39,080.96 for butter fat delivered during March.

J. W. Fredericks of Sebastopol recently purchased an alfalfa and dairy ranch near Turlock, which he intends to stock with dairy cattle.

Theo. E. Getzelman, president of the Illinois Holstein-Friesian Association and owner of the famous $20,000 bull, King Segis, will shortly locate in Sacramento.

The Jersey Bulletin of March 24 states that there are 180 Jerseys of fifty pounds and over reported for the month of January as being in year's authenticated test now running.

A dairy farm consisting of 1000 acres is to be started in Sacramento county by O. A. Robertson, a Minneapolis capitalist. The dairy will be operated on an elaborate and modern scale.

The dairy sale of the herd of Carmichael and Hubbard of Newman was a great success. Seven hundred and fifty head of cattle were offered for sale and brought unusually good prices.

Two of the bills introduced to insure a purer milk supply to the State have passed the Assembly and have gone to Governor Johnson for approval. One was Senator Finn's bill defining the standard requirements for so-called certified and pasteurized milk. The other was Assemblyman Boude's measure prohibiting the use of milk not conforming to pure standards in the manufacture of dairy products.

In the March report of the Stanislaus Cow Testing Association it is given that the Jersey cow, Fote's Cleta, belonging to J. De Lamater, had the highest production for the month, her record being 1577 pounds of milk with a test of 5.2 per cent containing 81.8 pounds of butter fat in thirty-one days. The Association's year begins in April, and more than seven hundred cows are now on the list for testing.

Mr. Jas. W. McAlister, Jr., of Chino writes that he has just completed a record of better than 18 pounds butter in seven days with a junior two-year-old which is, he believes, one of the largest ever made in this State. A four-year-old has also just made a record of better than 20 pounds of butter in seven days. Both of these cows are included in the Schumacher Dispersion Sale, as well as 12 other A. R. O. cows. The fact that these cows are bred to the famous young sire, Tilly Alcartra Son, son of Tilly Alcartra, the only cow to produce over 30,000 pounds of milk in one year, should greatly enhance their value to prospective purchasers.

HORSES AND SWINE.

Hog cholera has been found in Ventura county and last week twenty-two hogs were vaccinated by Farm Adviser W. B. Parker, who has issued a warning to the breeders of that county.

J. R. Wilson of San Francisco and James Rice of Madros, Ore., have recently closed a contract with a foreign government to deliver within three months, 5000 head of horses to the war zone.

The bill requiring that all hog cholera serum manufactured or sold in California shall first be inspected by the Director of the Experiment Station at the University of California, introduced by Senator Claude F. Purkitt, has been passed by the Senate.

Among the few who have started in the purebred breeding of live stock in the Los Molinos section of Tehama county is C. E. Barrows, a former breeder of Berkshire hogs in Oregon and an exhibitor at the State Fair last year, where he took a nice lot of prizes. Mr. Barrows writes that he recently purchased a fine young boar from J. W. Hibbard of Bennington, Mich., and that he expects to make a good showing again this fall.

CATTLE AND SHEEP.

Four carloads of fine steers were recently shipped from Elko, Nev., to San Francisco by Hunter & Banks.

In the national forests of California and Nevada, in District Five, it is estimated that 212,280 cattle and 508,050 sheep graze.

F. M. Wightman of Fallon, Nev., recently sold 400 head of stock cattle to McKenzie, Stoffer & Co. of Red Bluff, Cal.

A band of sheep was sold for $20,000 by James Heavy of Flournoy, Tehama county, to a stockman from Dixie Valley. Mr. Heavy is retiring from the sheep business and will take up the raising of cattle and hogs.

HINMAN
Natural Hand Action

Milking Machines

Are milking every day over a quarter million cows and this number is rapidly increasing—WHY?

Simplicity and Economy

The **HINMAN** long stroke, slow speed pump requires very little power. It is extremely simple in construction and designed to stand hard usage. It never heats up and never gives trouble.

Hinman Service

There is a **HINMAN** branch in every dairy section, and a local man in practically every town to give **HINMAN USERS** prompt delivery of machines and parts.

May We Send You a Free Book?

Our book, **"Making More Money with the Hinman Milker,"** tells the whole story. Write for it and tell us the size of your dairy, so we can tell you the cost of installing a **HINMAN MILKER** that will do your work. The price is one of its attractive features.

Write Today.

CHAS. F. DANIELLS & SON, 2511 Prince St., Berkeley, Cal.
See our exhibit in the Palace of Agriculture at the Exposition.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

DAIRY CATTLE.

FOR SALE—Guernsey Bull Calf of three months. Something choice in breeding and individuality, with producing ancestors back of him. $200 f. o. b. Bella Vista Ranch, Martinez. J. W Henderson, 503 1st National Bank, Berkeley, Cal.

HOLSTEIN BULL CALVES—Sired by King Pontiac Netherland Segis, son of King of the Pontiac, Dam K. S. P. Netherland, 24 lb., 3 years old, daughter of King Segis Pontiac. Ernest Otto McClure, R. 2, Modesto, Cal.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. E. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

N. H LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

SWINE.

CHESTER WHITE PIGS—We offer for immediate delivery choice, well-bred registered Chester White (O. I. C.) pigs of either sex We will sell in trios (boar and two sows) not akin, or in any number and registered at from $15.00 to $25.00 each at 8 weeks of age. Get busy with the Chester Whites and you will never regret it. F. T. Knewing, 261 Mills Bldg., San Francisco.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc., 919 Hearst Building, San Francisco.

O. I. C. Swine—The White Breed. Entire herd immunized against hog cholera. Extra fine lot of fall pigs, both sexes, ready for shipment during February and March. Three herd boars in use. All stock sent out will be immunized, registered and crated at purchase price. Send your orders now. C. B. Cunningham, Box J, Mills, Sacramento county, California.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

WE HAVE some Fine Young Boars for sale. They are a Berkshire and Poland China cross, about six months old and of exceptional size and quality. Stanford Vina Ranch, Vina, Calif.

REG BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely, no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co. Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs $10.00 each. A few older boars. J. M. Bemberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A B. Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novata, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

FOR SALE—Two registered Poland China sows to farrow in June, $25 each f. o. b. N. M. Lester, Gridley, Cal.

REGISTERED DUROC-JERSEY SWINE—Bred sows, gilts, weanlings, young boars. H. D. Van Vleer, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in State. $30 up. M. Bassett, Hanford

REGISTERED DUROC-JERSEYS from Eastern stock Young sows and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—Young stock for sale. John H. Steuart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REAGAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

POLAND-CHINAS—Young boars for sale. J. W. Lee Napa Junction, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electic car at Santa Rosa or Petaluma for Live Oak.

SHROPSHIRES—Registered yearling rams for sale, $25 and up. Enterprise Stock Farm, H. P. Eakle, Woodland, Cal.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Time to Cut Grain Hay.

To the Editor: At what time should barley be cut to make the best hay for horse feed? If barley is let stand for grain, what is the best time to cut it, that the straw will make the best feed?—G. O. B., Modesto.

[Prof. Woll in his book, "Productive Feeding of Farm Animals," says: "The grain crops are, in general, cut for hay when the kernels are in the early milk stage; cut at this stage, they make a very nutritious and palatable hay. Oats may be cut a little later than this for hay, and barley preferably somewhat earlier, while the beards are still soft, so that they will not give trouble in feeding the hay. At the stage given, early milk, the plants are relatively richer in protein than during the ripening period, and the nutritive ratio is, therefore, then considerably narrower than later on; hence, more starchy, and, as a rule, cheaper concentrates may be fed with hay cut at this time than at a later stage of growth."

On the matter of which is the better time to cut grain for high straw value, Prof. Woll says: "During the latter stage of the vegetative period of the plants soluble materials are transferred to the seeds, and other parts of the plants are left relatively depleted in feed components. Hence we find that straw is low in protein and fat and in more valuable carbohydrates, although still high in nitrogen-free extract and likewise high in fiber. Straw from cereals cut at different stages of ripening differs considerably in chemical composition and feeding value. Kellner gives the following analyses of oat straw cut at three different periods of growth—unripe, ripe, and overripe:

Composition of Dry Matter of Oat Straw at Different Periods of Ripening, in Per Cent.

	Crude protein	Fat	Nitrogen free Extract	Fiber	Ash
Unripe	10.1	1.9	50.6	29.4	8.0
Ripe	4.9	1.2	48.6	37.8	7.5
Over-ripe	4.3	1.4	36.9	49.8	7.6

—Editors.]

DRAFTERS REPLACE RACERS

One of the most encouraging happendings in draft horse breeding circles this spring was the purchase by Mrs. Anita M. Baldwin of a fine lot of registered Percheron mares and stallions for the purpose of founding a Percheron stud.

This ranch, which was made famous by its race horses under the supervision of Lucky Baldwin, is known in all race horse circles of the world, and it is fitting that the daughter of this well known horseman should enter into the breeding of draft animals especially in view of the need of more and better horses of this type in the State.

Imported Percheron Mares. From left to right: Imprecise, 6 years old, 1st prize at Lemans, France, and Champion Minnesota State Fair 1914, weight 2200 pounds; Kambree, weight 2,000 pounds; Manon, 1st prize in France, 1st prize Minnesota State Fair, 3 years old, weight 1850 pounds; Marcotte, 1st, Forest City Fair, Cleveland, 1914, 3 years old.

This ranch was made famous by its race horses under the supervision of Lucky Baldwin, is

This stock was imported by the Dunham-McLaughlin Importing company; and for the time being it will be on exhibit at the livestock barns at the Panama-Pacific Exposition.

AN OFFICIAL JERSEY TEST, 11.6.

In line with a communication from a subscriber who recently asked what the record butter fat test was for dairy cows, the official testing which is being done by the N. H. Locke company at Lockeford brings out some interesting data.

Among the 15 cows which are on yearly test, the cow Golden Lemola of Lockeford is the highest tester, her four milkings last month at the time of the tester's visit showing the following weights and tests: morning milking, 11.1 pounds of milk testing 11.6; afternoon milking, 6.1 pounds of milk testing 3.8; morning milking, 11.2 pounds of milk testing 9.9; afternoon milking 8.3 pounds of milk testing 5.4. A peculiar thing with this cow is the way her test varies with the amount of milk, the highest test occurring when her milk flow is heaviest. Her average test is 8.38 which is surely high enough.

Of the 15 cows on test, several are doing exceptionally well; and while they are being tested under ordinary feeding conditions, with beet pulp and alfalfa as the ration, and milked with a Sharples milking machine, it is thought that some State records will likely be made for the year. This is perhaps the only official testing which is being done where the mechanical milker is in use, although there are eastern breeders who test under this same condition, which seems to show the confidence breeders are beginning to take in the machine.

In order to make keener competition in the regular monthly contests among the dairymen in Yolo county, the officials of the Cow Testing Association have raised the standard to 55 pounds of butterfat.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. [illegible] Bolivar, Mo.

Entire Herd Registered Holsteins

Headed by two-year Bull **Prince Korndyke Pontiac 2nd**, who combines 37½% blood **Pontiac Korndyke** record dam and sire's dam averages 27.88 lbs. butter 7 days. Two 5 yr., two 3 yr., six 2-yr.-old-cows. Two yearling and two young heifers, one yearling bull and 3 bull calves; also four extra high-grade 2-yr. fresh heifers. 10 females, sired by Segis Oak Homestead Fobes, whose 7 dams average over 27 lbs. butter 7 days from dams who are daughters and granddaughters of Hengerveld de Kol, Wooderest, Hengerveld de Kol Duchess Ormsby Piebe Burkeecis. This stock is equal in breeding and individuality of any in the State. Come and see for yourself.
For particulars and prices address,
H. S. VAN VLEAR, Lodi, Cal.

5 Good Reasons Why—
You Should Feed
Larrowe's Dried Beet Pulp
—to Your Cows

(*For more detailed information write for a copy of our booklet "Profitable Feeding"*)

1st INCREASES THE MILK FLOW—1 to 5 lbs. per cow a day.
2nd AIDS DIGESTION—cows will have better health and less bag trouble.
3rd EASY TO FEED—keeps indefinitely and is always available.
4th SUCCULENT—displaces silage or can be fed with it if desired.
5th CHEAPER THAN BRAN—or other mill feeds and gives better results.

Now is the logical time for you to start feeding this wonderfully efficient vegetable feed. No matter what ration you are now using, Larrowe's Dried Beet Pulp can be added to it profitably. Order one sack from your feed dealer and test it on one cow whose milk record you know.

LARROWE'S DRIED BEET PULP

—can be had either plain or with molasses. Comes packed in convenient 100-lb. sacks—each pound swelling to six times its natural bulk when moistened. A splendid feed not only for dairy cows, but also for horses, hogs, sheep, etc.

FREE OUR BOOKLET "PROFITABLE FEEDING" —Write For a Copy Today

THE LARROWE MILLING CO.
933 CENTRAL BUILDING, Los Angeles, Cal.

AUCTION SALE!
ENTIRE HERD OF ELDER CREEK JERSEY FARM.
RECENTLY TUBERCULIN TESTED.
25---Registered Jersey Cows---25
FRESH AND COMING FRESH.
Elder Creek Jersey Farm
April 29th
Six miles south of Sacramento and one mile north of Florin on Elder Creek Avenue.

This herd is headed by **Silver Cosumne 82514**, one of the best bred bulls in the State. Sired by **Silverine Lad 68133**, who took among many other prizes, 1st prize at St. Louis World's Fair, 1904, in a class of 17. This bull is a product of Kinlock Stock Farm of Missouri, which has produced many a good animal, and will be sold with herd. In the herd are many of his daughters with their first and second calf, which show exceedingly well.

Calves! Calves! Calves!
Five bull calves and a limited number of heifer calves by the above sire, to be auctioneered off with the herd.
TERMS OF SALE:
Under $50, cash. Over $50 bankable note at 6%.
W. G. HARRIS, Dixon. Auctioneer.
P. H. SMITH & SON, Props. R. 4, Box 454, Sacramento.

Experiences In Feeding Beets.

To the Editor: Much interest is shown in beets as stock food, as evidenced by queries almost weekly in your columns, and it seems only right to me that my brother farmers should have a more specific answer than any I have yet seen printed. I have fed many varieties of beets during the last twenty-six years, among them large red mangels, Lane's Imperial, French sugar, and Golden Tankard mangel, and have discarded all others long ago in favor of the Golden Tankard. I consider the red mangel the poorest of all, as one bite of the meat is enough to set one coughing, leaving the throat irritated. Stock only eat it from necessity and are severely injured by heavy and continuous feeding of it. Lane's Imperial are of some value as feed, but shy in tonnage. French sugar grow too deep and hence are too costly to harvest. I have fed pigs on large red mangels as long as they would eat them, and they would squeal, showing themselves still unsatisfied. I have grown and fed no other variety for fifteen years than the Golden Tankard and ask no better cheap stock food. Last April I planted in a young orchard twenty-four feet each way, four 40-inch rows to the orchard row in about ten acres of orchard, or less than five acres if set in full. I began feeding about June 1 and have enough in the orchard to last until the new crop is ready, approximately seventy-five tons in all. I drill in rows 40 inches apart and to stand four to six inches apart in row, harvesting only the largest. I feed to cows, calves, hogs, and poultry all they will consume. I do not trouble to cut them up, as it is work wasted, besides the danger of choking on pieces cut too small. A calf or pig delights to cut his teeth on the crisp, juicy roots, and learns readily to eat the uncut beet. I feed brood sows almost entirely on them and get healthy litters. The sows are not overfat, but in fine health. When weaning and up to three months old, I feed pigs in addition a small quantity of mash as follows: one part linseed meal, two parts cocoanut meal, and one part alfalfa meal or alfalfa hay moistened and feed about 1 quart per pig, increasing gradually to three pints per pig at three months, after which 80 per cent of the ration is beets and the balance alfalfa hay until about a year old, when a liberal supply of corn is fed to round them off for market. As the beet fed hog has spent his time in growing bone and lean meat, he is in great shape for fattening. I sold hogs last fall at ten months old, weighing an average of 225 pounds, at 8½ cents on foot, and they had cost me not over $3.00 each for mill feed and corn. I know of no crop that will produce as many pounds of nutritious feed per acre and give as much satisfaction as the Golden Tankard mangel beet. It can be lifted from the ground easily as the growth is mostly above ground, and as a table beet they are unsurpassed at any stage, and can be topped and piled up outdoors and will keep indefinitely. One pile of about fifteen tons, gathered in December, was fed when too wet to feed from field and there is probably a ton left and as sound as when gathered, with no covering but the canopy of heaven. So, brother farmers, plant beets and then more beets, and don't be afraid to feed too many. Almost any soil is suitable for them, if well cultivated. I soak the seed until it begins to germinate, then sow and cover quickly, as a better stand is thus insured and admits of later planting when soil is warm and rains are not likely to run the land together and cause a lot of costly hoeing. **Frank Owen,**

Napa.

SILAGE YIELD OF ALFALFA.

To the Editor: Would you please tell me how much silage 1 ton of hay fresh from the field will make.—J. L., Antioch, Cal.

[Answered by Prof. F. W. Woll, University Farm, Davis, Cal.]

[I take it that the writer wishes to know how much silage he will get from a ton of green alfalfa. This will depend on how much the alfalfa is allowed to dry out before being placed in the silo, and on the losses through fermentations and respiration of plant cells that occur in the siloing process. In order to secure a good quality of silage the alfalfa must be run through a cutter and packed well in the silo with the least possible delay after it has been cut in the field so that there is a minimum evaporation of the water prior to the filling of the silo. After the green alfalfa is placed in the silo the losses of feed materials will depend on how well it has been packed and how air-tight the silo walls are. In silos with thin, flimsy walls a considerable loss of nutrients will occur, viz., one-fourth, or more, while under favorable conditions the loss should not exceed 10 per cent. In answer to the question, we may say, therefore, that if alfalfa is promptly run through the cutter and carefully packed in a well-built silo a ton will be likely to make between 1600 and 1800 lbs. of well-preserved silage. Since 4 tons of green alfalfa make about a ton of hay, four times the amount given, or between 3 and 3½ tons of silage will correspond to a ton of hay.]

STORING ALFALFA HAY.

To the Editor: Will alfalfa hay keep in a barn loft after being in the stack long enough to sweat? I want to cut my hay for next winter; my barn loft will hold about 25 tons.—A. L. S., Los Molinos.

[We see no reason why it is not entirely practicable to store hay in a barn, which has previously been stacked. In fact, we have seen this done in many instances in the interior valleys where stockmen ran short of hay and were compelled to buy from neighbors who had already stacked theirs. If any reader has experience otherwise it should be highly interesting to many subscribers.—Editors.]

BERKSHIRES Oak Grove

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our cows are of equal merit

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.

Swineland

TAMWORTH'S DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.

Write or call and see us.

SWINELAND FARM.

W. S. PEARSON, Prop. WOODLAND, CAL.

Which will you buy a "cream thief" or a "savings bank" Cream Separator?

WITH A GREAT MANY MAchines or implements used on the farm it doesn't make much difference which of several makes you buy.

ONE MAY GIVE YOU A LITTLE better or longer service than another, but it's mostly a matter of individual preference and often it makes little difference which one you choose.

NOT SO WITH BUYING A cream separator, however.

THE MOST WASTEFUL MAchine on the farm is a cheap, inferior, or half-worn-out cream separator.

THE MOST PROFITABLE MAchine on the farm is a De Laval Cream Separator.

A CREAM SEPARATOR IS used twice a day, 730 times a year, and if it wastes a little cream every time you use it it's a "cream thief," and an expensive machine, even if you got it as a gift.

BUT IF IT SKIMS CLEAN TO the one or two hundredths of one per cent, as thousands and thousands of tests with a Babcock Tester show the De Laval does, then it's a cream saver, and the most profitable machine or implement on the farm—a real "savings bank" for its fortunate owner.

AS TO HOW MUCH CLEANER the De Laval skims than any other separator, the best evidence of this is the well-known fact that all other makes were discarded by the creamerymen years ago, and that today 98% of the cream separators used in creameries the world over are exclusively De Lavals.

THEN THE DE LAVAL IS SO much better designed and so much more substantially built and runs at so much lower speed than other separators that its average life is from 15 to 20 years as compared with an average life of from 2 to 5 years for other machines.

THERE ARE OTHER ADVANtages, as well, such as easier turning, easier washing, less cost for repairs, and the better quality of De Laval cream, which, when considered in connection with its cleaner skimming and greater durability, make the De Laval the best as well as the most economical cream separator.

REMEMBER, THAT IF YOU want a De Laval right now there is no reason why you should let its first cost stand in the way, because it may be purchased on such liberal terms that it will actually pay for itself out of its own savings.

A De Laval catalog to be had for the asking tells more fully why the De Laval is a "savings bank" cream separator, or the local De Laval agent will be glad to explain the many points of De Laval superiority. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

De Laval Dairy Supply Co.

165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Don't Forget the California Breeders 2nd Annual Jersey Consignment Sale

80 HEAD—Will be Sold at Modesto—MAY 4, 1915

STERLING SELECTION of the best blood lines by some of the best breeders in the State. Every animal is a distinctive individual; every one has points which should appeal to the most exacting buyer. PRIZE WINNERS and PRODUCERS, tried and true stock, YOUNG STOCK with its future ahead of it.

All will be offered for sale in the Modesto Auditorium, MARCH 4, 1915.

CONSIGNORS:

C. N. Odell, Modesto. D. Larsen, Stevinson. Dr. L. J. Belknap, San Jose. F. B. Wulff, Modesto. Dr. S. Z. Peoples, Petaluma. D. Wall, Modesto. Mrs. A. E. Melander, Stevinson.

and many others.

For free catalogue and particulars, address

B. A. RHOADES Auctioneer, Los Angeles, Cal. G. O. HILLIER Sales Manager. 2106 Telegraph Ave., Oakland.

We are also going to sell 60 HEAD of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

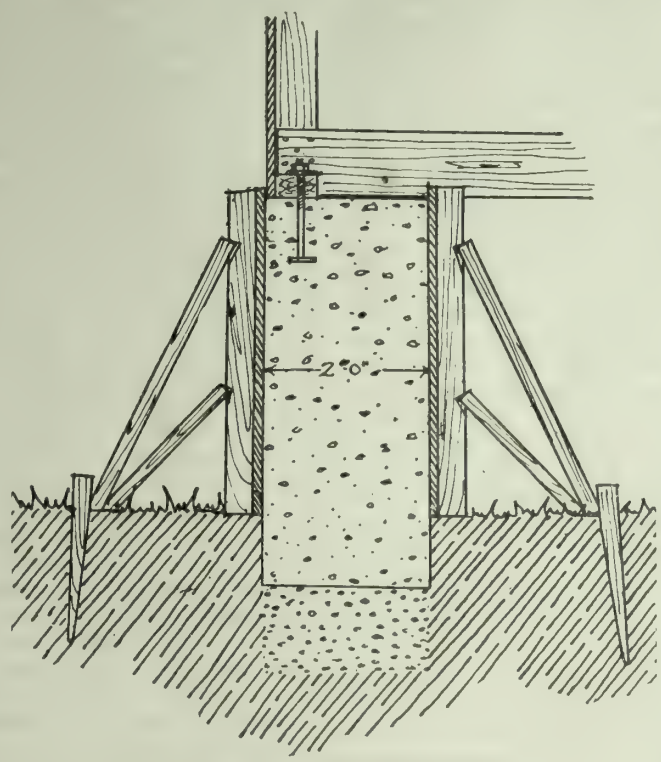
Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

Repairing Buildings With Concrete.

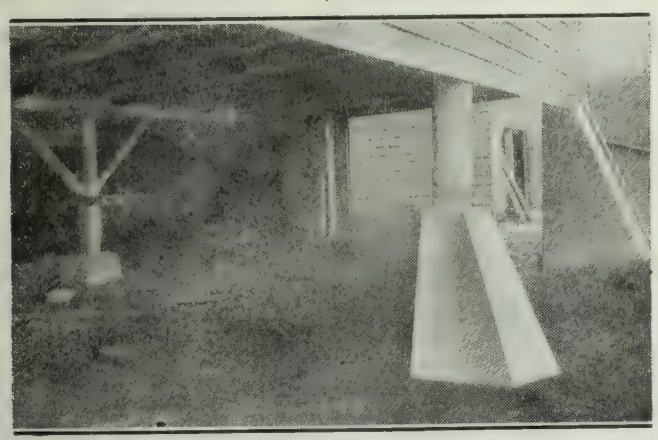
A common source of annoyance and expense on the farm is the decay or giving way of building supports and foundations. When this occurs it is considerable trouble to replace these with new timber or ordinary masonry. For making repairs of this character concrete surpasses any other material. Timber supports may be renewed without jacking up the building beyond its original elevation.



How Forms Should Be Constructed.

For example, let it be assumed that a building is resting upon wooden or timber supports which have decayed at the ground level, which always occurs when timber is subjected to alternate wetting and drying. It is an exceedingly simple matter to remedy a situation of this kind with concrete. One has merely to support the building with temporary struts, which should be placed near the post to be removed. The old post should then be sawed off entirely above the rotten part, the suspended part consisting of sound timber. Directly under this suspended post, dig a hole 2 feet deep and slightly larger than the post itself. Fill the hole with a mixture of concrete consisting of 1 part cement, 2 parts sand and 4 parts stone. On top of this place a box with open ends, its inside measurement conforming to the dimensions of the hole. This box should be made and ready to use before any concrete is mixed or placed. Its length should be sufficient to reach from the ground to a few inches above the bottom of the sawed support. When in position, fill it with concrete until the bottom of the sawed-off post is imbedded about a half-inch in the concrete. Proceed as above with each support, leaving the boxes or forms in place for one week, and after two weeks the struts used as a temporary support for the building may be removed. The concrete should be mixed thoroughly wet and tamped or puddled with a stick while being placed.

In case of large buildings elevated quite a distance above the ground, the new support or foundation may be made larger at the bottom than at the top by sloping one side of the box form.



A Substantial Foundation at Small Cost.

To Replace a Continuous Foundation with Concrete.—This can be done by the farmer with the help of his farm hands even where buildings are quite large and the foundation is of the continuous type, requiring jacking up of the structure. At necessary points remove a few heavy stones or bricks, as the case may be, and insert short pieces of heavy timber to wedge up the building. The building should be carefully raised by this means until entirely free from all foundation. Then remove all of the old foundation and set in place the forms for the concrete. In the case of small buildings it is usually feasible to raise them high enough to allow working room, in which case the form may be filled up to the top with concrete. The concrete should be a wet mixture consisting of 1 part Portland cement, 2 parts sand and 4 parts stone.

Should the building be too large and heavy to be raised to a height that will give head room, merely make the foundations 3 inches wider than the sill. Then when the forms are carried to the desired height the concrete may be inserted through this extra space of three inches. To facilitate the placing of the first layers of concrete the top board of the forms may be left off until ready to place the last of the concrete. This last batch should be very wet. The concrete should be tamped until it comes up flush to the bottom of the sill and to the entire width of the wall.

Make certain that a space is left in the concrete wall under and on the sides of the underpinning support so that the building may be lowered onto the new foundation and the timber removed. This opening, of course, must be slightly larger than the underpinning support. The building should not be lowered until the foundation has been in place two weeks, and after this is done the openings occupied by the underpinning may be filled with concrete.

HORSE SCOURS.

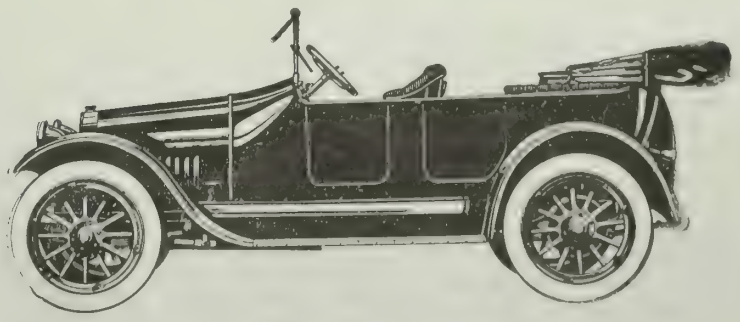
To the Editor: I have a mare that is 12 to 15 years old that has been scouring for several months. She looks healthy in every way and her eyes are good. She has a ravenous appetite and wants to drink about twice as much as when she is not scouring. Her hide is not very tight and she is shedding fairly well. There is almost a constant rumbling inside and she passes gas and water every few minutes. There is no offensive odor from her. I have given her every change of feed possible, even to grass.—D. W. W., Sanger.

[Your horse has catarrhal enteritis. Give her six tablets Abbotts' sulpho-carbolates compound three times a day crushed up in feed or dissolved in water. Also one ounce salol twice daily with one ounce powdered ginger.]

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Stock Buyer
J. HENRY LETTOW,
Los Angeles, Cal.
Live Stock Judge and Commission Buyer, will locate and help select your:—
DAIRY COWS,
FEEDERS,
SHEEP, OR
HOGS OF ANY KIND,
on a very reasonable basis. Have large list of livestock breeders and feeders to deal with, and can buy or sell for you in any Pacific Slope State. Write me what you want; I'll do the rest.
EXCHANGE BUILDING.

1915
Mitchell
First at the Show
Your presence is requested at the MITCHELL BOOTH at the Exposition, to look over the beautiful 1915 line of Four and Six Cylinder cars—Cars that are the present sensation in the automobile world—unequalled in distinctive appearance and superior construction.

LIGHT WEIGHT BUT SAFETY FIRST.
Osen-McFarland Auto Co.
661 Golden Gate Ave., San Francisco.
1st & St. James Sts., San Jose.

Poultry for Profit.

[Written for Pacific Rural Press by Mrs. Susan Swaysgood, Pomona.]

BROODING AFTER WEANING.

This year there will be thousands of baby chicks sent to all parts of the State and to neighboring states. Many of these chicks will be received by people who have never had any day-old chicks except those hatched by themselves, so that a few suggestions as to the care, feed, etc., may be helpful in saving the chicks' lives and the owner's loss.

How to Treat Chicks on Arrival.—If you have told the shipper to send chicks by a certain train it is your duty to meet that train and get the chicks. This is often the connecting link between the life and death of the chicks, because if they have to lie over in a cold express office at the latter end of the journey it is not going to help them. When they arrive open the boxes and see that they are in good shape; and observe if they appear crowded in corners of the boxes. If they do, it will be easier to warm them right in the box than by taking them out. Put some cover on, and get them feeling warm before placing in brooder. If, however, the chicks are too warm, open the tops of the boxes and throw over some very light covering until chicks seem normal.

What to Feed Them.—If the chicks have been forty-eight hours from the incubator and they arrive early in the day, they should be given rolled oats, dry chick feed, a little fine ground oyster shell, and either boiled milk or boiled water that has cooled down. I prefer the milk if it can be had, as it is concentrated strength boiled down. After feeding, see that the chicks go under cover and are kept warm, feed light towards evening so that by morning they will be fine and fit for breakfast. I prefer to feed rather light for three or four days, as by that time there will be little danger of indigestion.

Green Feed Good.—Get them out on the ground as soon as they are able to run around. If they run on alfalfa or lettuce, or any other tender green feed, there will be little danger from overfeeding, because the green acts as an emulsifier and digestor. Green feed is several feeds rolled into one, and it is not necessary to wait a number of days before giving green feed, but turn them out on it and let them decide for themselves. Don't feed animal food for a few days, and then be sure that it is sweet and sound. Feed a little mash every day after you commence, but let the chicks have exercise by scratching in short litter for most of their feed. If these precautions are taken very few chicks will die, as it is generally carelessness in feeding the first few days that causes the death list in chicks. Whenever diarrhoea comes up, look to the feed; boil the water and they will soon be all right.

CARE OF HATCHERY CHICKS.

This is a very important feature in chick raising, but as a rule everyone has a certain way of his own of doing these things, so very little is said about them. Another reason they are not more talked of is that with new methods of brooding there has to be a change in the perching, etc.

Remove Hen.—Chicks that have run with hens are about the most forlorn and miserable little things in the world for a few days, unless the hen was an old mother that understood how to wean them by making them afraid of her. When this happens it is usually good for both chicks and caretaker, for it makes them easier to control. After the hen leaves the chicks, if she has been kept in a fairly decent coop, it will be best to leave them there until you are ready to perch them.

Don't Let Chicks Crowd.—If they are already old enough to perch, do it right away and break them in at once. This is easy enough with small lots. Have a perch that the chicks can grasp with the toes and put them on it one or two nights and they will do the rest. If there are several hens' broods left, it is better to move all together and put them in a fence where they can't get back to their old nesting places. In the heavy breeks the chicks don't take to the perch as early as the small breeds, so if they are under ten weeks old it is better to put them in a house with some litter and give them perches so that they can perch if they want to. If there is quite a number of chicks, it will be wise to make up all corners by tacking a piece of inch mesh wire up in each one. Chicks that don't find a corner very seldom crowd, so if you make up the corners and give them their choice of a bed or perches there will be very little danger. It is a good idea to put a few older chicks in with them as they will show the example to the younger ones.

How to Make the Perch. — There are many different ways of making them perch, but the easiest one I ever found was as follows: When the chicks left the house they had been brooded in for the day, I carried all brooders or hovers out, and had a rack made of lath or one-inch slats nailed to a frame. I tacked one-inch mesh wire under the slatted frame. The frame was made to fit the house, with hinges in the center, so that when it had accomplished the work in one house it could be carried to another. It was fastened to the ceiling by bailing wire and the front of the house was down to the floor, which prevented the chicks going underneath. The back of the frame went gradually higher, yet not too high to make the slope felt by the chicks. The slats or laths were about four inches apart, and as the chicks knew no other house, they naturally came home at night. I always fixed the frame just about a foot inside the building, giving them a little room to fill in, which they generally did by packing themselves in like sardines.

With an assistant to stand at one side of the door, I would take a broom and gently shoo those in the building up on the perches; and as they went up we brought more in the building until all were safe in the fold. They could not possibly crowd on that frame, the wire making it uncomfortable for them. If they slipped off the slats onto the wire, they scrambled back as quick as they could.

Train Leghorns Early.—Leghorns are generally brooded in larger numbers and, although they love to play at perching, when it comes down to business they will crowd and kill each other. The crowding and piling in corners is not natural, but they have been hatched and brooded artificially for so many generations that they have practically forgotten how to be natural. It is best to train them early, not over eight weeks old. I have perched them at one month old and they did fine, but it was a big job, because at that time I did the work by hand, lifting each chick many times on the perch before it stayed there.

If you brood in one house and the chicks have to be removed, it is a more difficult proposition. But those who are brooding thousands follow about the same plan. They have the perches near the hovers and when it comes perching time arrange so that the chicks can be shut out from the hovers. The perches being handy the chicks naturally take to them, and it is an easy matter after that. If the building is kept a little warm as usual instead of making too sudden a change, the chicks will always take more kindly to the perches.

What to Feed.—Because we have perched the chicks is no reason the feed should be changed too suddenly. Give a little coarser grain, but see that they get lots of it. The mash may be fed to them now almost as strong as is given the layers. Plenty of green feed helps the digestion and keeps the chicks healthy. If milk is fed, feed a little santonin or wood ashes along with it in a mash, and a little Epsom salts occasionally is helpful. Chickens will have worms, more or less, but if the droppings are kept cleaned up and sanitary conditions prevail in general, they will never have enough to hurt them and I don't believe in much doctoring.

Feed for Young Turks.—For young turkey poults feed hard-boiled eggs, bread crumbs, and milk curds, onion tops and lettuce as the general diet, varied with bread soaked in milk and squeezed dry with a little bran added. I have recommended "Spratt's Chick Meal" to turkey raisers because I know it is an ideal food for baby poults, but really those people don't deserve trade; they don't advertise and our readers can't get in touch with their agents, so altogether it makes a very unsatisfactory recommend. The very best way to feed young turks is to be careful of the quantity. Don't throw a lot of feed down for them to eat or leave, for most likely they will leave it until later, when the quality is not quite so good from lying on the ground; then they will eat it up and may get sick after. Feed a little and often, and at night be sure that every little craw has something in it.

If milk is put on to clabber before it has arrived at the thick sour stage it sometimes comes stringy and tough. I never liked that sort of curd for little turks; it seems to digest better when the milk is thick and sour and is clabbered very slowly on the back of the stove. It is then in little granules like butter, and if you put a pinch of red pepper in the whey and let the turks drink it they will like it fine; drain the whey from the curd through cheese cloth and let the turks have the curd either as it is or mixed with onion top and bread crumbs. But don't stuff them, and don't feed them dry chick feed in grains, until they are old enough to digest it. Like chickens they need exercise, fresh, clean water, and plenty of

Get the Best
for your chicks
Coulson's
POULTRY FOODS
Special Chick Food
Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

Free Book
Raising Calves without milk. Everything you need for stock and poultry raising. Write today.
"Kilmel" Squirrel and Gopher Killer.
F. F. SMITH & CO.,
1006 J Street, Sacramento.

California Poultry Practice

A Practical Book for California Poultry Raisers

By Mrs. Susan Swaysgood.

In writing this book, the author, after a lifetime of active, practical and successful experience in poultry raising on the Pacific Coast, has endeavored to show the farmer how he can make the poultry department of his business more profitable. It deals farmer how he can make the poultry department of his business more with actual conditions—not theories—and covers every phase of the industry from eggs, chicks, diseases and remedies to the profitable marketing of the products of the poultry farm.

The chapters on Open Front Poultry Houses, Care and Management of Eggs, Raising the Chicks, Feeding for Eggs, Management of Poultry during the Summer, Molt in California, are each worth many times the cost of the book. You need this work if you keep chickens—it will help make them more profitable and the pleasure in handling them greater.

Contains 160 pages of text, besides illustrations, bound in cloth; price, $1.00 per copy postpaid.

PACIFIC RURAL PRESS, Publishers.

525 MARKET STREET, SAN FRANCISCO, CAL.

green feed, grit, and a little charcoal. Given these things and reasonable care in brooding, turkey poults are as hardy as the hardiest chicks.

MORE EGGS PER HEN.

[Written for PACIFIC RURAL PRESS
By Jas. D. Yates, Modesto.]

One of the most important things that is occupying the minds of the poultry breeders who make a living from that alone, is "breeding for egg production." The time has passed some time ago when all strains of Leghorns or any other breed lay practically alike.

What has proved that some strains are away ahead of others in laying qualities? No doubt but the international egg laying contest now in its third year conducted at Mountain Grove, Mo., T. E. Quisenberry director. An English breeder, Mr. Tom Barron, has produced White Leghorns that have repeatedly won the championship for the pen that has laid the most eggs in one year. All the birds in the contest were trap-nested and individual records kept.

Now what benefit can the poultry breeders and readers of the Rural Press who desire to raise the number of eggs produced per hen, get from such experiments?

Here are some of the characters of the best producing hens as given by Mr. Barron himself, when he visited the experiment station at Storrs, Conn.

Rather short beak, short and broad head, rather short neck, legs well set apart, body deep behind so as to give full capacity for egg and digestive organs, comb a little larger than standard size. He believes that the male influences largely the egg production of the off-spring. That is, a flock can be built up by using males that are from high-producing females and possess egg-laying characteristics. Now in California, where many know something of the Hogan System, you will ask does it pay to Hoganize?

The information from the Mo. experiment station, which is the most reliable and best information given out yet by any experiment station in the U. S., Mr. Quisenberry says there poultry. Both the egg and beef type are found in the various breeds of poultry, also the medium or dual purpose fowl. Generally speaking, the medium sized birds are the best layers and are usually under standard weight; they are seldom broody is an egg type and a beef type in even in the broody varieties.

They have thin pelvic bones, rather high tails, feminine head appearance, large bright eyes, relatively large combs, broad shoulders, long back sloping down toward the tail, wide behind and of good capacity.

If the average farmer or farmer's points and have the grit to go out to the flock and cull out the ones that wife will just study a little on these look to be the poorest producers or drones, they can soon build up a flock that will make a high average per hen.

The ten English White Leghorns laid 2296 eggs in the 12 months; all but one laid over 200 eggs each.

The greatest individual record was a White Leghorn from Nebraska; she layed 286 eggs.

One reason it has been difficult to improve egg laying qualities by keeping individual records is that it requires so much time to trapnest birds, but any one can keep a record for the whole flock for a year and see your average per hen.

The average poultry keeper does not feed enough animal protein to his poultry to get any thing like the amount of eggs his flock is capable of producing. Consequently they are not so profitable. The common form of animal protein for poultry feed, commercial beef scraps, can be bought at any feed store at about 3 1-2 cents per pound. About 20 per cent of the mash fed should be good beef scrap. Milk is another excellent form of animal protein. Mix the mash with skim milk or butter milk that is not too salty.

QUISENBERRY HAS ARRIVED.

T. E. Quisenberry, of Mountain Grove, Missouri, Superintendent of Poultry at the Panama-Pacific International Exposition, has just arrived in San Francisco to take up his duties in connection with the poultry show to be held at the Exposition in November. Mr. Quisenberry has been invited to visit associations in various parts of the State with a view to acquaint him with the peculiar conditions of the Pacific Coast; to learn from prospective visitors at first hand their wishes and to receive suggestions in regard to the management of the poultry show. Mr. Quisenberry's first visit will be made in response to the invitation of the Hayward Poultry Producers' Association to the house-warming of this organization's new building in connection with the regular quarterly meeting of its members.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

SOMETHING GOOD for May and June. Bargain prices in Baby Chicks, Hatching Eggs and Breeding Stock. Baby Chicks, $7.50 to $11 per hundred, depending on breed and quantity. Hatching eggs, $4 hundred, $35 thousand. Breeding stock, $10 to $15 dozen. We specialize on White Leghorns and Black Minorcas for the White Egg commercial breeds and Rhode Island Reds and Barred Rocks for meat and Winter laying qualities. The best of their kind. Our stock is well selected and mated, and in chicks and eggs can tackle anything from 25 to 2500. Delivered prices quoted. Circular free. Roofden Poultry Ranch, Campbell, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

MY S. C. BLACK MINORCAS WIN.—Best pullet in San Francisco show. Best female in class. Best female in class at Willows. Best male in class. Four specials at Modesto, 1st, 2nd and 3rd pullet and 2nd cockerel. No old birds exhibited. Eggs $3 and $5 per 15. Cockerels, $5 up. A. C. Masteller, R. 1, Oroville, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

PETALUMA HATCHERY—Established 1902. Do not compare our prices with others; compare quality; the best are the cheapest in the end. Send for circular. L. W. Clark, Petaluma, Calif.

WHITE ROCK BABY CHICKS—$15 per hundred. Breeding stock always kept on free range. Hatching eggs, $1.50 per setting; $7.50 per hundred. Mrs. J. B. Tupper, Ceres, Calif

BABY CHICKS—Single Comb White Leghorns. Selected stock. With a capacity of 25,000. Can fill orders on short notice. Carl Stange, 1408 Silver Ave., San Francisco.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W J. Hicks, R. 2, Petaluma, Cal.

WE HAVE THEM—Imported Gold and Silver Campines, bred by R. Edwards, England, winner of first prize, London, Brussels and New York. Birds and eggs for sale. Ed T. Morgan, Northam, Nevada.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

STADER'S POULTRY FARM, R. E., Box 38, San Mateo, Cal. Hatching eggs from S. C. White Leghorn selected stock, $5 per 100; $40 per 1000. Order now. No baby chicks.

90% of gas engine trouble has always been due to faults of ignition

The "ALPHA" Engine

"The gas engine without batteries"

Stops ignition trouble

THE ALPHA IGNITION EQUIPMENT consists of a gear-driven, positively timed, built-in magneto, which we guarantee will last as long as the engine, and a simple, well built and positive igniter. A hot fat spark is developed which quickly ignites the whole mixture in the cylinder and enables the production of maximum power from the minimum amount of fuel.

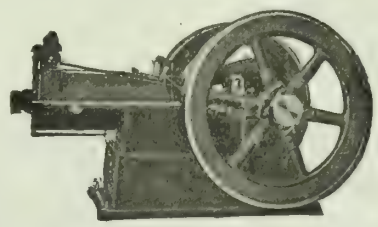
ALL ALPHA ENGINES NOT only operate but **start** on this magneto. It is hard to believe it until you see it done. In starting even the largest size Alpha Engine, only a partial turn of the fly-wheel is required and the engine goes right to work. No fussing or stewing over batteries, coils and spark plugs with which other engines are equipped.

THE ALPHA ENGINE IGNITION system is so much simpler that once you see it done you can do it yourself. No trick about it.

If you have had any experience with gas engines you will readily appreciate the great advantage of the Alpha in this respect, and even if you don't know gas engines, an inspection of the Alpha Engine will certainly convince you of its simplicity of construction and the excellence of its material and workmanship.

THERE ARE A DOZEN OTHER points of superiority of the Alpha that are just as important as the advantages of its ignition system, and these the nearest Alpha agent will be glad to explain to you. If you don't know the name of the Alpha Engine agent in your locality, we will be glad to put you in touch with him, or if there is no Alpha agent in your neighborhood we will send one of our own representatives to see you, upon request.

IN ANY CASE, WE SHALL BE glad to send you the finest gas engine catalogue ever printed.



2 to 100 H. P. Portable or Semi-Portable, Water Cooled or Hopper Cooled.
EVERYTHING FOR THE DAIRY.
JAMES BARN EQUIPMENT. IDEAL GREEN FEED SILOS.
VIKING PUMPS.

De Laval Dairy Supply Co.

SAN FRANCISCO. SEATTLE.

Ask Your Dealer for

El Dorado Cocoanut Oil Cake

for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,
149 California Street, San Francisco

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order. Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthauer, Exeter, Cal., R. 1, Box 95.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beegle & Cullen, Empire, Cal.

CHICKS—Day-old chicks from my healthy, vigorous, heavy-laying, free-range stock of S. C. White Leghorns. Price $6.50 per 100 H. P. Hansen, R. 4, Box 177, Petaluma, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H Croley Co., Inc. 631-637 Brannan St., San Francisco.

TO INTRODUCE Brubaker's strain of R. I. Reds, Buttercups, Golden and Silver Campines, will sell eggs at half price during 1915. J. D. Brubaker, Hemet, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

ORPINGTONS—Buff and White Black Minorcas. Chicks, eggs and stock. Carneaux pigeons. Mrs. Susan Swaysgood, Route 2, Pomona, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

HATCHING EGGS—Barred Rocks, R. I. Reds, Winners State Fair, Sacramento and Oakland, Cameron Bros., 689 Vine St., Sacramento, Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15 Cockerels, $7.50 and $10. Nellie Presher, 3107 22nd Ave., Oakland, Cal.

BABY CHICKS—Barred Plymouth Rocks bred to lay. $15 per 100. Fairmead Poultry Farm, Gustave M. Eastman, Califa, Cal.

TRAPNESTED LEGHORNS — White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

WHITE AND BROWN Leghorn Chicks. Good stock. Also other breeds. Write James D. Yates, Poultry Judge, Modesto, Cal.

BARRED ROCKS ONLY—Eggs for hatching, $5 per 100, and chicks $12 per 100 in April. G. S. Hawley, Madera, Cal.

TURKEYS, DUCKS AND GEESE.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

MAMMOTH TOULOUSE GEESE EGGS, 20 cents each. Black Minorca eggs, $1.50 per 15. E. A. Hall, Watsonville, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

WHITE HOLLAND TURKEY EGGS for hatching. From first-prize birds. Mrs. R. H. Brotherton, Los Altos, Cal.

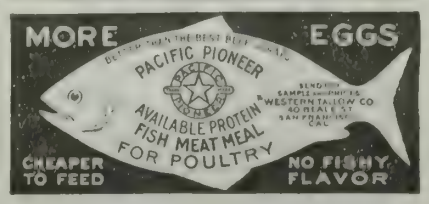
INDIAN RUNNER DUCKS—Eggs, $5 per 100. From prize-winners. C. D. Andrews, Lanare, Cal.

PIGEONS AND PHESANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

BELGIAN HARES—Young stock for sale. Hurd Bros., St Helena, Cal.



The Home Circle.

LULLABY OF THE IROQUOIS.

Little brown baby-bird, lapped in your nest,
Wrapped in your nest,
Strapped in your nest;
Your straight little cradle-board rocks you to rest.
Its hands are your nest,
Its bands are your nest.
It swings from the down-bending branch of the oak,
You watch the camp flame and the curling gray smoke;
But, oh, for your pretty black eyes sleep is best.
Little brown baby of mine, go to rest.

Little brown baby-bird, swinging to sleep,
Winging to sleep,
Singing to sleep;
Your wonder-black eyes that so wide open keep,
Shielding their sleep,
Unyielding to sleep.
The heron is homing, the plover is still;
The night owl calls from his haunt on the hill;
Afar the fox barks, afar the stars peep.
Little brown baby of mine, go to sleep.

—Pauline Johnson.

THE HORSE THAT WORE SPECTACLES.

"Say, boys," said Tom Phelps, at recess one Friday, "what do you think we've got in our barn? You never could guess!

Then the guessing began, and a great many queer things were thought of; but none were right, and finally they had to give it up.

"Well," said Tom, laughing, "of course you couldn't guess it, for you never heard of such a thing. It's a horse that wears spectacles!"

"Oh!" said all the boys who had gathered around Tom; "it's mean to fool us that way. Didn't think you were joking." And they were turning away to their games when he called them back.

"But I'm not joking. You know our horse Prince?"

"Yes!" came from a dozen boys at once. Didn't they know him! Hadn't they ridden behind him, filling Mr. Phelps' wagon running-over full if he ever chanced to drive along just as school was out, a hundred times? And hadn't they ridden on his back in the pasture three or four in a row, and tumbled off three or four in a heap, and petted him, and given him apples or sugar whenever they saw him? Every boy in Manilus knew Prince, and to know Prince was to love him; for a more intelligent, kind, and gentle horse never lived.

"What about Prince?" said several in a breath.

"Why, Father thought he was getting blind. He has always acted as if he couldn't see just right, and so the other day Father took him to a what do ye call it?" said Tom, trying to think of the big word he wanted.

"Was it an oculist?" said a voice.

"Yes, sir," answered Tom; for it was the teacher, Mr. Bragdon, who spoke. He had joined the group, and was listening with interest to the news about Prince.

"The man looked at Prince's eyes just the way he would look at anybody's, and found he was near-sighted, the way some people are. Then he wrote out something to tell how to make spectacles for Prince. Father had them made and put upon a bridle, and Prince wore them yesterday."

"How did he act, Tom, the first time the spectacles were put on?" asked Mr. Bragdon.

"He acted at first as if he was sort of frightened, but it didn't take him long to get used to them; and now we think he likes them."

"Well, that is wonderful!" said Mr. Bragdon, as he turned to go into the school-room; and before recess was over half the boys had agreed to go to Tom's the next morning to see how Prince looked in his spectacles. Mr. Bragdon was invited, too; for all the boys liked him, and thought they always had a better time when he was along.

Bright and early Saturday morning a troop of jolly boys called for the "teacher," and were tramping gayly up the carriage-road to the Phelps farm-house, when whom should they see but Tom and his father in the big wagon, driving Prince right toward them. How funny Prince looked with his great goggles, and how the boys laughed. It seemed as if Prince tried to laugh, too; for he shook his mane and opened his mouth in such a funny way.

"He looks like a professor," said one.

"Or an owl," said another.

"Doesn't he look wise?" said a third.

"Why shouldn't he? He knows more than any of us," retorted one of Prince's most ardent admirers; and so the talk went on until Mr. Phelps ordered the visitors to "pile in" and go for a ride. They needed no urging, and their gay laughter as they went through the quiet town brought more than one staid body to the window to see what the matter was. No doubt more than one turned away with a sigh, to say, "It's only Deacon Phelps and that parcel of boys he's so fond of carting around with him."

When the ride was over, Mr. Phelps said, "Now I'm going to turn Prince out to pasture. Yesterday he acted kind of queer and sorrowful when I took the bridle off. I wish you would watch him today, Mr. Bragdon, and see what you think is the matter."

So they all waited and watched eagerly to see what Prince would do, and the boys who were used to his

RED CROWN
the Gasoline of Quality

You'll have less trouble with your engine "missing" or "stalling" if you use Red Crown. That's because Red Crown is *uniform*. There's power in every drop—and every drop's the same. Dealers everywhere.

Standard Oil Company
(California)
San Francisco

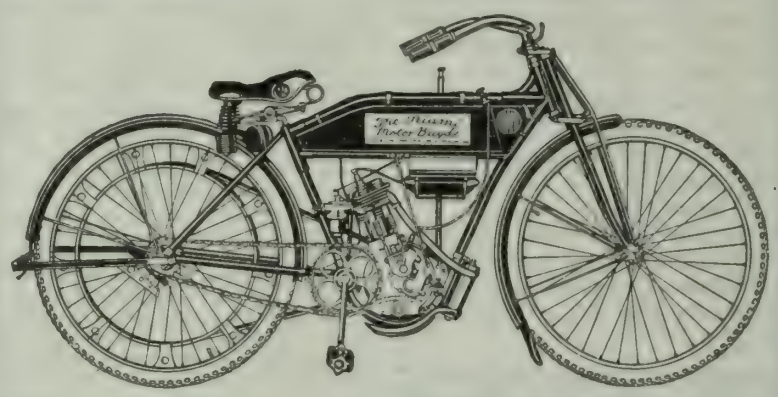
"The Farmers' Friend"

In Handy Buckets
Also Small Cans
Ask your Dealer

Just Out!
Miami Motor Bicycle

EVER WANT TO GO TO TOWN QUICK?

Well, here is the surest and cheapest way to travel—cost, one gallon of gasoline to run 100 miles. Can you beat that?



Price, $140.00 f. o. b. San Francisco. Weight 110 lbs.

Let us send you a catalogue.

BAKER & HAMILTON, San Francisco

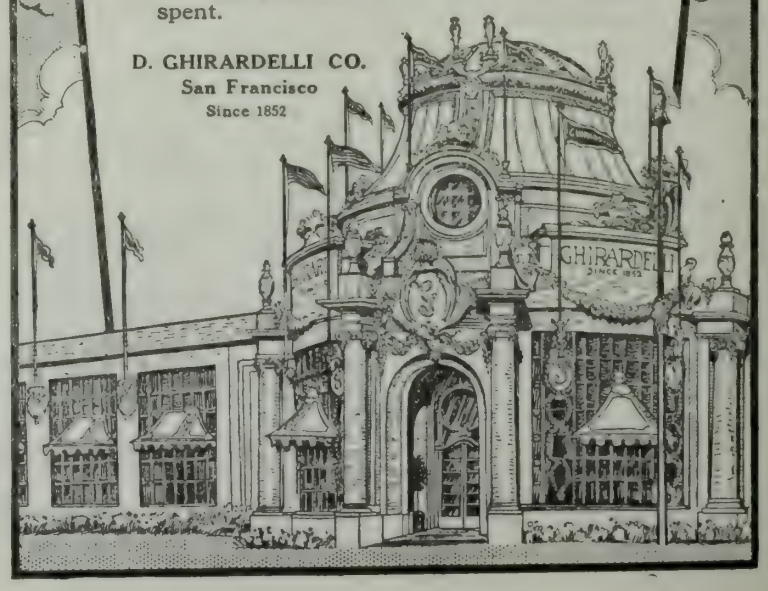
On the Zone

in the great Exposition now displaying the wonders of the world, is a model factory showing the complete process used in the making of

Ghirardelli's
Chocolate

This factory is open to the public without charge and a cordial invitation is extended to our visiting friends to see this exhibit wherein a pleasant hour can be profitably spent.

D. GHIRARDELLI CO.
San Francisco
Since 1852



playful ways were astonished to see him walk slowly part way across the barn with his head down, and then stand still like a person who is blindfolded and does not know where to go next.

"I believe he's crying," said little Jack White, in an awed whisper; and I think the boys would not have been astonished to see real tears drop from his eyes.

"Go on, Prince," said Mr. Phelps, kindly; but he did not stir until taken by the nose and led out-of-doors. Then he walked slowly down the path toward the meadow, the whole group watching him in silence.

"He seems to miss the spectacles," said Mr. Bragdon, after a moment.

"Yes," replied Mr. Phelps, "that's just the way it seems to me."

"Look at him now!" cried the boys. "He is coming back!" And, sure enough, Prince had turned and was on his way back to the barn. Slowly he came, went straight by the boys, never stopping for sugar or caress, to the barn door, which had been closed, and there he stood whinnying softly.

"He's asking for those spectacles, Father," said Tom eagerly. "Do put them on."

"Yes," said Mr. Bragdon, "why not see what he will do?"

So the bridle was put on, bit and all; but Prince did not seem to mind the bit. Just as soon as the spectacles were on and fastened he rubbed his nose lovingly against Mr. Phelps' arm, as if to say "Thank you," and then kicked up his heels and pranced away down to the pasture in the happiest possible manner.

"Well, I declare!" exclaimed Mr. Bragdon, "that was what he wanted." And he and Mr. Phelps talked it all over while the boys ran away to the meadow to have a romp with their friend.

This is a true story. The horse who wears spectacles is now living, and I'm sure you will all join with me in hoping that he may live to wear them many years. — Christian Advocate.

MAYONNAISE DRESSING.

Yolks of four eggs well beaten.
1 slightly rounded teaspoon salt.
1 slightly rounded teaspoon sugar.
1 pint olive oil.
3 tablespoons white wine vinegar.
3 tablespoons lemon juice.

Add the acid and the oil alternately to two eggs, beginning with the acid a few drops at a time at first, more later, beating all the time. A dover egg beater may be used after the dressing is well started, but do not let it stand unnecessarily in the dressing on account of the tin.

If the eggs are well beaten and all the materials cold, the dressing is not apt to curdle.

The quality is improved by much vigorous beating, even beyond that needed to prevent curdling.

This makes a large quantity, enough for a whole chicken.—Caroline Marquardt.

Pick over spinach while dry, throw a few plants at a time into a large pan of cold water, wash well on both sides to dislodge insects, and pass to another pan. They should have at least three separate waters. Put the spinach into a large kettle without water, set it on the stove where it will cook slowly till the juice is drawn, then boil till tender, drain and chop fine. For half a peck of spinach add one ounce of butter, one-half teaspoon salt.

Farmer Brown and Farmer Jones were near neighbors, and many a dispute took place as to who was the earlier riser. One day Farmer Brown determined to put the subject to test. Rising very early one morning, he proceeded to visit his friend about four o'clock. Great was his astonishment when he saw Mrs. Jones hanging out the clothes. "Farmer Jones about?" he asked. "Well," replied the lady, "he was the first part of the mornin', but I dunno where he be now."—Sunday School Advocate.

A rheumatic old lady had a thermos flask as a Christmas present from her doctor, with instructions how to fill it with hot tea, which the doctor thought would be a comfort to her in the dark, winter mornings. When he inquired after the efficiency of his present, "You can take the silly thing away, doctor," he was told. "The tea inside it may be all right—I haven't tried it—but the bottle's no good at all. I had it to my feet, and they were just like ice all night."—London Inquirer.

Johnny: "Mother, my toes are not as hard as leather, are they?" Mother: "No, Johnny." Johnny: "Then, mother, how do they wear themselves through my shoes?"

Don't Suffer from Ants

A Simple Way of Ridding Every House of This Pest

Many a woman has been driven almost distracted by a house infested with ants. No pest appears to get into a house any easier, or out any harder. All kinds of preparations have been tried in the effort to exterminate them, but without success.

It remained for a sufferer from this pest—a baker and candymaker—to devise a remedy which would not only exterminate ants, but do it almost instantaneously. On the verge of being driven out of business by a swarm of ants—which overran every part of his bakery—he originated a paste which seemed to have almost supernatural powers—not an ant remaining in the place after spreading it around.

So efficacious was the remedy that it has been put up for general use under the name of Kellogg's Ant Paste. Each package has a patent rattle cap, which provides a warning night or day that the contents are poisonous. Ask your druggist for a package of Kellogg's today, and end that ant nuisance forever.

The STEPHENSON PATENT COOLER
NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENT AGENCY
PATENTS
Circular containing 100 mechanical movements mailed free.

THE MOST VALUABLE BUILDING MATERIAL CATALOG EVER PUBLISHED
Sent FREE Upon Request Send Coupon Below

MOST VALUABLE
because it has just been published. Contains the latest improvements and articles in the building material line. Most valuable because you will save 25% to 40% on everything in lumber, sash and door, plumbing, hardware, paints and oils. Most valuable because it tells you all about the quickest and easiest way to buy "direct from factory to consumer." You'll be delighted with our methods. Thousands have benefited by our mail order department. You can be one of them by just merely sending coupon below for our latest 1915 catalog. Just look at a few of these prices. Everything in our catalog is priced at a like reduction, and a liberal money-back guarantee goes with every purchase made from us.

GALVANIZED CORRUGATED IRON $4
—Corrugated Galvanized Iron, 2-in. corrugations, 6 to 10 ft. lengths. Brand new and in perfect condition. Per 100 square feet $4.
—This is another illustration of how we can save you money. Remember we ship direct to you and save all unnecessary costs.

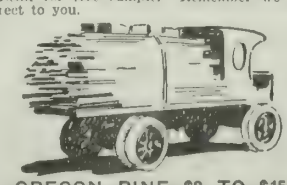
PAINTS $1.50 GAL.
—You can buy paints cheaper from us than any other dealer in the West. We buy in large quantities and sell for the lowest prices.
—Standard House and Floor Points, $1.50 per gal.
—Standard makes of varnishes at 25% off regular prices.
Black Graphite Roof —per gal..... 50c
Standard Roof Points—red, green, gray— per gal..... 85c
Shingle Stain, made from pure ground colors —per gal..... 50c
Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.
Dutch Kalsomine 4½c per lb.

$30 WALL BOARD $19
—The finest grade of wall board to be had. Compare this price with what most dealers ask. Made of three layers of moisture proof fibre with asphaltum between, or you may choose the cream white fibre board.
Easy to lay and costs but $19 per 1000 sq. ft.

BARBED WIRE $1.85
Galvanized American Special Light Barbed Wire, in 80-rod reels, at $1.85 per reel.
Heavy Galvanized Waukegan Barbed Wire at $2.40 per 80-rod reels. Compare these prices with your local dealers. Remember we ship direct and guarantee satisfaction or your money back.
WIRE FENCING at Half Price— Per rod..... 35c
Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition; 55 inches high, 20 rods to the roll. This is just about half price. Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED POULTRY NETTING 42½c
2-inch mesh, all heights—150 lineal feet in a roll—per hundred sq. feet— full rolls 42½c
1½-inch mesh, in full rolls — per hundred sq. ft..... 55c
1-inch mesh, in full rolls—per hundred sq. ft..... $1.00
Any of this netting may be had 12, 18, 24, 30, 36, 48, 60 or 72 inches high.

"STANDARD" ROOFING PAPER
—A Splendid quality of roofing paper that most firms would sell 20 to 40 per cent higher. Each roll complete with necessary cement, nails, etc., ready to lay.
1-ply, double-sanded, per roll of 108 square feet $1.15
2-ply, double-sanded, per roll of 108 square feet $1.40
3-ply, double-sanded, per roll of 108 square feet $1.65
1-ply, "King" smooth, per roll of 108 square feet..... $1.25
2-ply, "King" smooth, per roll of 108 square feet..... $1.50
3-ply, "King" smooth, per roll of 108 square feet..... $1.75
Send for free sample. Remember we ship direct to you.

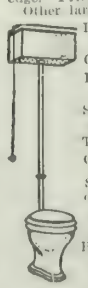


OREGON PINE $8 TO $15
Good new rough Oregon Pine lumber, all sizes, at $8 to $15 per thousand
Oregon Pine lath, 4 ft., new, $2 per thousand.
Best grade Slashed Grain Oregon Pine, sanded finish, $37.50 per thousand. This make a beautiful interior finish
These prices will give you an idea of how our lumber department can save you money. Send in your lists and let us give you our price delivered.

SASH AND DOORS
—1-light sash, 40c and up.
Casement windows in pairs with 2 lights, $1.25 up.
Screen doors, $1.25 and up; strongly made of best sugar pine.
A lot of 7-ft. Colonial doors, made of best sugar pine, at $1.50 and higher.
Prices on other material in this line are similarly low.

THIS SPECIAL STEEL ENAMELED BATH TUB $8
One of the greatest bargains we ever offered! Made of best galvanized 24 gauge steel. Outside is finished in a rich sky blue enamel with bronze trimmings and hardwood edge. Priced only $8.

Other larger sizes at $8.50, $9 and $10.



Low Down Enamel Steel Toilet Combination..... $11.50
Complete to floor wonderful value.
Low Down Vitreous China Closet Combination..... $15.50
Special value—worth $22.50.
Big value in High Tank Toilet Combinations .. $10.00
Complete to floor—a bargain.
Special Bankrupt Stock of Kitchen Sinks.
All sizes— up from..... $1.00
Best Quality Porcelain Lavatories, every one guaranteed— $10 down to. $3.75

Be sure and send this coupon for our
Free Catalog
of Building Material just published. Save money on everything building. Our methods for you need for filing mail orders will satisfy you.
SEND COUPON TODAY.

Whiting-Mead Company, 9th & Maple, Los Angeles, Calif. Please send me your 1915 Catalogue of Building Material. PRP
Name City State

Every Thing in BUILDING MATERIAL at a 40% Saving

Whiting Mead Co.
9th and Maple Avenue
Los Angeles, - California

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, April 21, 1915.

WHEAT.

The only change in the local situation is the belief that increased shipments from the north are about to be made. Some off grades of grain are offered at a little less than quotations; but, generally, the feeling is firm. Portland advices state that, owing to the shortage of vessels and the high prices ruling in Chicago, some grain is going east by rail.

Cal. Club, ctl.	$2.35@2.40
Forty-fold	2.40@2.45
Northern Bluestem	2.40@2.45
Northern Club	2.35@2.40
Northern Red	2.37½@2.40

BARLEY.

Barley is very firm; and, notwithstanding the cutting down of the demand for feed purposes owing to the abundance of green feed, the price has been marked up this week.

Choice Feed, per ctl.	$1.27½@1.35

OATS.

The demand for red feed oats has picked up recently; and reports of a coming export demand have also tended to brace up the market. The price is up five cents. White feed oats seem to be about out of the market.

Red Feed	$1.60@1.65
White	1.85@1.90

CORN.

A good deal of corn is arriving from California points, some of it in very poor condition, as is also some of the Manchurian grain now offering. Though the market is very dull, there have been no changes in quotations.

California Yellow	$1.80@1.85
Eastern Yellow	1.85@1.90
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80

BEANS.

While beans were a little easier during the week, the demand has again picked up a little, and quotations rule just about as they did a week ago. The future seems to be a little uncertain, depending more or less on the export demand.

(On Wharf.)

Bayos Cal., per ctl.	$4.90@5.00
Blackeyes	5.50@5.65
Cranberry Beans	4.50@4.75
Horse Beans	3.50@4.00
Small Whites	4.75@4.90
Large Whites	4.65@4.75
Pink	3.75@3.90
Limas	5.00@5.10
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

The demand for alfalfa seed has now been satisfied; and the market is depressed by the arrival of stocks that have been held a little too long. Prices are weak at the old figure. In other lines there is no change.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Receipts of hay in this market during the last week were very heavy as compared with the arrivals during the earlier weeks of the month; but the demand has increased sufficiently to take care of the larger quantity, and there has even been a fifty-cent advance on the top grades. There is some inquiry for shipment to Australia; but it is not known that any sales for export have actually been made. Except for the best grades, there have been no changes in prices.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.00@10.50
do No. 2	6.00@ 8.50
Barley	5.00@ 8.00
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.30@ .45

FEEDSTUFFS.

The abundance of green feed is having a depressing effect on all lines. In the cases of oats and barley, the firmness of the whole grain is keeping rolled stock in the same condition; but otherwise things are very dull.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa Meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	27.00@28.00
Rolled Oats	33.00@34.00

VEGETABLES.

Some lines of vegetables are now coming in more freely; and prices in these are dropping. A lot of summer squash has arrived within the last few days, and the price has dropped to $1. String beans are also lower, with the bulk of the transactions being done at about 12½ cents. Asparagus continues firm with no over-supply. A considerable shipment of rhubarb is reported on the way from Oregon, but this has not served to depress the market. Egg plant and bell peppers are very scarce; some of the commission houses having no California stock on hand. They are 30 cents in each case for Florida stock.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 c
No. 2	25 @35 c
Asparagus, box	$1.25@2.00
Peas, lb	3 @ 5 c
String Beans, lb	10 @15 c
Peppers, bell, lb., local	5 @ 7 c
Tomatoes, repack'd, crate	3.00@3.75
Celery, crate	1.50@2.50
Rhubarb, box	45c@1.00
Lettuce, crate	75c@1.00
Cucumbers, doz	90c@1.00
Eggplant, lb.	7 @10 c
Summer Squash, crate	1.00

POTATOES AND ONIONS.

Potatoes are firm at the old figures, with little prospect of any important change for some time. Onions, on the other hand, are weak. The new crop will be in shortly, and the old crop is still far from cleaned up. A sale of 25 carloads at Portland for shipment to Chicago is reported at 75 cents per cental f. o. b. country shipping points.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75@2.25
Lompoc	2.35@2.50
River Burbanks, ctl.	1.60@2.00
New Potatoes, lb.	4 @ 6 c
Sweet Potatoes, ctl.	2.25@2.50
Onions, yellow, sack	70 @80c
Australian, ctl	3.75@4.00
Garlic, per lb	17 @20 c

POULTRY.

Heavy arrivals of old stock are expected shortly on the approach of the close of the laying season; and the market for hens has weakened accordingly. Young stock is very firm, the stocks on hand being limited. Fryers are up from two to three cents.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @18 c
Broilers, small	25 @30 c
Fryers	25 @26 c
Hens, extra, per lb.	17 @18 c
Small Hens, per lb.	16 @17 c
Smooth Young Roosters, per lb.	22 @25 c
Squabs, per doz	$2.50@4.00
Geese, per pair	2.50@3.00
Ducks, young, lb.	18 @20 c
Old	15 @17 c
Belgian Hares	8 @ 9 c

BUTTER.

There is almost no change in the butter markets either in San Francisco or Los Angeles. During the entire week, extras have stood at the old figure and a deviation of only half a cent has been made in other grades.

(S. F. Dairy Exchange prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	23	23	23	23
Prime	22	22	22	22	22	22½
Firsts	21½	21½	21½	22	21½	22

EGGS.

The only variation during the last week has been in the lower grades, where the quotation has been both up and down. The week closes with both firsts and selected pullets up a half cent from last week.

February, 1915, Almond Importations

Unshelled, $8052. Shelled, $375,074.

The Growers of the Exchange are developing and protecting their industry. Almond Growers not members are urged to cooperate. For information address

CALIFORNIA ALMOND GROWERS' EXCHANGE,
311 California St., San Francisco, Cal.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	22	22	22	22	22
Firsts	18	18	18	18	18½	18½
Sel. Pul.	17	18½	19	19	19	19

CHEESE.

The cheese market has been fairly active this week with the feeling generally easier. Young Americas have held their own as to prices; but California flats have eased off considerably.

(S. F. Dairy Exchange prices on flats and Y. A.'s)

Y. A.'s, fancy	12 c
Fancy Calif. flats, per lb.	11 c
Monterey Cheese	9@11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	22	22	22	22	22	22
Eggs	23	23½	23	23	22½	22½
Cal. Cheese	12½	12½	12½	12½	12	12

DECIDUOUS FRUITS.

The feature of the market has been the heavy arrivals and lower prices for strawberries. Prices for berries have been dropping all the week; and are now only a little better than half of what they were a week ago. Apples are higher again, and the quality is considered unusually good for this time of the year. Cherries are not yet in the market; but quotations on these are expected next week. The crop outlook for these is said to be good if no heavy rain comes between now and marketing time.

(Wholesale prices, San Francisco.)

Strawberries, L.A., crate	50@75 c
Fresno, large crate	1.00
Local, drawer	25@40 c
Apples, Newtown	75@ 1.00
do, fancy	$1.00@1.25
Other varieties	30@75 c

DRIED FRUITS.

Commission men report that they have very few offers of fruit from farmers except in peaches and prunes. Dried figs are thought to be entirely out of first hands; and there is no pressure to sell evaporated apples. Considerable quantities of dried peaches are offered; but packers are not disposed to buy at better than three cents for ordinary lots and three and a quarter for extra bright stock. What buying there is is in very small lots. Prunes are also weaker, and it now seems impossible to get better than a five-cent base price for anything in sacks. The price runs all the way from a 4 to a 5 cent basis according to the special case. Other lines are quiet at unchanged prices. The New York Journal of Commerce says:

California future prunes are inactive but steady owing to the uncertain outlook for the coming season's crop in at least the larger centers. There appears to be no pressure to sell futures, while, on the other hand, buyers in this section are inclined to withhold orders. The lowest prices named on Santa Clara stock for early shipment out of the coming crop are based on 3½c f. o. b. for the four sizes on 40s to 60s for first half October or possibly late September shipment. Some sales of northern California prunes have been made on this basis but no additional transactions reported. In spot California and Oregon prunes the market is without animation and has an easy undertone, though prices are held up to the previous quotations.

Neither peaches nor apricots for immediate or forward delivery appear to be getting more than passing attention from the local trade, and Coast advices indicate no great amount of buying interest at present from other sections of the country. Prices on spot goods here are easy, and, while there is no quotable decline, it is possible that concessions would be made to move goods more freely into consuming channels. Some business in future seeded raisins is reported to have been completed within the past few days at 6½c f. o. b. for fancy October shipment by independent packers who are guaranteeing the price against a decline by the Associated from its opening figures. The demand, however, is slow, and comparatively few cars are changing hands. Seedless varieties are in small compass and both the spot and Coast markets are steady under a moderate demand from consumers. A large jobbing house which bought some 50 cars of California Sultana raisins on the Coast last fall, taking up practically everything in packers' hands, has just completed a sale of 13 cars, which, together with previously reported transactions, should leave comparatively little in their hands. As a result of the recent sales, which were understood to have been made to interior markets, the tone is stronger and 6c is now quoted as the inside price for prompt shipment.

Evap. Apples, 1914	5 @5½c
Apricots, 1914	6 @8½c
Figs: White, 1914	3 @3½c
Black	2½@2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	4 @5½c
Peaches	3 @3¼c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern fruit auctions are paying better prices for California oranges and the situation now looks better than for any time since the opening of the season. On the New York auction of Monday, April 19th, oranges brought from $2.15 to $3.30 per box, average sales. Lemons are still low and the average prices on Monday were $1.90 to $2.25 per box. Shipments are going east at the rate of over 200 cars daily and will grow heavier for the next few weeks. Up to April 19th there had been shipped from southern California for the season 17,906 cars of oranges and 2,348 cars of lemons, as against 19,899 cars of oranges and 1,070 cars of lemons, to same date last year.

The San Francisco market continues firm at the recent advances, and trading has been fairly active throughout the week. The demand for all grades of oranges is expected to keep up at least until cherries become plentiful. Grapefruit continues easy.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.25@2.50
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx	1.25@2.00
Fancy	2.50@2.75
Lemons, box	1.75@3.00

NUTS.

From the inquiries coming in here, it is evident that there are still quite a number of small lots of almonds, ranging from 20 to 50 sacks, still in the hands of growers. The demand is light; and it is claimed that it is impossible to get more than from 10 to 13 cents for the better grades and from 8 to 10 cents for the others. Very few California walnuts are offering; and the demand and price have both been adversely affected by the arrivals of Manchurian nuts. Ten cents is now about the top price for ungraded nuts.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:	
IXL	10 @13 c
Ne Plus Ultra	10 @13 c
Drakes	8 @10 c
Texas Prolific	8 @10 c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
Ungraded	8 @10 c

Manchurian	6 @11 c

HONEY.

There is very little movement in honey; and the situation is not very encouraging from the seller's standpoint. A large stock—said to amount to at least ten carloads—in this city; and with very little buying and the new crop due about June 1st, there seems to be small chance for an improvement. There is some inquiry for light amber at about 3½; but sellers do not seem to be ready to accept this figure.

(Prices on cars, San Francisco.)

Water White, comb	10 12 c
Light Amber	8 @10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

There is little change in the live stock situation, though slaughterers report a good many inquiries for prices on grassers, which are expected to be a factor in the beef situation before long. Few mutton sheep are coming forward at this time.

(Prices at Butchertown, S. F.)

Steers, No. 1	6¾ @ 7 c
No. 2	6½ @ 6¾ c
Cows and Heifers, No. 1	6 @ 6¼ c
No. 2	5½ @ 5¾ c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½ c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
225 to 300 lbs.	7½ c
100 to 225 lbs.	7¾ @ 8 c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½ c
Shorn sheep, less by	¾ @ 1 c
Suckling lambs	7¾ @ 8 c

DRESSED MEATS.

Steers	10¾ @11½ c
Veal, large	13½ @14 c
Small	15 @15½ c
Prime Wethers	13 @14 c
Ewes	11½ @12 c
Suckling Lambs	14 @15 c
Hogs	12 @12½ c

WOOL.

The California clip has not yet begun to move; and while some sales have been made in other western states, there is a general holding off by both sellers and buyers.

Wool	Nominal

HORSES.

At the last auction, very little interest was taken. The offerings were not numerous; and the bidding was very slack. To a large extent, each animal is sold on its own merits and according to the needs of the parties; and the quotations can serve only as a guide.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks, 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green Mountain range horses, 950 to 1200 lbs	50@ 90
Farm workers	60@ 75

MULES.

1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

HIDES.

Hides are very dull with no change from previous figures.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @15½ c
Medium	15 @15½ c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lb.	15 @15½ c
Light Cows, 30 to 50 lb.	14½ @15 c
Kip	15½ @16 c
Veal	16 c
Calf	16 c
Dry Hides	25½ @26½ c
Dry Kip, 10 to 15	24½ @25½ c
Dry Veal, 5 to 10	29½ c
Dry Calf, 7 down	29½ c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

Publisher's Dep't.

A new practical book for live stock breeders, under the title of "Castration of Domestic Animals," has just been issued by the Orange Judd Company of New York. It has been the aim of the authors to explain in simple, non-technical language, in so far as this is possible, the anatomy of the sexual organs, antiseptic precautions previous to and during the operations, methods of control, aftercare, etc. The book is designed for the stock raiser, who will find it the most practical work on the subject that has yet been issued. 170 pages, cloth bound, price $1.25.

Owing to lack of space this department has turned up missing for several issues. Because we have not said so does not mean that we have ceased securing new subscribers. During March we added over 1000 new paid subscriptions and so far this month we have been going ahead at a good rate. For the past three weeks our Mr. Knox has been beating his own and all other records. Three weeks ago he sent us 67, the next week he secured 76 and last week he tipped the scale at 77 new subscribers. During the past week we added 273 new paid names to our list.

If you have not yet secured a copy of "One Thousand Questions in California Agriculture Answered" you had better hurry. Of the edition of 5,000 copies only a few hundred remain unsold. This book will be worth many times its cost to you.

"California Poultry Practice" is ready for your order. This book will help you make more money from your poultry. Send for a copy.

The Redwood Manufacturers' Company have removed their San Francisco offices from the Kohl Building to the sixteenth floor of the Hobart Building, Market and Montgomery streets, San Francisco. In conjunction with the parent corporation, the Caspar Lumber Co., they occupy the entire sixteenth floor of the tower of the Hobart Building, which gives them a suite of the finest offices on the Coast. The view from their windows is unsurpassed. Their friends are cordially invited to call on them in the new offices and take a bird's-eye view of San Francisco.

You're not afraid of new harness breaking. Well, harness that has been in service for years will stand the strain too, if you treat it occasionally with

EUREKA HARNESS OIL

That's because certain oils in Eureka are great leather preservatives. They nourish and lubricate the fibre, keep out dust, sweat and moisture, and preserve the original life, strength and elasticity of straps, tugs, breechings, etc. It pays to use it. Arrange with your harness man to dip your harness. Or apply it yourself by hand. Make your harness last longer. Dealers everywhere.

Standard Oil Company
(California)
San Francisco

FINE WALNUT CONDITIONS.

[Written for Pacific Rural Press by C. Thorpe, Mgr. Cal. Walnut Growers' Ass'n.]

Conditions at this time of the year were never more favorable for a heavy walnut crop throughout the southern portion of the State. Every walnut-producing district is showing up exceptionally well. The trees are heavily loaded with the young nuts, and if we can pull the present crop through to maturity we will undoubtedly turn out close to thirty million pounds this fall.

The fact that many setbacks may still be encountered must be taken into consideration. A heavy setting of blight might reduce the present estimate 30 per cent to 40 per cent, while damage by the walnut aphis is also likely to seriously shorten the estimated tonnage.

We have just secured absolutely accurate figures of last year's crop production, which we are submitting you by counties herewith, showing a total of 8889 tons for the State. This is the lightest crop since 1910.

All spot stocks of California walnuts have now been sold and the market on the Coast is entirely bare. Therefore the new crop will find a strictly clean market, with no old or carry-over stocks to interfere with sales, and this alone will undoubtedly be a great help in moving the anticipated large tonnage this fall.

[This report is received too late to print the tables, but they show 3585 tons shipped from Los Angeles county in 1914; 2887 tons from Orange county; 828 tons from Santa Barbara county; 1339 tons from Ventura county, and 250 tons from north of Santa Barbara county.—Editors.]

"When trees sunburn," says Horticultural Commissioner C. McBride of Solano county, "any protective paint to fill pores of tree trunk and keep it from cracking till it grows over, will keep out fungus spores and prevent decay. Asphaltum is good for this purpose."

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY.

BEEKEEPING instruction book free. Explains honey production, profits, prices, supplies, bees and management without stings. Spencer Apiaries, Gill Ave., Nordhoff, Cal.

WANTED.

WANTED—Position as Foreman or Superintendent of large dairy farm. On May 1st I am severing my connection with the Stanford Vina Ranch, where I have had charge as foreman of their large pure-bred herd of Holsteins for more than three years. I have also had wide experience in the dairy business, both in the East and on the Pacific Coast, including all leading dairy breeds, certified and market milk, butter making, balanced rations, breeding, official records, farming, etc. Am familiar with the most up-to-date methods and apparatus; in fact am competent to assume complete supervision of any kind of a dairy proposition. G. L. Stearns, Vina, Cal.

I WOULD LIKE to have position as manager of ranch in raisins or fruit. Will accept place in nursery. Can furnish best of references. Frank Henry, Fowler, Cal.

POSITION WANTED—Ranch Manager, Superintendent or developer, possessing eight years' practical California experience, applying the practical portions of the scientific side of the work of general agriculture and its constructive and engineering features. Credentials. Box 47, Pacific Rural Press.

WANTED—To lease on shares, an equipped general ranch in California. One at present a source of expense to non-resident owner preferred. Address Box 53, Pacific Rural Press.

FIREMEN, BRAKEMEN WANTED—All railroads, $120 monthly. Experience unnecessary. Railway Association, care Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices Fruit trees, berry plants, etc Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

FOR SALE—Burbank's genuine spineless cactus of the best forage varieties. Large selected slabs in quantities to suit; prices packed F. O. B. cars, Napa, $10 per hundred, $42.50 per five hundred, $75 per thousand. Special prices on lots of five thousand or more. William West, Napa, Calif.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

CITRUS TREES—Lemons, Grape Fruit, Oranges. These are unusually high-class trees (guaranteed selected stock) and were grown for our own use. We wish to close them out. Write for special prices. C. V. Worrel, Sanger, Cal., R. F. 2, Box 73D.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Kleondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

TEPARY BEANS—Fourteen Hundred pounds per acre was our returns last year, planted two rows to the middle of our young orchard. We have a limited supply of seed to offer at ten cents per pound. Address Lindsay Feed & Fuel Co., Lindsay, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose) and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

BURBANK SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes, Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SOUDAN GRASS SEED—First-class guaranteed seed, free from Johnson Grass. Now 35c per pound or $25 per hundred f. o. b. Santa Ana. C. E. Lewis, R. 5, Santa Ana, Cal.

FRUIT TREES, PLANTS—Cut prices shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier.

BURKANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

FOR SALE—Burbank's Santa Rosa variety Spineless Cactus Slabs, $15 per 100, F. O. B. Hollister. S. G. Button, Hollister, Cal.

BURBANK'S SPINELESS CACTUS—Mature slabs, forage varieties, $5 per hundred. A. H. Phillips, R. 5, Santa Rosa.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

FOR THE BEST Orange, Lemon and Grapefruit trees, write us. J. G. Gillian, El Monte, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING.—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalogue SMITHS' CASH STORE, 106 Clay St., San Francisco.

WINDMILL FOR SALE—16-ft. Power Aermotor with 40 foot steel tower. A1 condition. Cheap. Address Ogden Bolton, Jr., Santa Rosa, Cal.

FOR SALE—About 100 tons of choice baled alfalfa hay; also 35 tons of choice red oat hay in the bale. Address Box 57, R. R. 2, Modesto.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

LAND FOR SALE.

40 ACRES LOAM in alfalfa. Also suitable for any kind of fruit, 1½ miles from town 1000 population. 3 depots within 3 miles. Can be irrigated from canal, also irrigating well, which develops 65 inches of water. All level. Small house and barn. Shade trees. Price $7000; $4500 down and all time you want on balance. Will sell half. Melvin T. Crew, R. 2, Box 85, Orosi, Tulare Co., Cal.

CALIFORNIA LAND—Money-making little farms. High-class, low-priced properties in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, California. Rfd. Lindcove.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR EXCHANGE—One-quarter section improved, irrigated land, near Greeley, Colorado, in exchange for farm or fruit land in California. E A. Kirk, Orland, Cal.

FOR RENT—300 acres of alfalfa land on Dixon Ridge; abundance of water for irrigation. Apply J. H. Glide, Dixon, Cal.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

WANTED GOOD FARM, or unimproved land from owner. H. L. Downing, 145 Palace Bldg., Minneapolis, Minn.

BARGAIN, 20 ACRES—10 in peach trees, bearing; 4 alfalfa; 6 grain. C. H. Widlund, Denair, Cal.

America's Leading Horse Importers

Dunham-McLaughlin Co.

Wayne, Ill. **Oakland, Cal.**

Our headquarters for 1915 will be in the Live Stock Division of the Panama-Pacific International Exposition, San Francisco, where we have installed a large exhibit of Prize-Winning Stallions and Mares.

The Only Exhibit of Percheron Horses at the Panama-Pacific Exposition. (Barn 8)

Purchasers can make selections from this exhibit. Take your pick of the show herd. Every animal especially selected and conditioned for this great International show.

A GROUP OF RISING THREE-YEAR-OLDS TAKEN AT THE EXPOSITION.
From left to right: Margio, Monsieur Militari, Meggiseur.

During the past year we have sold more purebred imported Percheron Horses in California than all other firms in America combined. The unprecedented success of our business is due to the superior quality of our stock; careful, conservative management, and the perfect fulfillment of our obligations and contracts.

DUNHAM-McLAUGHLIN CO.

Barn No. 8, Live Stock Division,

Panama-Pacific International Exposition, San Francisco Telephone—Fillmore 7000, ask for No. 726 Local

Vol. LXXXIX—No. 18 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, May 1, 1915 LOS ANGELES

7-1-16 State Library

Remedying Our Pork Bill.

[Written for Pacific Rural Press.]

Taxing the farmers of the State $20,000,000 for their delinquency in hog raising is a pretty stiff bill to meet each year when we think of the California climate which so favorably lends itself to the successful and economical production of pork.

No one factor is entirely responsible for this pork taxation, but all are within the hands of the farmer to remedy and until steps are taken in the right direction we must expect an increase in this tax rather than a decrease, due to the ever increasing population.

In the main there are three conditions which must be faced and overcome, viz., better bred hogs, better feeding and better sanitary facilities.

Breeding.—While there may seem to be a tendency at times to overrate the value of purebred sires with the hackneyed expression that he is "half the herd," it is nevertheless a fact that the profit in pork raising is largely made before the pig is born, as it is then that nature marks him as a good or poor specimen for the ultimate resting place of all good hogs,—the butcher block.

Natural Shade, Combined with Sanitary Houses and Lots, at the Oak Knoll Piggeries in Napa County, Combine to Make Purebred Chester Whites Grow into Pork Fast.

No one can afford to neglect his breeding with either sex, but it is less desirable to slight the male for the reason that every pig is sired by him, whereas they have not all the same dam. Although good results may be expected from the use of a superior sire on inferior sows, it is disastrous to use an inferior boar on sows of high quality, as the former raises the standard of the entire herd while the latter invariably lowers it.

Continued experience has demonstrated here, as elsewhere, that the most profitable hog to raise is the one which will take on weight at the least expense for feed and care. On the average farm this means the pig that will go out of the feed lot weighing around 250 pounds at nine or ten months of age.

Though breeding alone will not accomplish such results, it builds the frame and digestive organs with which the hog is allowed to take the utmost advantage of clean surroundings and good feed. For that reason every raiser of market hogs should constantly keep the purebred boar in the foreground, for he has been bred with these characteristics in mind for generations.

Feeding.—If a pig be bred for pork we must not expect that alone to place him on the butcher's block, weighing the desired number of pounds at the desirable age, for the planting of a tree alone will not make it produce fruit; it requires care and the proper nourishment.

A leading San Francisco packer is authority for the assertion that more money is lost through the improper feeding of hogs than any other one phase of the industry. He points to the half finished stage in which carload after carload of California hogs arrive at the packing houses, hogs that have been a year and a half maturing and even then require grain finishing before they are suitable for the consumer's table.

It is this loss, he thinks, which is responsible for most of the discouragements in pork production under California conditions. He shows that the pig gives best returns when weighing from 50 to 100 pounds, but that on the average a pound a day gain should be expected of the well bred pig having good quality and conformation and receiving a ration commencing with a proportion of about two pounds of skim milk or butter milk to one pound of grain together with alfalfa pasture, at weaning time, and gradually reducing the quantity of milk till the pigs are finished on alfalfa and grain alone.

It is a mistaken idea that hog raising is not profitable outside of the corn growing belt of the East. While corn is admittedly of immense value as a fattener, hogs need and thrive best when given a

(Continued on page 535.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - - **Editor**
Frank Honeywell - **Publisher and Manager**
W. H. Schrader - - **Advertising Manager**
D. L. Schrader - - - **Subscription Manager**
R. E. Hodges } - - - **Assistant Editors**
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., April 27, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.28	40.27	42.12	58°	44°
Red Bluff...	.90	32.72	23.10	78	44
Sacramento	.07	14.13	18.84	68	44
S. Francisco	.32	24.24	21.20	64	48
San Jose...	.81	19.96	15.97	68	46
Fresno.....	.09	9.51	8.82	72	46
Indep'nd'ce.	.07	3.00	8.67	66	33
S. L. Obispo	1.09	24.92	19.30	68	46
Los Angeles.	.42	15.77	15.02	70	48
San Diego..	.56	13.55	9.50	68	50

T means trace.

The Week.

The Exposition has been interesting this week because of special efforts for the profits of producers rather than for the producers of prophecy, which our recent comments have sufficiently exalted. It looks as though every product, be it never so lowly, would have its innings in the public eye before the year is over, and this seems thoroughly rational, for why should we not have a perfect democracy among the factors of nourishment which befit mankind for the world's work? Why should cabbage be low and cauliflower high, onion low and celery high, beans low and peas high, in the scale of vegetable sociology? Are they not all alike ministers to the doing of what is worth while in the lives of men? Are not the producers of all of them public benefactors—as worthy of renown as those multipliers of grass blades, who have renown so old that their achievements must long since have been forked to the haymow! We are glad that the Exposition is being made to stand for the manruling equality of food products, for the ultimate result may be the equal rights of humanity. Before that, however, the equal dignity of all good food products and equal distinction to those who produce them, may be attained. This homily is suggested by the fact that on Tuesday the potato was the Exposition favorite and on Wednesday the raisin—preliminary to the great raisin day, April 30. These two are far asunder, as men count honors in food products: the Exposition placed them side by side—a carload of baking potatoes from North Dakota really taking precedence over a carload of baken raisin-bread from Fresno. It was a great uplift for the hitherto humble. Tuesday was "Baked Potato Day," and each visitor who called at the North Dakota building received a baked North Dakota spud, generously spread with prime North Dakota butter. Wednesday was "Pre-raisin Day" and ten thousand raisin-studded loaves were given away in the Court of Abundance during the exercises, and while these two tokens of equality and altruism are thus linked, it does not require much stress of the imagination to contrast them both in significance and spirit with the hunger and inhumanity which rule upon the other hemisphere, as the products of egotism and ambition. It is not far from what we eat to what we are.

Will the State Fair Be at the Exposition?

We have already had to flop twice on this question, and we really do not know which side up will be next week. Not that we have ever had any doubt as to where this year's State Fair ought to be, but there have been doubts as to where it, legally, could be. If the law interpreters and the law makers ever do get that question settled, we shall go for the Fair and to the Fair, whether it is to be found in Mexico or Alaska. For the reasons previously stated in these columns, this year's State Fair must be a great one, if it is held at all or anywhere. The State Board of Agriculture knows that and proposes to come through with it on that line. They know also that it can be most effectively done at the Panama-Pacific Exposition and have so voted. But it may require a new law to enable them to do it. And so last week the State Senate passed a bill by Senator Rush, inserting the words below to follow the clause in the existing law which provides that the State Fair must be held in Sacramento:

"Provided, that in any year during which an international exposition conducted in whole or in part under the auspices of the State of California and indorsed by the United States Government, is held within the State of California and the State Board of Agriculture deems it inexpedient to hold a State Fair, the funds of the State Agricultural Society, for that year only, may be expended in co-operation with the management of said Exposition to provide for a proper exploitation of the industries of California at such Exposition."

That surely ought to settle it. There will not be another World's Fair in California, until the anniversary of the gold discovery, if there is then—and by 1948 the interior may be tired of State Fairs. But the exhibitors of California's live stock and other products ought to be given the advantage of showing their achievements at the Panama-Pacific and assisted to that end by the State premiums. This side of the matter is so clear to us that we cannot see any other. Never mind how much the State has already done for the Exposition—the full realization of the benefits of it depends upon the doing of this also. It will be the spark that fires the dynamite!

Why Not as Much for West-American Wool?

While West-American flock owners are trying to figure out this week a living profit on the shearings of 1915, three transcontinental railroads are rushing eastward on the quickest possible freight schedule, the entire cargo of the steamer Wairuna, which arrived in San Francisco from Australia laden with 14,700 bales of wool. The wool is being taken to the mills at Boston and Philadelphia, which have been short for some time because England forbade shipment of Australian wool for fear Germany would get it. The wool was shipped under the direction and control of the Textile Alliance of New York, an association of manufacturers pledged to see that the wool is used in neutral factories. This is the first time in years that a ship has come to San Francisco bringing such a large shipment of wool.

The foregoing is a very dramatic story; from the point of view of the American wool-grower, it is an economic tragedy. Why do we need this flight of Australian wool? Because owing to our governmental policy the heart has been plucked from the American wool-growing industry. With our almost incalculable capacity for feeding sheep we have not been able to displace Australian wool because the wool tariff was set for years to chiefly help the manufacturers, and then removed. For decades the manufacturers have held alliance with the growers, but for some time at least they have not "toted fair" with them. This matter was all fully explained to the last Congress, and a rational protection for wool growing was demonstrated in connection with a reduction of the tariff, but the congressional majority, for party purposes, dynamited the arrangement, and now foreign wool is being shot across the continent as though our country could not grow the wool it needs. It is a humiliating spectacle.

China Makes a Suggestion.

Well, did not kindly old China give us a very gentle poke in the ribs last week in New York? Have you heard of it? Well, listen. It seems that Mr. Zung Tse Kuzi Woo, reputed to be one of the wealthiest men in China and head of the Chinese coal and iron trust, was in New York last week, and, speaking as a luncheon guest of the American Manufacturers' Export Association, said this: "I think our imports from the United States amount to only 10 or 12 per cent. With the changes that will follow in the wake of the war, I earnestly hope we will have more. The poverty of the Chinese masses must be considered by those seeking our trade. The Germans are smart. Knowing our limitations, they accommodate our purchasers and the latter are grateful. Our people have not yet divorced business from sentiment. Courtesy and thoughtfulness do not cost very much. Perhaps their lack has stood in the way of the development of American trade with China."

Is that not an inimitably gentle suggestion that our up-standing, take-it-or-leave-it way in making a trade, will not do in the Orient? We can work it very well in Europe, because they have become used to it, and because, as we are mostly from Europe originally, they wonder how we became so, but then—well, blood is thicker than water. But with the Orient and with South America probably, the European way is better than ours. Mr. Kuzi Woo's suggestion is surely timely. It is announced from Seattle that the boom in trade between Pacific ports and the Orient is breaking all records. Within the next few months the carrying vessels will have doubled in capacity over last year's figures. The traffic is not one way, for American vessels are being offered more cargo than they can accept in the Orient. This heavy trade supplants German commerce, and the traffic men believe the trade will continue after the war. It is worth a lot of American cogitation.

Seizing an Opportunity.

In reading an Italian contribution to the war philosophy, which all European nations are expounding for the benefit of American "fight-fans," we noted something like a lament that the United States is the only nation in the world which is making anything out of the war, and reference was made to our increasing exports as a demonstration thereof. The inference was that Italy might make more herself because she has her sandwich-stand right beside one of the entrance gates to the war zone—but Italy has nothing to sell: in fact, she has to buy for herself from our distant trading post. American producers are, of course, looking out for their opportunities, and we noted recently the grouch of American makers of wooden legs over the fact that Europeans can make these substitute supports for $35 per, while we have to get $75 for them, because we have to pay such high wages to wooden-leg sculptors. This seems to preclude advantage from the fact that the French surgeans consider our wooden legs the best in the world. But probably we will not have to face many such set-backs as that, and it is our national duty to keep looking out for the chances which the devil of war has opened to us. California evidently has an open eye on that line for we read of George A. Marcus, who has a large section of his ranch near San Lucas, in the Salinas valley, planted to medicinal herbs and plants. Up to the time of the present war in Europe, Germany and France supplied the druggists of the United States with roots, seeds, leaves and extracts of medicinal value. The war shut off this supply and prices went up in some cases 2000 per cent. For instance, golden seal or hydrastis has soared from 45 cents a pound to $12; extracts of belladonna, santonica and other plants have advanced in a similar degree. George Marcus has planted every medicinal herb he could get seed for. The plants have all come up in fine shape, and as George is an experienced experimenter with plants, the chances are that he will handle them right. We mention this, not to excite our readers to emulate the enterprise of George, but to warn them not to do so. Growing and handling medicinal plants successfully involves a lot of special knowledge, and requires an amount of hand labor which is appalling to think of in view of our current wages for labor. And the product, when you get it, is good for nothing but medicine; you cannot eat it and you cannot feed it to the hogs. Besides, the European supply is only temporarily interfered with and is probably being accumulated, awaiting an outlet.

Just as soon as she can, Germany will send out enough herbs to physic the whole United States into unconsciousness, and enjoy the spectacle perhaps. Therefore, we say to our readers, do not monkey with medicinals; let George do it.

Efficiency and Knowing Beans.

If more people knew beans, a lot of growers might be saved the trouble of carrying their surprises to the local editors, the latter would be enabled to save a lot of exclamation points and the general public would not lose such a lot of emotion over common things—all of which would constitute a great gain in efficiency—according to the philosophers on that subject. For example, such a gain would result if growers knew that the scarlet runner beans are a shifty bunch, always remembering the lightness of their grandmothers, and therefore not infrequently sending out growth with white blossoms, and bearing white beans which reproduce white beans, etc. Two such varieties were named and distributed in this State a score of years ago, but not found worth continuous growing, and they have therefore disappeared, but varieties like them are always likely to reappear and are not worth a surprise. Another thing the Californian has to learn about beans is that, in places where there is not too hard ground-freezing, the root is likely to live over and to shoot a new crop of bloom and beans the second year, and perhaps longer. The name "perennial beans" was applied to these years ago and they are constantly reappearing. Our excuse for mentioning the matter is that it seems vain to waste surprise on old beans when there are really so many really new things for the rising generation to rave over.

The Last Word in Efficiency.

We like to teach concretely, and as an exemplar of efficiency we point with pride to a concrete instance which is reported from Tehama county. It seems that a prominent resident of Los Molinos, who died April 22, arose from his sick bed and went across the river to Tehama, where he made all arrangements for his own funeral. He purchased and paid for his own coffin, bought the burial raiment, made all other preparations, and employed a barber to shave him after death. He even ordered flowers and completed other details usually attended to after death by the relatives. He returned home, went to bed, and in fifteen minutes was dead. His orders were carried out. He had been suffering for several months, but insisted up to within a week on attending to the chores about the place, so his wife would not be overworked. One might readily believe that his last shopping was also undertaken to save his wife trouble, but the irreverent reporter suggests that it was "to make sure that his wife would not spend too much on his funeral." But even this is itself an added token of efficiency. In fact it is the duty of efficiency to work an excursion rate on old Charon's ferry—if the Railway Commission will allow it.

Queries and Replies.

Querists must give name and address.

Soil for the Almond.

To the Editor: We are contemplating an almond orchard and would like your advice. Our soil is a clay loam of a depth from 18 to 30 inches, with yellow clay below. In your opinion would almond trees do well on this soil? If so, which variety would you recommend and on what root?—L. S., Hollister.

It is always wise to think hard before planting almonds on a heavy soil with a tight subsoil because of the danger of standing water which rots the root. Still we have seen almonds doing well on rather a heavy soil and have concluded that the tree remains thrifty because for some reason the soil, though heavy, is well drained, or else the local rainfall is in such amount, or distributed in such a way, that the soil does not become water-logged. If you have learned by experience that your piece of land can be winter-plowed very soon after any good rain, the probability is that the soil is well drained. If you have found that the loam over the clay becomes so full of water that you have to keep the teams off some time, for fear they will mire down, it will be very dangerous for the almond and many other fruits. The almond should be on the almond root and the Nonpareil and Texas Prolific planted together for pollination is probably the best prescription of varieties.

Sunshine and Moonshine.

To the Editor: I intended planting some tomato, pepper and cucumber plants along the north side of the house, where they will not get any sun until about 10 a. m., but my neighbor tells me that they will not amount to anything without the morning sun. Is he right? What do you think about planting corn, potatoes and other garden truck "when the moon is right"?—E. S. W., Middletown.

There is only a sentimental difference between morning sunshine and any other kind, and we have no reason to think that the vegetable is affected thereby as mankind sometimes is. Morning sunshine is, however, a mild article and shade-loving plants tolerate, and perhaps enjoy it, while midday and afternoon sunshine might be too fierce for them. But you ask about plants which are sun-loving, and they will be quite satisfied with the stronger kind, of which they will get enough from the middle of the morning until sunset. We invariably plant seeds when the moon is right—but then the moon is always right when the earth and the sun are.

Is It Drouth or Alkali?

To the Editor: Around the house, on a strip of high land, too high to flood from irrigating ditch, I planted about 60 apricot trees. The trees grew finely until about August, when most of them died, and the balance died this winter. For two years previously I had planted peach trees, but they also died the same way. The ditch runs along the end of this strip and I am thinking of placing a 2-inch centrifugal pump on the bank to pump water out of the ditch. Each year I have tried to keep trees alive by watering with hose from tank-house, but have failed. The land on the surface looks right, but when digging holes for trees it shows a little alkali, but does not seem to me too strong. Do you think my proposed plan will work all right?—Fruit Farmer, Hanford.

If it were simply a case of dying from drouth, you could easily settle it by pumping from the ditch as you propose. That is perfectly practicable, and pumping from ditches to higher lands is done on both large and small scale in all parts of the State. But the probability is that your trees did not die from drouth. They died too suddenly and uniformly for that. Some of them would surely have pulled through with the hose-irrigation you gave them even if inadequate for good growth. It is altogether likely that there is too much alkali. You can have that determined by sending a sample of the lower soil to the Experiment Station at Berkeley, and sending a letter with it describing what your experience has been. It may be that the land would carry pears even if too alkaline for peaches and apricots.

Cherry Picking and Packing.

[Written for Pacific Rural Press.]

Last season we saw some folks picking some speckled black cherries in Santa Clara valley. Since cherries do not color in transit and do not gain in sweetness, we asked the pickers why they did not let them get ripe. Their excuse was that it looked like rain and rain might crack them. It was a poor excuse because when these cherres went to the market in the East, the buyers said, "Too green." They bought them if there were no others available. Black cherries should not be allowed to become too black, but ordinarily they look blacker while hanging on the trees than they are, so that there is little danger of picking them too ripe.

Pick Cherries Ripe.—G. M. Chambers, for years a worker in the cherries at Vacaville, gives us the following pointers on picking and packing: White cherries should not be picked until all of the green color is gone and the ground color is straw-yellow. There should be nothing but solid colors on cherries when they are picked, which means that the speckled cherries referred to above were not ripe enough.

In picking them, M. Sharpe, also of Vacaville, points out that the cherries themselves should not be touched with the fingers, but the picking done by grasping the stems one at a time, or in bunches if all of the cherries in the bunch are of the same ripeness. Cherries sent East without their stems are practically sure to display considerable mold when the box is opened in the auction markets for the buyer's inspection. A moldy cherry in a box tells a tale of careless picking which says to the buyer, "If you get these cherries at all, be prepared to get rid of them at once at a low price, for they are of poor quality and will not keep long."

H. A. Bassford's cherry pickers carry semi-circular cans hung over their shoulders with a concave side to fit against the body so they will be out of the way and the pickers can use both hands at once. These are dumped into baskets about a foot square on top and nine inches square on the bottom and a foot high with rope handles. These are filled not quite full, and are then taken to the shady packing benches where girls pack them in ten pound boxes, marked, "Net Weight 8 pounds," on account of the shrinkage on the journey. The number of rows across the box is also marked on the outside so the buyer will know the size of the cherries without opening them. One row difference will often make a difference of 50 cents in the price per box. Some of Mr. Bassford's cherries are packed in tin top baskets, stamped, "Net Weight 5 pounds." It is always necessary to have overweight rather than underweight on account of the net container acts in some of the eastern states.

Packers' Waste Motion.—Pinkham & McKevitt pay their packers by the day in order to get the most careful work possible, but a great many of the Vacaville growers pay by the box. Last season the price went up to about 17½ cents per box for the packing alone, though ordinarily it runs about 15 cents a box for the first ten boxes and 12½ cents for all boxes over that number. At that price, one woman working for Mr. Bassford made $3.00 in one day. A very noticeable feature in watching cherry packers is that one will make every move count, while another will reach clear back into the lug box or basket for each cherry. Sometimes in taking a cherry out of the lug boxes, a girl will turn her head to look at the cherries and select the ones she wants. Needless to say, the woman who made $3 picked them out by the handful and held her left hand full of cherries as close as possible to the right hand, which faced the cherries in the box. Her left hand got a new bunch when it was empty, while the right hand was doing its work, while her eyes were on the box she was packing.

Cartons for Select Trade.—W. C. Carlon of the Santa Clara valley emphasizes the need of buying the best shook, which ought to be of clear lumber, free from knots and freshly cut. It should have no sap wood and should be smoothly finished. Old shook may be known by its yellow color. He uses plain waxed paper to protect the cherries from the wood. A great many of his cherries, of which he ships about twenty tons to the eastern auction per year, besides many to local markets, are packed in pasteboard cartons eight or ten per 10 pound box. This reduces the actual amount of cherries per box, which somewhat makes up for the extra expense of the cartons and packing the cherries in them. This extra expense is about 8 cents per 10 pound box. Each carton is stamped with his name and the name of his ranch as well as the number of rows and the variety of the cherries. In 1913 he wrapped a pretty blue ribbon around each carton and tied a bow, but "Never again." Plain waxed paper alone looks better and costs only 15 cents per pound. The cherries must be packed tight enough so that when they shrink they will not rattle around in the box or carton, but must not be packed too tight as this squeezes them and, with the white cherries, discolors them and makes their sale a matter of reduced price.

Mr. Chambers points out that Royal Annes are brittle and if pressed too tight, the skin will break; while if pressed but not quite so much, the skin will turn brown anyhow. Chapmans are more elastic and will come back to shape if pressed. Rockports also discolor.

Cheaper Packages Necessary.—For the earliest Santa Clara cherries, the Coast market, especially Los Angeles, is good, according to Mr. Carlon, but after a few days the price goes down. He ships them in 40 pound lug boxes. H. A. Fairbanks, president of the Producers' Fruit Company, points out that the Coast market always demands 30 pound lug boxes with the cherries loose, and makes the point that we must find cheaper ways of packing cherries in order to make them sell at a profit in the East. We must come to the lug box for shipment sooner or later, or find another way of packing cherries that will not involve so much expense. The total cost of packing cherries at present, according to Mr. Fairbanks, including the shook, is 30 cents per 10 pound box. In three minutes after they are sold, that 30 cents is gone. He suggests that packers might face the cherries by shaking them so that the ones on the bottom are pretty well placed, then fill in and turn the boxes over. Even this seems scarcely necessary, for we noticed on the auction market last year, large quantities of cherries from northwestern states in crates containing 24 veneer boxes, each of which held about a pint and were not faced at all. These seemed to attract the buyers about as well as the faced product, though, of course, they did not bring quite the same price. Nevertheless, their competition was being keenly felt by California cherry growers on account of the expensive practice in California of facing the cherries.

TIME OF TRANSIT TO EUROPE THROUGH PANAMA CANAL.

THE average time of transit for steamships from United States Pacific coast ports to England is about one-half what it was before the opening of the Panama Canal. Grain ships arriving at British ports from August, 1914, to February 13, 1915, from San Francisco, Portland, Oregon, and Puget Sound averaged 48 days for a voyage. Of 27 voyages, the shortest was 34 days and the longest 88. Only 3, however, exceeded 54 days.

Most of the grain exported from the Pacific coast is carried in steamships this season (1914-15). Last season (1913-14) most of the export grain from the Pacific coast was carried in sail vessels, whose voyages to British ports averaged 136 days. Of 22 cargoes, the shortest time in transit was 102 days and the longest 171 days. In 1913-14 the average time of transit for steamships carrying grain over these routes was 94 days, or nearly double the average for the first part of 1914-15.—U. S. Dept. of Agriculture, March 20, 1915.

TOO EARLY IRRIGATION.

[Written for Pacific Rural Press.]

"They ran the first irrigation through here two weeks ago," said J. A. Goodall of Stanislaus county. "It will come again in three weeks. I did not use any of it because the soil was moist on top and connected with the moisture underneath. It is better left off from alfalfa or any other crop under such conditions because we cannot afford to waterlog the soil. If it were irrigated, the soil would run together into a crust and would soon dry worse than if not watered at all. I have spring-toothed my alfalfa three times over and it helps a whole lot to keep the foxtail down, as well as to save the moisture."

KEEP BRIDGE GRAFTS CLEAN

[Written for Pacific Rural Press.]

"I don't like to graft for folks who will not care for the grafts during the next few seasons," says J. L. Magray, who was bridge grafting blighted pears last winter for Albert Meister of Sacramento. "Grafts must be dollied along and pruned back before windy weather blows their top-heavy shoots loose from the unions. On bridge grafts, all the shoots must be kept off religiously to avoid robbing the tree on which they are used of the sap which the bridge grafts are designed to supply from the roots."

Small Prune Orchard Costs.

[Written for Pacific Rural Press.]

Chicken manure applied on six or seven French prune trees in an orchard of 241 trees on two and a half acres in Sonoma county boosted the bloom last season so that it was past when the hot wave came and a pretty good crop of fruit set, though it was light on the rest of the orchard. Where the year before the crop had been 10,600 pounds, last year on this little orchard belonging to H. Groning, it amounted to only 2900 pounds.

Mr. Groning has been about eighteen years a fruit grower in that section, doing his own work on several small places, and having lived for the past five years on the little place named.

When he came there, the tops of the trees were all dead or dying, because they were twenty years old then. He took out all the dead wood first, cutting back many big limbs; and shortened the rest of the limbs which were long and overbalanced. Every year the new wood has been saved to bear the next year and this has kept a continuous fruiting not too high up. The trees were hoary with moss, which comes whenever the winter is cool and moist for long periods. This is killed with a crude oil whale-oil soap spraying during the dormant season before February. If not all have been treated by that time, lime-sulphur is used. This cleans off the moss and makes a striking contrast to the dejected, long-haired trees, uncared for, in the lot next to Mr. Groning's. The spraying costs him about ten cents per tree for the one application per year. This kills the San Jose scale, of which there has been considerable at some times.

Having gotten the trees into pretty good shape, the pruning now would cost about ten cents a tree, but Mr. Groning does it all himself and considers it worth fifteen cents a tree to do a good job, spreading out the tops for plenty of light and air.

His plowing costs about $2.50 per acre, figuring in his own labor and that of the one horse he uses. Eight or nine cultivations per season cost $8 or $10 per acre. Picking up the prunes costs about ten cents per lug box, or perhaps $3.25 per ton green.

The dipping and drying costs $6.00 per ton dry. Mr. Groning built his own fire-boxes for the dipper at a cost of $12 and bought a kettle for $5.00. He made 200 trays himself at a cost of $100, including both labor and material.

The fertilizer now costs nothing except his own labor, as he uses a

small wheelbarrowful per tree of chicken manure from his 500 hens, and whatever he has from his horse.

Thus the total cost of raising an acre of prunes on this little orchard, with a yield of five tons per acre, would reach about $122, or about $24.50 per ton.

Does Alkali Removal Make Peach Land?

To the Editor: I was much surprised and mightily interested to find on page 153 of "One Thousand Questions in Agriculture" the following, viz., "In some experiments gypsum to the amount of thirty tons to the acre or more has been used for the purpose of seeing how much the land would take, and a fine growth of grain has been secured after using that much gypsum, but that, of course, would be out of the question because the outlay would be more than the land or the crop would be worth."

To justify my interest in the matter let me explain that the last statement would not be true in the case of land that would be worth from three to five hundred dollars per acre, were the alkali entirely removed. There is a lot of such land near Yuba City.

Some years ago I treated about 30 acres of land with gypsum under the directions of a professor of the university. All of this land showed more or less improvement, but not enough to make me feel that any of it was as yet $500 land. I also was of the opinion that it would take several years for the gypsum to work into the soil. I also thought it would be a waste of gypsum to put on more than the required amount, because I thought the gypsum was in itself a kind of alkali and would in itself work harm to the soil if put on too freely; that the resulting white alkali would damage the soil if there was too much black alkali to begin with.

I have about five acres that was so bad with alkali that it would scarcely grow any vegetation at all. If I remember rightly, about 1½ tons to the acre was applied to this place and it resulted in noticeable improvement, but it is still very bad. Now from your instructions, it will be right to put not less than two tons of gypsum per acre to this particular land this fall, and to repeat this yearly until the land is reclaimed. Is this right?

The rest of this land is carrying a very fair stand of alfalfa, but an experiment with about 40 peach trees makes it appear that this land has not been reclaimed so that it would grow better than half a stand of peaches. What is wanted on this land is peaches! Would it be safe to apply two tons of gypsum per acre to this land and to repeat it yearly until a satisfactory stand of peaches was obtained? In answering these questions, you will not only help the writer, but many of his neighbors, who, while in some cases more heavily interested, have not been always as willing as he to go to your kind of people for advice and assistance. If you will be so kind as to answer this letter carefully, I will assure you that I will send the information wherever I know it will do any good.

This land has now been thoroughly drained. Lack of drainage in the past is the cause of the alkali being now so bad.

It would seem that my questions have already been answered in the quotation heretofore given, but the matter is of so great importance that I would like to have the matter confirmed. **Howard Reed.**

Sacramento.

[Mr. Reed's letter is so interesting and complete that it almost anwsers itself, and all students of alkali will be glad to think of his propositions. We may say, however, that the reference to 30 tons of gypsum to the acre which Mr. Reed quotes from "One Thousand Questions in California Agriculture Answered" omits reference to the drainage, which is emphasized in the book as the key to the whole situation. He recognizes the fact, however, in his closing paragraphs, for he expresses satisfaction that the land he has in view has been provided with thorough under drainage.

It was because of the deep drainage into a sump which reached gravel that the 30 tons of gypsum per acre in the old experiment by Prof. Hilgard made the land which previously was useless (except perhaps as a site for a soap factory) produce a fine crop of wheat. For the production of wheat, however, such an investment in reclamation is impracticable, as the quotation claims.

There are two questions, at least, involved in this matter: First, an economic question pure and simple, and that is answered by Mr. Reed himself. If removal of alkali will make the land capable of bringing crops warranting a $500 per-acre valuation, then the investment required would be reasonable.

The second question is chemical, physical, and perhaps biological, viz.: Will water, gypsum and drainage make the land thus productive? On this point we have to remark that, with plenty of fresh water moving through the soil and out through the drains, the action of gypsum in turning black alkali into white is beneficent and desirable. Without drainage, to remove it, the turn into white alkali would not be worth the cost because too much white alkali will kill a plant just as dead as black alkali will. But while the gypsum is acting on the alkali it is also granulating the alkali hard pan and making it more open to water-movement. In this way the gypsum not only makes a change in the alkali but makes it easier to wash out—the latter being really the key to the reclamation.

There are now appearing in the University alkali work at Fresno (the results of which are not yet definite enough for publication) some problems in the condition of the soil after alkali-reduction which are still being pursued by the investigators. They seem to relate to the productivity of the soil after the alkali is reduced by water percolation and outflow of drainage. They show that alkali can be removed simply by passage of fresh water for a sufficient length of time, but the performance of this land by cropping is still to be measured by good tillage and plant growth. There is some reason to think that the action of the gypsum, when that is used in connection with washing-out, may accomplish something more than change alkali from one form to another. That is a matter which the investigators will expound in due time.

The conclusion of the whole matter, so far as we understand it, is that gypsum and water are the materials to use and drainage is the key to their successful operation. Therefore we say to Mr. Reed and his friends, go ahead with this treatment, but we do not guarantee the result to be "peach land" without knowing more about its physical condition and the depth to which the drains are sure to reduce the winter water.—Editor.]

Typical Aspect of Strong Alkali Spot Requiring Thorough Treatment.

LEMONS CLOSE TOGETHER.

[Written for Pacific Rural Press.]

Acre yields of the Limomeira Ranch are so heavy, according to J. D. Culbertson, assistant manager, that their publication would be misleading. The reason they are so heavy is that the trees are close together—they were planted over twenty years ago, fifteen feet by twenty-six, 112 per acre, in the expectation that alternate trees within the row would be pulled out, leaving the distance 26x30. But the time for removing these trees has not yet seemed propitious.

The closeness is allowable and profitable with lemons, partly on account of the heavy crops and careful fertilization, and partly because lemon trees do not need sunshine so much as deciduous, and no color is wanted until after the fruit is big enough to pick.

A mile of good road is better than a mile of golden statues.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.

634 California St., San Francisco, Cal.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.

NEWCASTLE, CAL.

PROFESSIONAL DIRECTORY.

SYMMES & MEANS

AGRICULTURAL ENGINEERS

Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.

58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER

CONSULTING ENGINEERS AND AGRICULTURISTS

Hearst Building, San Francisco.

Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.

Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG

AGRICULTURAL ENGINEERS AND CHEMISTS.

Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned Largest and best equipped soil laboratories in West SOIL SURVEYS. CERTIFICATION OF LAND. California Fruit Building, Sacramento, California.

SOIL LABORATORY

Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.

CURTIS & TOMPKINS

Agricultural and Industrial Chemists.

108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.

444 Market St., San Francisco

CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Teparies Among Oranges.

Hearing of the tepary bean last year, we bought a few pounds and planted them in our young orange orchard in rows four feet apart, two rows to the middle. The two furrows for water on each side of the trees furnished sufficient moisture until August when the bloom seemed to be dropping too much and we ran three streams or furrows of water, one between the rows and one on either side, for one irrigation.

These beans were planted early in June; and this we now think was too late. It seems to us that April or early May would have been better. These were planted in a ten acre orange orchard where the trees are set 22 feet apart. Out of this should be taken the space occupied for the house and barn and still further deduction should be made for damage by squirrels. In solid planting there would be less than two acres, making the above deductions. From this we harvested 2840 pounds of clean beans. A further mistake that we think we made was in planting too thick. In our judgment the yield would have been increased if they had not been so thick in the row.

Lindsay Feed & Fuel Co.

ALFALFA AMONG ALMONDS.

To the Editor: In reference to growing alfalfa among the almond trees I believe it works out very satisfactorily, that is, in soil such as around Lodi. The trees seem to thrive very much with lots of water and make a very good growth. It is rather hard to compare yields with adjoining orchards as I have grafted one-half of my orchard (the I. X. L's) to Texas Prolific, while the others have I. X. L.'s and the other varieties being the same, but so far as I can learn my yield is slightly heavier.

With alfalfa you are not bothered with Red Spider nor with sticktights and your meats are plump, but you must irrigate properly.

The yield of alfalfa is not so heavy as in the open, ¾ of a ton per acre being about all you get.

Taking into consideration that almonds are not always a sure crop, and that you can feed the alfalfa and be sure of your revenue, it seems that it should work out all right.

My trees are 24 feet apart. If planted about 28 or 30 feet the results would be even better. You also save your cultivation charges and if you have diseases in the roots, it looks to me that you are not so apt to spread it by water as you are by plows cutting your roots.

Stockton. H. W. Peyton.

ORANGE JELLY MAKING.

In answer to a request for a recipe for orange jelly Professor W. V. Cruess of the College of Agriculture at Berkeley gives the following instructions:

1. Slice about one dozen whole oranges and four whole lemons, including the rind and the pulp of both fruits.

2. Place the sliced fruit in a pot and barely cover with water. Bring to a boil and boil slowly for at least one-half an hour. One hour is better.

3. Remove the material from the fire and strain through a jelly bag. Press out the juice from the remaining pulp.

4. Place this juice in a pot and heat it to boiling. While still boiling pour it into Mason fruit jars.

5. Let the material stand twenty-four hours to settle. Pour off the settled liquid from the sediment and strain the sediment through a jelly bag.

6. Combine the decanted clear liquid with the strained liquids and to each quart of liquid add approximately 1¼ quarts cane or beet sugar.

7. Bring slowly to boiling. Insert a Fahrenheit thermometer and boil slowly until the thermometer registers 221 degrees F., or if you have a Centigrade thermometer, this will be approximately 105 degrees C. If the point is very much above sea level, these temperatures will have to be modified because water boils below 212 degrees at elevations above sea level; therefore, in such cases you will have to determine the boiling point of water before starting in and then boil your jelly until it reaches 9 degrees F. or 5 degrees C. above the boiling point of water at your elevation.

8. Skim the jelly or strain it through cloth into jelly glasses.

9. Cover the jelly with a thin layer of melted paraffine.

"If the mixture fails to set to a jelly, use a larger quantity of lemons. Very ripe oranges will often require a larger amount of lemons than the above recipe calls for, due to the fact that the ripe oranges are deficient in citric acid, and if very ripe or over-ripe, they may also be deficient in pectin, the substance from which the jelly is made. If the oranges are boiled too long before expression of the juice they may become mushy and too soft to press well. One of the secrets in getting a clear jelly is to boil your material slowly and long enough to extract pectin but not long enough to break the fruit up too much."

GRAY OLD FIG GIANTS.

[Written for Pacific Rural Press.]

Under the old fig tree which had seen a dozen years before E. A. Goodwin of Ripon moved onto his place in 1878, his family was raised in joyous possession of an old gray amusement park in itself.

The tree stands back of the house and in reality branches a few feet above the ground into what would make four enormous big trees which loll around in a most inviting way to the child who wants to climb.

No attention is paid to the tree in pruning, cultivation, irrigation or fertilization, but it bears all the black Mission figs that the family and neighbors can eat, and when they are tired of the fruit, the pigs are turned in to fatten.

Another old giant is a fig tree belonging to T. Roebuck of Knights Ferry. This one has a trunk 12 feet, 2 inches in circumference and spreads 77 feet.

Feuds, tribal differences and the suspicion of the stranger within the gates, dissolve under the spell of good roads.

CITRUS TREES

Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries

San Dimas, Cal. U.S.A.

MARTIN METAL STACK COVERS

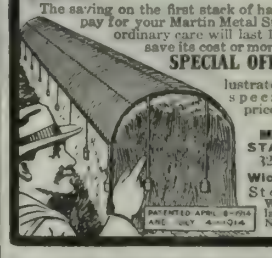
Save All the Hay—Pay Big Profits

Galvanized—Corrugated—Extra Quality Coating

More economical than barns or permanent sheds. Easy to put on and take off. Made in sections, thus occupying little space when not in use. Made in all sizes. Are water-tight and rust-proof. Can't blow off.

Mr. Hammitt, Hardy, Neb., says: "Your cover preserved my hay fine. I got $1 a ton more for stack protected with your cover than for other stacks in same field."

The saving on the first stack of hay will more than pay for your Martin Metal Stack Cover. With ordinary care will last 15 to 20 years and save its cost or more on every stack.



SPECIAL OFFER Write today for free, illustrated literature and special introductory price.

THE MARTIN METAL STACK COVER CO.

327 N. Mosely St. Wichita Kansas

Stocks carried in Wichita, Kan.; Portland, Ore.; Omaha, Neb.; Canton, Ohio.

EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.

THEODORE PAYNE,

345 S. MAIN STREET, LOS ANGELES, CAL.

Macabee Gopher Trap

Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.

"Winter Rhubarb, Culture and Marketing"

Price 25c

Burbank's Crimson Winter and Wagner's Giant plants for sale. Best stock obtainable. Write for prices and terms.

REGINALD BLAND, SAN LUIS REY, CAL.

Farm Bureau Squirrel Campaign.

[Written for Pacific Rural Press by Ventura County Farm Adviser W. B. Parker.]

[Concerted action of all infested communities seems the only solution of the squirrel problem.—Editors.]

Upon the arrival of the Farm Adviser in Ventura county it was observed that the ground squirrel was doing a great deal of damage. In an early report to the directors of the Farm Bureau the Farm Adviser suggested that squirrel control work be taken up by the Farm Bureau. A committee, consisting of fifteen farmers living in various parts of the county, was accordingly appointed. The duties of the members of this Squirrel Committee are to stimulate interest in squirrel control in their particular district, to find out who wants squirrel poison, and to notify the office of the Farm Bureau at Ventura.

An Executive Committee to handle the business in connection with this work was chosen from the members of this Squirrel Committee. At the first meeting of the committee, which was held during the early fall, it was decided that while much could be done by the Farm Bureau to eradicate squirrels, it would be necessary to have a squirrel ordinance to force the destruction of squirrels on certain lands which adjoin uninfested lands.

The first ordinance presented to the Board of Supervisors was based on the Santa Barbara squirrel ordinance, and was found by that body to be too expensive A second ordinance was then drawn up so that the expense would not exceed $750.00 a year. This ordinance, presented to the Board of Supervisors by the Directors of the Farm Bureau, passed, and comes into effect May 15, 1915. It provided in substance as follows:

Land owners are required to destroy squirrels on their property. In case they neglect to do so, the Squirrel Inspector shall serve notice in the same manner that the County Horticultural Commission does, and in case it is necessary for the Inspector to do the work on the place, the expense shall become a lien on the land, as in the case of County Horticultural Laws.

The Squirrel Inspector will work in co-operation with the Directors of the Farm Bureau, and when working in any Supervisorial district he will work under the direction of the Supervisor of that district, in co-operation with the Director of the particular Farm Bureau Center in which he is operating.

The Farm Bureau has distributed, at cost, over 900 gallons of squirrel poison, with a saving to the purchasing farmers of about $550.00 over the price of poison previously sold here. This poison is made in Ventura, under the supervision of the Farm Adviser, and put into five gallon wooden containers, which cost about 25c apiece. It is shipped to distributing stations located at the Farm Bureau Centers, and sold at the rate of $2.00 for five gallons. The poison is made from the following formula:

Whole barley (recleaned),	18 lbs.
Strychnine sulphate	1 oz.
Soda (bicarbonate)	1 oz.
Saccharine	1 oz.
Thin starch paste	1 pt.
Corn syrup (Karo or equal) .	2ozs.

Labels headed "Farm Bureau Squirrel "Poison," containing the formula and an antidote, are pasted on the outside of the container. This poison has given most satisfactory results so far, and it is expected that a large amount of it will be used in the county this year.

Squirrel Destructors.—We are also advocating the use of the Squirrel Destructor and Kilmol, and many farmers are obtaining good results by this means.

Some complaint has been received by the Farm Adviser regarding the squirrel destructors. In all cases it has been found that the old method of treating one hole and closing the other of a colony has been followed. If the directions on the tag accompanying the destructors are carefully read it will be found that each hole should be treated.

Poison. — Ordinarily it has been supposed that the use of poisoned grain for squirrels when the grass is plentiful is not very effective. Reports have been received of success with poisoned grain where it is placed in the runways a short distance from the holes. When placed in the squirrel holes the animals are strongly tempted to eat it. Poison is on hand in the court house at Ventura, at Somis care of T. G. Bard, and will soon be obtainable at Santa Paula care of F. A. Shipley.

Poisoning Gophers. — The chief requisite for poisoning is to get the baits into the main tunnel. If left in the lateral, where the gopher is working, the baits are frequently pushed out with the soil, to be wasted, or possibly become a source of danger to birds or other animals. Baits made of pieces of potato, carrots, beets, raisins, prunes, shelled corn, and green alfalfa have all been used with success. Baits of the first materials should not be larger than a hulled walnut. The first five are prepared by cutting a slit in the bait and inserting some strychnine sulphate, about equal in bulk to half a grain of wheat. To prepare the grain or alfalfa, soak in a solution prepared as follows:

Dissolve one ounce of strychnine sulphate in a quart of boiling water, add a quart of thick sugar syrup and stir thoroughly. This formula is sufficient to poison 35 pounds of grain, or 30 pounds of green alfalfa. In treating alfalfa, add a little more water. If a little borax is added to this syrup it will keep for several months.

To locate the main tunnels, force a pointed stick into the ground at a point midway between the last fresh openings. The poison may be dropped through the opening made by the prod. This saves the labor of digging for the burrow.

Trapping.—The ordinary gopher traps are usually effective when set in the freshest openings. After setting the traps, the opening should be closed or left with only a little light entering.

Flooding.—On land that can be readily flooded, the gophers will be driven to the surface where a small dog will make short work of them.

Fumigating. — The squirrel destructor, which pumps carbon bisulphid or kilmol into the burrow, is usually effective against gophers. In some cases, however, the gopher will plug his burrow and thus escape the poisonous gas. It is desirable to put in a double charge and pump twice the ordinary number of strokes.

Some gophers learn to avoid traps, some avoid poison, and some may escape fumigating, but persistent work with the different methods will result in success.

"—the price of harness and two good mules!"

"It can't be done," declared the chief engineer. "You asked me to design a four to five horse-pull tractor which would contain the best material, with an ample margin of safety in all its parts and a strong basic design. You said nothing about price. I followed your instructions. There are the plans and it can't be profitably sold for less than seven hundred and fifty dollars. To sell it for six hundred or less is out of the question."

He was one of a group surrounding a table covered with blueprints and scratch-pads.

"In that case," said the president firmly, "we will not build a small tractor. A great field exists for it, true enough. The smaller acreages, twenty to one hundred acres, abound everywhere. They yield a revenue necessarily small, making close attention to economy of operation very necessary. The owner who would preserve his peace of mind must watch the leaks and do nearly all of his own work. Hired labor eats big holes in profits.

"But to be really 'successful' the machine must represent greater things than a mere saving in operating costs. The price must be low. Above all else, it must be dependable in construction, which my specifications insure. I realize that the two are difficult to combine, but more than once in our sixteen years' experience in manufacturing and twelve in building tractors our reputation for building dependable products has been the very life of the institution. In times of stress we have leaned upon it as our greatest asset, while others, less fortunate, struggled against overwhelming odds. Unless the machine can be built as I have specified for six hundred dollars or less we shall not build a small tractor. We cannot and will not endanger our reputation and the confidence of the public by putting out an inferior machine."

The keenest disappointment showed in every face as the president paused. The joy of creation which these trained men had known so well for the past few weeks had been taken away.

The chief engineer broke the silence and repeated, "The designs cannot be cheapened without sacrificing strength. Unless," and his face brightened instantly—

He had struck the solution. We built the machine without a change. The price is five hundred and seventy-five dollars. The remainder of the conversation, one that actually occurred in our office, will be found in our new book, "The Price of Harness and Two Good Mules." Use the coupon to secure it free.

SAMSON SIEVE-GRIP

Clip the Coupon

SAMSON IRON WORKS,
Stockton, Cal.

Please send me, without charge, the book, "The Price of Harness and Two Good Mules." I have ..... acres truck farm, ... acres alfalfa, ... acres orchard, ... acres vineyard, ... acres grain.

Name .....

Address .....

Honig Advertising Co. B2

KT
IRRIGATION SYSTEM
THE 20th CENTURY METHOD OF IRRIGATION

As superior to old methods as the modern auto is to the ox-cart.

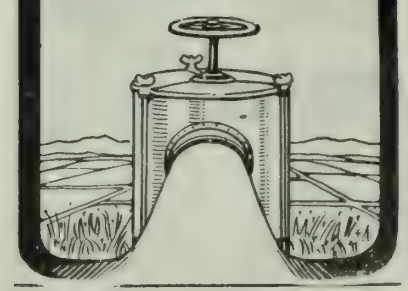
Saves Water, Land and Labor.

Don't experiment — the best is the cheapest in the long run.

Illustrated Catalog and full particulars on request.

Kellar-Thomason Co.
"Originators of the Valve System of Irrigating."
1234 EAST 28th ST.
Los Angeles.

(Ask your Dealer or Contractor.)



200,000 FEET CHEAP
WATER PIPE
Just received several carloads of new and 2nd hand water pipe. Oil Well and Water Casing; Riveted and Surface Irrigation Pipe. Big Stock. All sizes. Prompt shipments. Lowest price. Write, phone or wire.
ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy 1264—F1917
(Under entirely new management.)

Mechanical Power on the Farm.

ELECTRICITY FOR CUTWORMS.

[Written for Pacific Rural Press.]

Two ways in which the beet growers of Ventura county invoke farm power against cutworms are very suggestive to all human enemies of this pest.

At this season of the year, the moths are beginning to fly, after having pupated two or three weeks in the ground. The American Beet Sugar Company of Oxnard furnishes about two dozen of its progressive growers 100-candle-power electric lights, which are put in the most likely places for the eggs to have been laid, where there has been refuse or vegetation. A tank of water is placed below the light and a little oil poured on it. At night the moths fly into the light and get their wings singed. They then fall into the water, and on account of the oil are unable to get out. As many as ten thousand have been caught by one light in one night, and over one million were caught last year. The company itself has some 3,000 candle power electric lamps close to the dump where more or less refuse has been left when the beets were unloaded last season, and on which the eggs have been laid.

Since each female lays 500 eggs, fifty per cent of which will hatch, according to G. E. Bensel, farm adviser for the American Beet Sugar Company, it may easily be seen that a few armies of the worms have been prevented by the light treatment. The moths which are flying at this time, May 1, lay eggs which hatch and produce another generation of moths about July and August. This second generation, however, is not so numerous as the first in some localities, on account of a parasite of the ignomen family which lays its eggs inside the eggs of the cutworm moths. Those which escape the parasite produce the third generation, which lays its eggs on vegetation and beet leaves to hatch out in February and March of the next spring and do damage to the early crop.

Spraying for Cut Worms.—It is for these early spring worms that power sprayers are used in Ventura county in which 125 pounds pressure on one nozzle for each of six rows of beets is supplied by a gasoline engine air pump. Sometimes several applications of the spray are necessary. It consists of two or three pounds of Paris green, one pound of molasses, and fifty gallons of water. The gasoline, poison, and labor cost about 60c per acre per application.

Sometimes the Japanese growers doctor the worms by hand, mixing Paris green with flour or bran and spreading it either by hand or by a special attachment to the cultivators.

STEAM BOILER FOR POWER.

[Written for Pacific Rural Press.]

A stationary cord-wood burning steam boiler about 30 inches in diameter performs many services for Ralph Watson of Stanislaus county. In the boiler room is a steam separator which enables Mr. Watson to avoid hauling the whole milk from his herd of 350 Jerseys, 250 of which are purebred, a long distance to the nearest town, and permits him to feed warm sweet skim milk to the pigs, which form a profitable supplement to the dairy.

Just outside the boiler house are several barrels in which Mr. Watson cooks barley for his hogs, in spite of the lack of favor which this process meets in most quarters. He considers it a very satisfactory feed. To cook it he runs a steam pipe from the boiler through a hole in the house into the barrel of barley and lets it steam for three or four hours. Another pipe runs from the boiler to a little steam engine on the outside which runs a buzz-saw outfit to cut up wood for the house.

PUMP SUPPLEMENTS DITCH.

[Written for Pacific Rural Press.]

In Modesto irrigation district, the water is delivered to the farmers in turns four or five weeks apart. Otto McClure, who is raising purebred Holsteins, alfalfa, and fruit, finds that the runs of irrigation water are not frequent enough, so that he has installed a $1500 pumping outfit to furnish extra water from the river when it is needed.

FARM POWER WOOD-SAW.

[Written for Pacific Rural Press.]

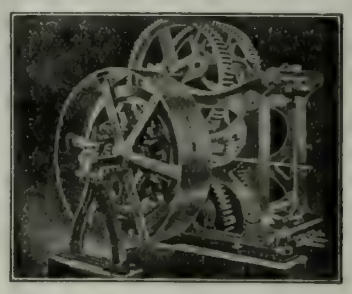
To saw two cords of stovewood per hour, J. McAlister of Santa Clara county has an outfit on wheels. A 15 h. p. double opposed Ostenberg engine is connected by belt drive with a 30-inch circular saw. A platform behind the saw is made movable on an axle so that the cord wood is laid onto it and pushed across the saw.

TRACTOR HAULS FRESH FRUIT.

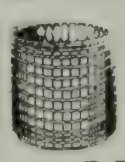
[Written for Pacific Rural Press.]

It is no trouble for C. O. Silliman to get his fresh apricots six miles to Watsonville from his home orchard. He uses an eight-horse-pull Samson tractor and hauls ten tons per trip loaded on two wagons. His crop last season was 700 tons. The ma-

POMONA
DEEP WELL
PUMPS
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.

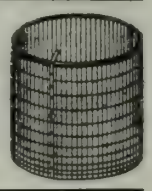


Write for Catalogue 104, with valuable information on irrigation.
Pomona Mfg. Co.
Pomona, Cal.
Our "made right" irrigation valves are good, and not costly.

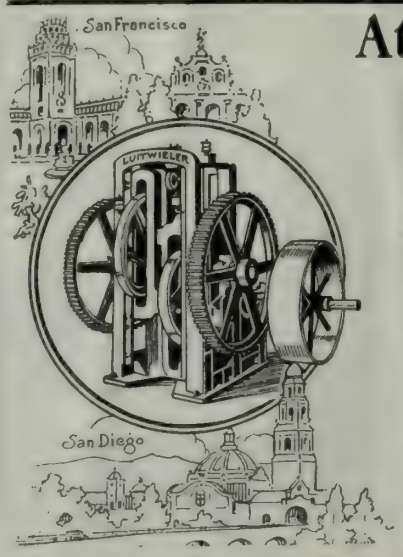


Redwood Tanks
I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
E. F. Wilson, Stockton, Calif.

REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers, Steel and Wood.
Prices the lowest.
BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.



BARGAINS IN PUMPS AND ENGINES
We have a stock for immediate delivery, both the Douglass and Myers hand and power pumps. Also a number of the well-known
OLDS' GASOLINE ENGINES,
in sizes from 1½ H. P. to 10 H. P. inclusive. All brand new—No second-hand stock. Let us mail you our Bargain List P.
General Machinery and Supply Co.
Formerly
COMPRESSED AIR & GENERAL MACHINERY COMPANY.
89 Stevenson Street, San Francisco, Cal.



At Both Expositions
You Can See The
Luitwieler Pump
IN ACTUAL OPERATION
By all means see our exhibit of pumping systems at the Fairs. You can learn more about pumps by ten minutes' observation than by reading a whole book on the subject.
The Luitwieler Pump is perfectly balanced and will run full speed without jerk, jar or vibration. There is no excessive friction in any of its working parts and it requires the minimum of power. We have yet to see a worn-out Luitwieler.
Write for Free Booklets
Luitwieler Pumping Engine Co.
711-713 N. Main St. Los Angeles.
San Francisco Agents:
SIMONS MACHINERY CO., 117 NEW MONTGOMERY

chine through the season used about 400 gallons of engine distillate and twenty-five gallons of lubricating oil.

GETTING ECONOMICAL PUMPS.

A prominent pump manufacturer sends inquirers a "Specification Sheet" including the following questions. Much time and some postage would be saved by answering them in the first letter of inquiry written to the manufacturer. It enables him to prescribe the outfit which will do the work with least waste of power and of the irrigator's time.

How many gallons do you wish to raise in a minute?

What is the vertical height above surface to which water will be raised?

What is distance from surface of ground to water level?

What is the probable depth to which water will recede when pumping?

What will be the total length of discharge pipe?

What will be required length of suction pipe?

If a bored well, what is the diameter?

If a pit is sunk, give depth and dimensions inside of curbing.

Will pit be dry, or will water rise up in same?

If more than one bored well is used, state distance apart and their position to each other.

State kind of power which will be used to operate pump.

Do you desire figures on pump only or pump complete with piping and all fittings?

If pump is of vertical type, do you desire figures on steel or wooden framework?

If estimate is to include electric motor, please so state, and also advise the kind and voltage of electric current available.

State if you desire us to include with motor the price on transformers, if such are necessary.

Do you wish pump to be direct connected to motor or belt driven?

If you intend to use water at different levels, give heights of same.

CYCLE HELPS GET WORK.

"It's been a hard winter to find steady work," says A. S. Nott of Pasadena, "but I've had several jobs that I couldn't have undertaken without my motorcycle."

"In fact, the undertaker would have had an extra job, for I came to California on account of my heart; and the long uphill pull I used to make on a bicycle coming home after a day's work, used to leave me pale and exhausted. It was getting dangerous for my heart and that's why I got the motorcycle.

"Some folks say the vibration and bumping of such a machine is dangerous, but I've found it dangerous to be without a motorcycle and have never noticed any bad effects with it.

"I remember one time a friend of mine who works in a garage was busy at 8 a. m., when the telephone ordered half a dozen battery boxes for an electric automobile, and they had to be ready at 11 a. m. The storage battery sulphuric acid spills over occasionally and burns the boxes the batteries are carried in, so they must be replaced.

"My friend telephoned me to make the boxes and deliver them. The two miles to the carpenter-shop was nothing for the motorcycle. I made up the boxes, 8x8x20 inches, stacked the six of them on the motorcycle, and took them two miles to the garage, on time. Couldn't have done it without the quick transportation."

CRUDE OIL SHINGLE PAINT.

To the Editor: In addition to your reply to A. E. A., Wallace, with reference to shingle paint, in the issue of Feb. 6, will state that I have used crude oil obtained from the sump or any available place, thinned with cheap distillate and mixed with three pounds of metallic brown per gallon of fluid. As the Prince's Metallic Brown costs but two cents a pound, the distillate six cents a gallon, and the crude oil five cents (the most I have ever paid), the paint costs at most thirteen cents a gallon. I have applied it lavishly on my shingle roofs, with thorough satisfaction. It looks black to begin with, but in time the brown color of the pigment predominates. It is necessary to constantly stir the mixture while applying, as the "Metallic Brown" settles to the bottom. Two coats will last for years if applied about six months apart, and the shingles are preserved as well as the nails.—**E. M. Morgan**, Cibola, Ariz.

SIMPLE ENGINE AT FIRST.

To the Editor: Will you please tell me what kind of a machine is best for irrigating ten acres vegetables.—M. F., San Francisco.

[You do not say how much of a lift, the location of the water, or what distance you must carry it, so we cannot tell the horse power required, nor the amount or size of the pipe. We are advertising several makes, any one of which would probably be satisfactory, though we would recommend the simplest engine available; for the beginner wants to avoid the engine troubles which sometimes mean lack of irrigation at a critical time.—Editors.]

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

Saves Money in Handling Hay

The problem of quickly and economically handling loose or baled hay is easily solved by using this derrick. No modern farm should be without it. It can be moved from place to place as easily as a farm wagon. Can also be used for hoisting dirt, raising building materials or heavy loads of any description.

If You Write Us

we will explain in detail just how this derrick can save you time, labor and money.

Write us NOW.

Piles up Hay and Piles up Profits.

Schmeiser Manufacturing Co.

Davis, California

Box 87

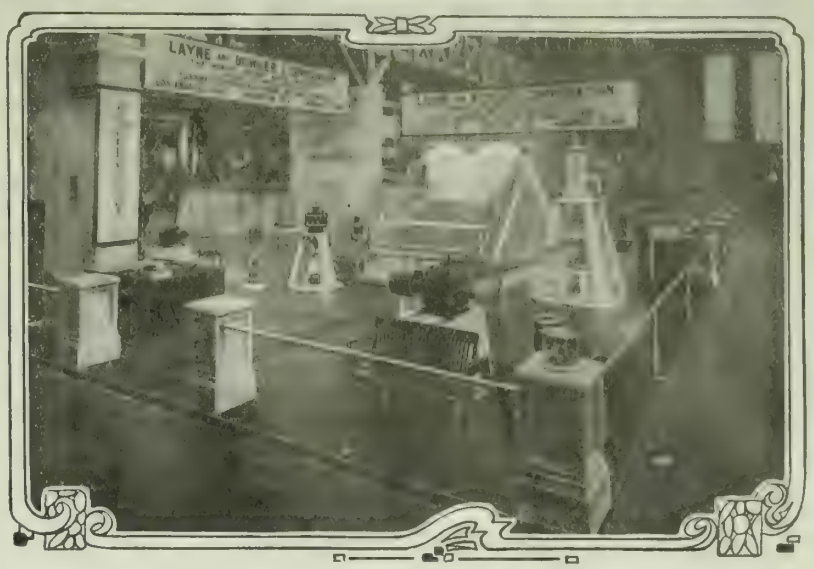


EXHIBIT OF PUMPS

At San Francisco Exposition

Visited by Hundreds of Prospective Irrigators.

One of the most interesting and complete exhibits of irrigation pumps ever assembled is that of the Layne & Bowler Corporation's in the Palace of Machinery at the San Francisco Exposition. In the exhibit is included, the turbine centrifugal pump for shallow and medium work, belt driven; one driven by direct connected vertical motor; and one for extraordinary depth where the weight of the shaft is carried on an oil-thrust bearing. They are all in actual operation and prospective irrigators and pump users are availing themselves of the opportunity of seeing the exhibit. The different styles of well screens and steel casings are also shown.

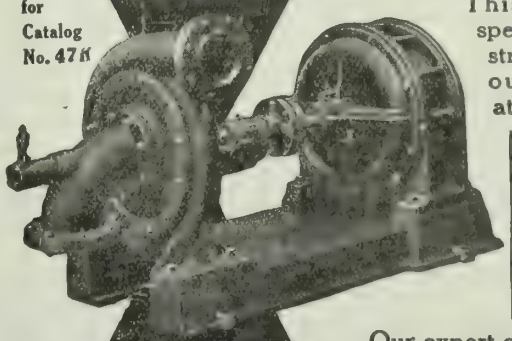
One of the best pump men on the Coast has been chosen by the manufacturers to superintend the exhibit and answer questions visitors may ask.

To those who are unable to attend the Exposition, the Layne & Bowler Corporation, 900 Santa Fe Avenue, Los Angeles, manufacturers of the world-famous Layne & Bowler pump, will gladly send their pump and irrigation booklet, No. 25. It gives valuable irrigation information and will be sent free of charge and postpaid. Write today for a copy.

"Jackson MADE"

Write for Catalog No. 47K

A "Jackson Made" pump raises more water at less cost per gallon than any other pump and by its freedom from costly repairs actually pays back its first cost in a very few months. This is no figure of speech—it is demonstrated every day by our pumps actually at work.



No matter what your pumping needs may be—there is a "Jackson Made" pump ready to work for you at a lower cost than any other make.

Our expert engineers are gladly placed at your disposal for free consultation.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.

357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

If you want the most for your money ask for, insist on, and demand that your DEALER furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good,"—it cannot be furnished. Every sale carries with it an unqualified guarantee.

Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives power tables, Belt Speeds, List Prices, Etc.

New York Belting and Packing Co. of New York

Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

Agricultural Review.

CITRUS AND SEMI-TROPICAL.

Chas. Nauert of Bloomington recently sold five acres of full-bearing lemons to Andrew and John Armstrong.

The annual meeting of the stockholders of the Butte County Citrus Association was recently held and the following officers elected: J. A. Lawrence, president; Oscar Warner, secretary and manager.

A new fruit has been propagated by Dr. H. B. Powell of Ocean Springs Miss. It is called the orangelo and is a cross between an orange and a grapefruit, having the appearance of the orange and tasting like a combination of the two fruits.

Tulare county citrus growers recently formed a permanent organization for the purpose of fighting the gray scale pest that has recently invaded that district. W. H. Schilling was elected president and Ralph Andrews secretary.

Jas. Madison, manager of the California Associated Raisin company, recently addressed the growers of the Porterville section on the methods of the Associated Raisin company. There is a strong movement on foot in that section to form an association along the lines of the Associated Raisin company to handle the citrus products.

DECIDUOUS FRUITS.

There is a record-breaking cherry tree in Auburn owned by Edgar E. Hulbert. It is three years old and this season was covered with blossome and apparently every blossom produced a cherry of the Tang Choey variety from China.

GRAPES AND SMALL FRUITS.

Wylie Giffen of Fresno county recently purchased from C. R. Puckhaber a half section Thompson Seedless vineyard.

Two miles east of Oakdale, Frank N. Gillette recently made a record with strawberries, having set out the plants at Thanksgiving time and harvested a big crop before the middle of May.

A huge advertising appropriation has been set aside for boosting the raisin industry by the Board of Directors of the California Associated Raisin Company for the year beginning August 1. Although the exact amount is not known, it is said to be in excess of that spent last year, which was $10,000.

A movement is on foot among the table grape growers of the State to market their grapes under a certain brand and sell the very best under that name. The idea originates with Geo. A. Charters of the Fanning-Charters Fruit Distributing Company, who has successfully piloted the advertising of the California Fruit Exchange's citrus products under the label, "Sunkist."

OLIVES AND NUTS.

More than 460 acres have been planted during the past two months to almonds in the Esparto section.

It is estimated that more than 1250 acres have been planted to olives in the Oroville district this year.

GRAIN AND FIELD CROPS.

In Kern county this year 5300 acres have been planted to rice and a yield is expected of 50,000 sacks, valued at at least $150,000.

Thirty-five cents a pound for eggplant is the record price received recently by the Orange County Vegetable Growers' Association for a shipment to San Francisco.

Approximately 70,000 acres in Reclamation districts 1000 and 1001 in Sutter county have just been completed to the seeding of wheat and barley; and a yield of forty to fifty sacks an acre is expected.

An experimental rice field has been installed on the Sacramento Valley Sugar Company's holdings at Hamilton City, and the land is being prepared for planting. Should the experiment prove successful, it is rumored that the sugar factory will be converted into a rice mill.

In Monterey county, artichokes are being planted in large numbers along the Coast. The sandy soil is heavily fertilized and with the aid of water, artichokes will be raised commercially on land that has heretofore been given to sage-brush and sand apples.

MISCELLANEOUS.

The total Government appropriation for the coming year for the U. S. Dept. of Agri. is $22,791,782.

The first farm bureau hall in the United States was recently dedicated at Chowchilla, Madera county.

G. H. Hecke has resigned as Farm Adviser of Yolo county and Niles P. Searles will in all probability succeed him.

The Orland Agricultural Club recently elected the following officers: Ernest Mapes, president; Carl Holvik, secretary.

Riverside is to have a cannery with a capacity of 1500 cans a day in operation by June 15, to be known as the Riverside Canning Company.

At the annual meeting of the Santa Rosa Cured Fruit Association the following officers were elected: J. G. Cochrane, president; R. Weerts, secretary, and S. W. Baker, manager.

The bill establishing a standard for fruit shipped out of the State has been passed by the Senate and now goes to Governor Johnson. The bill declares that every box of fruit shall be of practically uniform size, quality, and maturity.

Six hundred agricultural students of the University of California are seeking jobs on farms for three months beginning May 15. Should

Orchard Brand

Spray Materials

ATOMIC SULPHUR paste, for the control of mildew, miscellaneous fungus troubles, red spiders and mites on fruit trees, grape vines and other plants. It may be effectively combined with arsenate of lead, oil sprays and nicotine solutions when spraying for other troubles without causing any injury where the separate ingredients used alone would be safe. Effective as a carrier and spreading agent for nicotine solutions and arsenical poisons.

LIME SULPHUR SOLUTION, a high grade, concentrated clear liquid, free from sediment, for spraying citrus trees and for dormant spraying on deciduous fruit trees.

BORDEAUX MIXTURE paste, a concentrated, efficient fungicide ready for use by diluting direct in spray tank.

ARSENATE OF LEAD paste and powder, for the control of codling moth and other chewing insects.

MISCIBLE OILS, OIL EMULSION, LIQUID WHALE OIL SOAP, etc., for the control of aphis and other sucking insects.

In dealing with this Company, fruit-growers obtain advantage of quick delivery, fresh materials, minimum freight rates, prompt service, uniform prices and definite directions for the intelligent use of these materials in order to obtain the best possible results.

Bulletin No. 5 gives the latest and best available information for the efficient and economical control of insect and fungus troubles and will be mailed free of charge to any fruit grower, on application.

General Chemical Company

201 Sansome Street, San Francisco, Cal.

2433 East 8th Street, Los Angeles, Cal.

Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and NEW

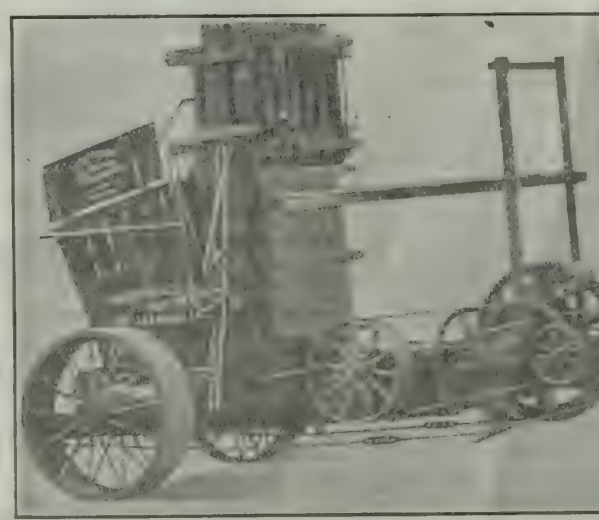
Screw Casing Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO.

Main and Howard Sts., San Francisco

GIANT WINTER RHUBARB

NOW BEST TIME TO PLANT. Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb, Berries, or Cactus, write J. B. WAGNER, Specialist, Pasadena, Cal.



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

anyone desire to be put in touch with these students, a letter to the College of Agriculture at Berkeley will do it.

A huge real estate transaction took place last week in the Yo-Solano district when several owners of land there sold to the Netherlands Farm Company a total of 20,-119.8 acres for the sum of $285,-500. This corporation is the largest reclamation concern in the Sacramento valley and this immense acreage of swamp land just purchased will shortly be reclaimed.

The University Farm at Davis held its annual picnic on Saturday, April 24, with an attendance of about 5000. The principal speaker of the day was Jiro Hadara, Japanese Commissioner at the Panama-Pacific Exposition. The stock parade proved to be a splendid exhibition of fine animals, showing the result of intelligent care and breeding. Much interest was shown at a demonstration of hog vacicnation by Dr. F. M. Meyers.

VETCH AND BARLEY.

[Written for Pacific Rural Press.]

Silo experience is rapidly bringing out points which have long been discussed pro and con in these columns and there is every indication that before another silo season has passed there will be much more information along this line available from a California viewpoint.

While Indian corn has become the accepted best crop for silage, the experience of Ralph Watson in Stanislaus county shows that beardless barley and Oregon vetch silage is superior to corn as a feed for dairy cattle.

Last year Mr. Watson planted a good sized field to the barley and vetch as an experiment. The crop, which was extremely heavy, was harvested in the spring, before corn planting season and siloed in one of the wooden silos on the ranch. Corn was later planted on the same land and siloed in the fall of the year, thus making the land yield two very heavy crops of silage during the one season.

The corn silage was fed out first, the cows showing a decided improvement in their milk flow over the straight alfalfa ration, and it was with some uncertainty that the barley and vetch silage was used, after the corn silage was finished. In fact Mr. Watson was told by old silo owners that the vetch and barley ration would lower the production.

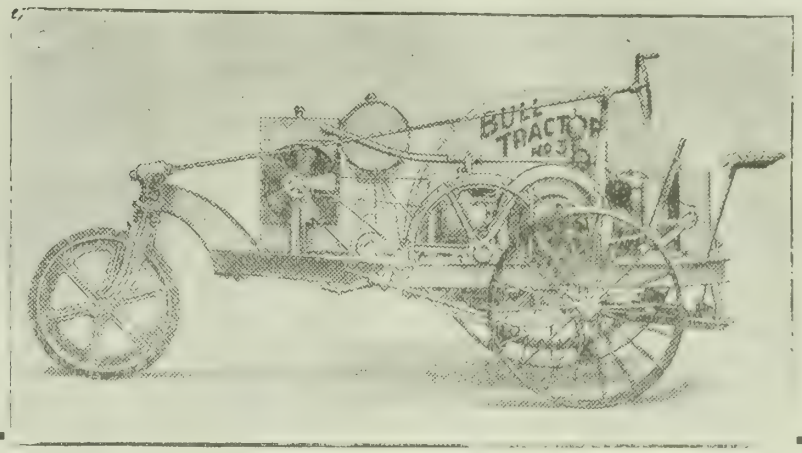
Instead of that, however, the cows seemed to eat of it more ravishly than of the corn silage and the increased milk flow was noticeable almost from the start. This year Mr. Watson has planted a much larger acreage to the vetch and barley, with the intention of filling the two silos with it this spring. By the time the corn, which will be planted on the same land, matures, one of the silos will have been emptied and the corn crop will be put in it.

Mr. Watson's first object in planting this crop a year ago was to find something which could be profitably siloed and grown on the same ground where the corn for silage was grown. The beardless barley was selected, as its stem was stronger than the ordinary barley, thus affording a support for the vetch which would otherwise have become badly tangled over the ground before cutting time.

The American Society of Agricultural Engineers meets at San Francisco September 21-22.

$685. F. O. B. Pacific Coast Points NEW BIG BULL TRACTOR

"A Giant in Power, A Midget in Cost"



Makes Horses Too Expensive to Buy and Keep

THIS NEW BIG BROTHER OF THE FAMOUS "LITTLE BULL," which took the farmers of this country by storm last year, develops from 7 to 10 horsepower at the draw bar (where you get the pull), and from 20 to 25 horsepower at the belt (for stationary work). The New Big Bull Tractor is the "big tractor buy of the year." There are several thousand now in use (more than most other makes combined) and all GIVING SATISFACTION.

Ten Reasons

Why You Should Buy the New BIG BULL TRACTOR

1—It can be depended upon and DELIVERS THE GOODS.

2—It will do more all-round farm work than any other tractor anywhere near its cost. Look at the following features:

3—The Bull wheel runs in the furrow and does not pack the land. This principle covered by patent.

4—The patent STEER WHEEL also running in the furrow in line with the bull wheel, makes the tractor positively and automatically self-steering.

5—Patent leveling device, by which the tractor is quickly and easily adjusted to side hills or deep furrows.

6—Direct drive with only four gears. All complicated transmission and compensating gears absolutely eliminated.

7—Special gear shifting device.

8—Electric welded gasoline tank and brass tube radiator.

9—Extra large crank shaft and connecting rod bearings.

10—Extra large inspection plate on top of motor, affording easy examination of bearings, without disturbing timing.

Send for specifications today. You can own and use this machine at a BIG PROFIT. Get the facts.

Our first big shipment of the New Big Bull Tractor arrived here last week and we are filling our early orders from it. Another big consignment is headed this way. Is your tractor in this shipment?

Practical Demonstration

Come and see it or fill out the coupon and mail it today, and we will send you ALL YOU WANT TO KNOW. Get TRACTOR WISE. Buy where thousands of sales keep the margin of profit down within reason.

Let us show you how you can make big money by owning a good tractor, but MORE MONEY by owning a New Big BULL TRACTOR.

Hughson & Merton, Inc.

Pacific Coast Distributors.

526 Golden Gate Ave., San Francisco

1229 South Olive Street, Los Angeles. 329 Ankeny Street, Portland.

Hughson & Merton, Inc.,
526 Golden Gate Ave.,
San Francisco, Cal.

Kindly send me full particulars regarding your Big Bull Tractor.

Name .....

Address .....

KIRKMAN NURSERIES

WHOLESALE GROWERS OF

True to Name Nursery Stock

Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Distribution Vs. Production.

To the Editor: Up to this time I have seen no comment upon Assemblyman Ashley's article printed in the Rural Press for Feb. 13, '15, in which he gives government figures showing the unsatisfactory condition of farmers as a class: He attributes this condition largely to their inability to pass certain charges such as taxes, rent—high cost of land is the term he uses, but money paid for land is merely rent paid in a lump sum—transportation and the like.

This idea of passing charges on to the consumer has been used so many times during economic discussions in these columns that I have been led to give it a little extra consideration, to find, if possible, in what manner it acts upon the interest of the various producers of wealth that is bought and sold in the ordinary run of trade.

Wealth, as I understand the term, is the result of physical and mental effort operating upon the materials and forces of nature. Such effort is toil—that is, aching muscles and weary brain, and these are the only human factors entering into the production of wealth. Clearly, personal fatigue cannot be passed to another, therefore the producer of wealth as such can be eliminated from the inquiry and we can now turn to the distributor.

When a person uses wealth of his own production he has performed a service for himself, but if some one else uses it he has performed a service for the person who does use it. A mutual service has been performed when each of two producers has consumed the other's production, and the legitimate function of any system of distribution is to enable people to exchange food products with people in other places whom they could not otherwise reach.

It is claimed that of each one dollar paid by the consumer for agricultural products, but thirty-five cents gets back to the farmer. Therefore the consumer must perform a certain amount of work to pay the farmer, and then do twice the amount to pay for moving such produce to him, and the same proportion holds good on what the farmer uses of the other fellow's production. For a farmer and an artisan to make a mutual exchange of service of thirty-five dollars each, they must produce jointly two hundred dollars of wealth.

It therefore appears to me that, so far as the distribution system is concerned, it is not a question of passing charges, but a matter of the system's absorbing about two-thirds of the goods intrusted to it for distribution.

One thing that hinders farmers from making more rapid improvement in their condition is the idea, largely held by them, that their interests are independent of and in some way different from that of other producers. It is time they realized that their interests are identical with those of every other person producing wealth for distribution, and that in order to get full relief from unfavorable producing and marketing conditions, all producers must be relieved of such conditions. This is because the exchange of wealth makes their interests mutual and they should join with all other producers in an effort to improve marketing methods.

The same marketing organization that takes their product to a consumer brings the consumer's product back to them, and if an inefficient distribution system lessens the amount of their product reaching the consumer, it lessens, in like manner, the amount of the consumer's product returning to them.

Oakley. W. O. Retherford.

SOIL CRUST DRIES OUT.

To the Editor: Please advise me in regard to following: I planted 80 acres of Egyptian corn on new breaking in Fresno county. This land is on the west side and can not be irrigated. The soil is a rich mellow loam and does not crack open. The neighbors advise not to disturb the top crust, claiming it would dry out more quickly. I have been informed that continual stirring of the top soil would conserve the moisture. Please advise.—B. H., San Jose.

[It will surely dry out if you do not disturb the top crust. Cultivate shallow, perhaps with weed cutters, to keep a thin layer of loose dust on top. Deep cultivation in the dry season exposes too much soil surface to drying.—Editors.]

GRAIN OR HAY THIS YEAR?

[Written for Pacific Rural Press.]

Abundant winter sown grain this year on account of lack of summer fallow on which to sow it, added to the abundant alfalfa throughout the State, added to the abundant green forage brought on by the late rains, added to the abundant prices practically assured for grain during the coming year, in view of the decreased acreage in California due to winter rains and injury to Eastern grain, would seem to indicate that everybody who can avoid cutting grain for hay may make money by threshing it this fall.

BEANS AFTER BARLEY.

To the Editor: I have some barley on dobe loam which I hope to cut for hay in June. Then I want to raise garbanza beans.—H. M. S., San Jose.

[Garbanzas are nearer to peas than to beans. Their English name is chick-pea. You could probably get a crop in a coast valley by sowing in June if the land was irrigated after haying and worked well for the garbanza planting. We doubt if you could get any kind of a start on dry plowed hay stubble, although the garbanza will stand more dry heat after starting than any other member of the pea family we know of.—Editors.]

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—the Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.

Box V, Gilroy, California.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground High Grade
Shield Brand

Phosphate Rock

The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.

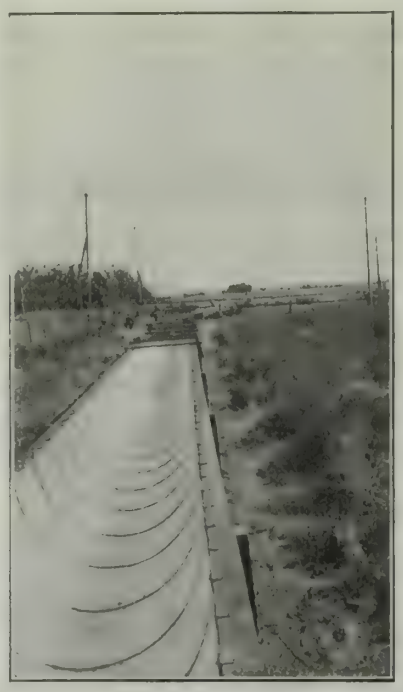
UNITED STATES PHOSPHATE CO.
405 Marsh-Strong Building, Los Angeles.

Special $2.50 discount on the first 100

Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.
821 Riverside, Dept. I., Spokane, Wash.



Easily and Quickly Erected

Irrigation and other water supply operations are often carried out where the employment of skilled labor is difficult and expensive. In the

Armco Iron Flume

(Lennon Type)

the wooden cross bar is not an essential portion of the joint. It is not required at all in the smaller and medium sizes, and in the larger it is rarely necessary to space them as closely as the flume sections.

Neither is there any necessity for boring holes through the cross pieces for inserting the ends of the rods, for those bars can be placed after the erection of the flume, as shown in the illustration.

Armco Iron Flume (Lennon Type) furnishes a **reliable** and **lasting** installation.

California Corrugated Culvert Co.

417 LEROY STREET, LOS ANGELES. 406 PARKER STREET, BERKELEY.

Effect of Barn Methods on Milk Quality.

[From Paper read by Prof. R. R. Graves before Northwest Milk Inspectors' Association.]

It is generally known that unpleasant flavors in milk may result from certain foods, such as turnips, garlic, wild onions, moldy hay, and damaged silage. Such flavors are due to volatile oils contained in the foods. While such foods are being digested these volatile oils contained are eliminated rapidly through the various excretory channels. Usually these flavors are most marked while the milk is warm and do not increase with the age of the milk. If such feeds are fed eight or ten hours before milking, there is little danger of flavoring the milk.

Recently we fed kale to a few cows while milking, but could not detect the flavor in the milk; when the kale was fed one and a half hours and two hours before milking, however, the kale flavor was very noticeable.

Some medicines, such as opium, purgative salts, iodine, and potassium iodide, are excreted in the milk and will produce an abnormal flavor.

Perhaps bad flavors and odors in milk more frequently result from absorption than from any other cause. Cans of warm milk left in the cow barn quickly absorb barn, silage or feed odors; milk set to cool in tanks containing foul water or poured into ill-smelling cans will quickly give off a disagreeable odor. Sometimes bad odors are due to bacterial action, but these usually do not appear in less than twelve hours and even longer if the milk is kept at a low temperature. Sometimes the mixed milk of an entire herd will be made unfit for use because of the milk of one cow being off flavor.

Feeding Before Milking.—One of the most common sources of bacteria in milk comes from feeding. It is not an uncommon practice for the dairyman to feed hay a short time before milking. This fills the air of the barn with dust and causes a much greater germ content in the milk. Nor is this surprising when it is known that a single gram of hay may have 16,800,000 germs. Stocking milked a group of five cows, then fed hay and grain and milked another group of five cows. Samples were taken from the mixed milk of each group. The groups were alternated each day to offset any difference in the germ contents of udders either group might have.

The average content of the milk before feeding was 2096 per c.c. and the average following feeding was 3506 per c. c., showing an increase of 1410 germs per c. c., or 80 per cent, as a result of feeding. A similar experiment carried on at Corvallis recently showed an average of 479 bacteria per cubic centimeter when milking was done before feeding and an average of 11,121 per cubic centimeter when feeding was done previous to milking. We are hoping to carry on more experiments to show the comparative effects on the germ content of milk, of feeding hay and grain and how long those feeds must be fed previous to milking in order to not affect the milk.

Cleaning the Cows.—The Connecticut station conducted an experiment to determine the effect of different methods of cleaning cows on the germ content of the milk. Two groups of five cows each were selected. One group was milked without brushing. The second group was brushed and then milked. The samples were taken from the mixed milk of each group. The groups were frequently alternated during the experiment.

The average germ content when the cows were not brushed was 1,207 per c. c. and the average germ content when the cows were brushed was 2,287 per c. c., or an increase of 1079 or 89 per cent due to brushing. This was caused by loosening the enormous amount of dirt and dust that is usually found on the skin of the cow. It is a strange fact that the horse is generally kept cleaner than the cow, though the cow is said to be the foster mother of the human race and produces one of the most easily contaminated human foods. How much more necessary, then, that she be kept clean than any of the other domestic animals! It is said that a gram of dirt or powder curried from the cow has shown an average of 207,000,000 bacteria while a gram of dirt curried from a horse contained only 18,000,000.

Although brushing the cow previous to milking increased the bacterial content of the milk, wiping with a damp cloth has the effect of decreasing the germ content. In an experiment carried on in a similar manner to the one in which the cows were brushed, the average bacterial content where the flanks and udders were wiped with the damp cloth was 716, and were not treated in this manner 7058, showing a decrease of 6342 germs per c. c., or 90 per cent. This is because the hair and dirt is dampened and does not fall from the body so readily. The Maryland Station has found that the use of sweet oil or vaseline has the same effect and the added advantage of keeping the udder and teats from chapping, as is often the case where the damp cloth is used.

For several years producers of certified milk have been in the habit of clipping the flanks and udders of the cows, believing that the cow was more easily kept clean and that filth would be less likely to stick to the animal. A short time ago the New York Experiment Station announced the results of an experiment which tends to show that this practice does not aid in producing cleaner milk. There seems to be some doubt as to the correctness of this conclusion, however. It is hoped that experiments now under way will aid in deciding the desirability or undesirability of this practice.

The Covered Pail.—It is doubtful if any one advance in the dairy industry has been of greater aid in producing clean milk than the advent of the covered pail. The old-fashioned, wide-open pail, with its sides flaring out at the top seems to have been especially designed with the idea of catching all of the dirt possible. Experiments carried on by Stocking in the college barn where sanitary conditions were good indicated that milk drawn into an open pail contained from 6 to 6½ times the bacteria in milk drawn into a covered pail. In a barn where conditions were not so favorable, but still above the average, the milk drawn into the open pail contained 20 times the number of germs contained in the milk drawn into the covered pail; while in a barn where conditions were very bad the milk in the open pail contained 33 times as many bacteria per c. c. as the milk drawn into the covered pail. Under good conditions the covered pail kept out 83 per cent of the bacteria, under fair conditions it kept out 95 per cent of the bacteria and under poor conditions 97 per cent.

Whether or not it is desirable to use a strainer in the covered pail seems to depend a good deal on the form of strainer. In one experiment the strainer cloth over a copper gauze increased the bacterial content of the milk, while in strainers where the dirt does not fall where it will be stuck by succeeding streams of milk seem to lower the bacterial content.

COOL WATER FOR STOCK.

[Written for Pacific Rural Press.]

Keeping water cool for the stock is attained by the use of a concrete water tank on the farm of P. D. Bane of Glenn county. The floor of the tank is ten inches thick, the sides are four and a half inches wide at the top and six inches at the bottom. The feature of the tank is that the sides slope inward from the top to the bottom on the outside, thus minimizing the amount of sunshine that can strike them directly. Mr. Bane says the water is kept much cooler than in a galvanized iron tank.

A mile of good road is an imperishable gift to the future.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only.
Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California

Entire Herd Registered Holsteins
Headed by two-year Bull Prince Korndyke Pontiac 2nd, who combines 37½% blood Pontiac Korndyke record dam and sire's dam averages 27.88 lbs. butter 7 days. Two 5 yr., two 3 yr., six 2-yr.-old-cows. Two yearling and two young heifers, one yearling bull and 3 bull calves; also four extra high-grade 2-yr. fresh heifers. 10 females, sired by Segis Oak Homestead Fobes, whose 7 dams average over 27 lbs. butter 7 days from dams who are daughters and granddaughters of Hengerveld de Kol, Woodcrest, Hengerveld de Kol Dutchess Ormsby Piebe Burkeecis. This stock is equal in breeding and individuality of any in the State. Come and see for yourself.
For particulars and prices address,
H. S. VAN VLEAR, Lodi, Cal.

Swineland
TAMWORTHS, DUROC JERSEYS
We have for sale fine young stock both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St.,.. San Francisco

Durocs Cholera Immuned
Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.
ED. E. JOHNSON, TURLOCK, CAL.

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, Bolivar, Mo.

Remember the Jersey Consignment Sale at Modesto, May 4, 1915
80 HEAD—Guaranteed Stock—80 HEAD
CONSIGNORS:
C. N. Odell, Modesto.
D. Larsen, Stevinson.
Dr. L. J. Belknap, San Jose.
F. B. Wulff, Modesto.
Dr. S. Z. People, Petaluma.
D. Wall, Modesto.
Mrs. A. E. Melander, Stevinson.
and many others.
G. O. HILLIER, Sales Manager, 2106 Telegraph Avenue, Oak.
B. A. RHOADES, Auctioneer. Los Angeles, Calif.
We are also going to sell 60 head of registered POLAND CHINA HOGS. They will be in the catalogue and are all first-class animals.

Short Horn Bulls
10 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

ALTAVISTA HERD
REGISTERED GUERNSEYS.
Young bulls at very attractive prices. Also females at all ages.
For particulars and prices address owner,
MRS. CHAS. G. LATHROP,
Stanford University, California.

With the Live Stock Men.

DAIRYING.

The Dairymen's Associated Condensed Milk Company will locate one of their plants at Ceres. This is the third of the Company's condensaries now located in this State, there being one at Woodland and another at Salida.

The Visalia Co-operative Creamery paid $26,594.82 for 303,731 pounds of cream delivered during March, being an increase of 28,400 pounds of butter over last month and 4000 pounds over any month during the history of the creamery.

It is anticipated that an up-to-date creamery will soon be established at Corning. At the present time, those who do not make butter find it necessary to ship their cream to the neighboring towns where creameries are in operation.

At a dispersion sale at North Yakima, Wash., the Hollywood company of Hollywood, Wash., purchased for $2775 the prize two-year-old Holstein cow, Bonnie Ormsby Lass, from A. L. Mills of the Riverside Stock Farm, Ferry, Wash.

CATTLE AND SHEEP.

Samuel McIntyre of Halleck, Nev., recently sold 1000 year-old steers to the Russell Land & Cattle Company of Battle Mountain, Nev.

Twenty-six head of Shropshire sheep were recently sold by Frank Meacham of Petaluma to Mrs. Parrott of Chico, who purchased the stock to improve her herd on her 18,000-acre ranch at Chico.

The Nevada wool clip is estimated at 6,000,000 pounds this spring. Instead of selling their product through Boston buyers as in former years, the sheepmen intend to market their product themselves, and are holding out for better prices than are offered by the buyers, twenty cents having been refused by White Pine and Elko county growers.

HORSES AND SWINE.

H. E. Boudier of Napa reports the sale of three boars which have been made recently through the aid of the Pacific Rural Press to P. J. Catling, J. W. Tennant, H. J. Middleton, Homer Hoyt, and C. O. Berger.

Dr. Cady of the University of California recently visited the farms in San Joaquin county, with Farm Adviser F. F. Lyons. He found the swine in that county in good condition, only one case of hog cholera being discovered.

MISCELLANEOUS.

The Directors of the 1915 Fresno District Fair plan to have a congress of live stock dealers and breeders, with a Rodeo in connection, at the coming Fair.

Receipts at the Portland Union Stock Yards for the week ending April 22 were: Cattle, 1045; hogs, 1807; and sheep, 2347. Choice steers are quoted at $7.50 to $7.75; prime light hogs at $7.85; and shearling lambs at $7.75 to $8.00.

During 1915, receipts from grazing permits on the National Forests

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

FOR SALE—Guernsey Bull Calf of three months. Something choice in breeding and individuality, with producing ancestors back of him. $200 f. o. b. Bella Vista Ranch, Martinez. J. W Henderson, 503 1st National Bank, Berkeley, Cal.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

HOLSTEINS FOR SALE—Four cows, three heifers, one aged bull and two bull calves. These are registered and very well bred, being exceptionally heavy milkers. W. N. Totman, Emmaton, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa For prices and particulars, address J. B. Agee, Napa, Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REGISTERED GUERNSEYS Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sacramento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

REGISTERED POLAND CHINAS Large type. Dams sired by 1000 lb. Grand Champion Idaho. Young Sows, open, or bred to a son of 1st prize boar Wisconsin 1914. Young boars and sow pigs for sale. Prices reasonable. Satisfaction guaranteed. A. J. Robinson, R. 4, Box 12, Modesto, Cal.

BERKSHIRES—Best for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

CHESTER WHITE PIGS—We offer for immediate delivery choice, well-bred registered Chester White (O. I. C.) pigs of either sex We will sell in trios (boar and two sows) not akin, or in any number and registered at from $15.00 to $25.00 each at 8 weeks of age. Get busy with the Chester Whites and you will never regret it. F. T. Knewing, 261 Mills Bldg., San Francisco.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc., 918 Hearst Building, San Francisco.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

WE HAVE some Fine Young Boars for sale. They are a Berkshire and Poland China cross, about six months old and of exceptional size and quality. Stanford Vina Ranch, Vina, Calif.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safest Route From Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED BERKSHIRES—Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

REGISTERED POLAND-CHINAS—Prize-winning Nebraska stock. Large type. Young pigs for sale. C. N. White, Phelan Bldg., San Francisco.

GLENVIEW POLAND-CHINAS—Baby pigs from best Grand Champion stock for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Bred sows, gilts, weanlings, young boars. H. D. Van Vlear, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood sows, Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

A FEW young sows ready for service and guaranteed to please. Geo. V. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Paderas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REAOAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock. E. Curtis, Napa, Cal.

POLAND-CHINAS—Young boars for sale. J. W. Lee, Napa Junction, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric car at Santa Rosa or Petaluma for Live Oak.

SHROPSHIRES—Registered yearling rams for sale, $25 and up. Enterprise Stock Farm, H. P. Eakle, Woodland, Cal.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

THE DAY IS DRAWING NEAR
TO THE
Great Dispersion Sale
OF THE P. F. SCHUMACHER HERD
—OF—
75—Registered Holsteins—75
—AT—
Ascot Park Los Angeles May 12, 1915

Are you going to be one of the satisfied purchasers? Consider carefully the following facts and we think you will be.

There are more high record cows in this sale than in any sale previously held in the West, including a cow with an official record of 29.27 lbs. of butter in 7 days, one with a 28.85-lb. record and a 20-lb. four-year-old and an 18-lb. two-year-old. Also eight other A. R. O. cows, among them sisters of the above great record cows, and a daughter of Alba Sadie Cornucopia Creetia, as well as daughters and granddaughters of many of the most famous sires of the herd. They are as good individually as they are well bred, and include a 3rd-prize winner at the National Dairy Show in Chicago and first-prize calf at the Colorado State Fair. MANY ARE BRED TO THE GREATEST YOUNG SIRE OF THE HERD, TILLY ALCARTRA SON, junior herd sire of the McAlister & Son, and son of the only cow to make over 30,000 lbs. of milk in one year. Think what their calves will be worth!

And a great lot of bulls of just the right age—right markings, right conformation and right breeding. They are sure to please the most discriminating purchaser.

TERMS: $500 and under cash, over $500 one-third cash, balance in three equal payments in three, six and nine months time with note and approved security and 8% interest, 5% discount for cash on time sums.

Catalogs now ready. Write for one.

JAMES W. McALISTER, JR., Sales Manager.
Chino, Calif.

COL. BEN A. RHOADES, Auctioneer,
1501-3-5 South Main St., Los Angeles, Calif.

will contribute to the public revenues approximately $1,200,000. The forests this year will permit the grazing of 1,983,775 cattle and horses; 8,747,035 sheep and goats; and 64,040 swine.

The Bureau of Animal Industry of the U. S. Dept. of Agri. will spend $3,000,000 annually for the conduct of Federal meat inspection and certification in slaughtering and packing establishments doing an interstate business in meat and food products.

Horse Buyers Discriminate More.

[Written for Pacific Rural Press.]

As we have stated before in these columns, it would seem to be good common sense for the horse breeders of the west to take advantage of the present opportunity of culling out the undesirable animals and retaining only those which are suited for foundation purposes. Wars like the present one with their exceptional demand for light horses do not occur often and the horse breeder should make the most of his present surroundings.

According to reports emanating from horse centers in the East, buyers of burebred horses are evidencing a keener discrimination than ever before, paying a goodly premium for good ones and lowering the price on inferior ones.

A communication recently received from Wayne Dinsmore, Sect'y of the Percheron Society of America, has the following to say of the present condition of horse matters in this country. He speaks of purebred stock in a manner which might also be applied to the average grade work horse.

The sales, both public and private, in the last four months show a great improvement in the discrimination exercised by buyers. Animals of approved conformation and soundness have been much sought, and higher prices have been paid for such animals than were paid a year ago. Percherons of faulty conformation, lacking in size, or unsound, have not been in demand, and very low prices have been paid—less than similar animals brought last year. Good Percherons are $75.00 to $100.00 higher, and inferior ones $100.00 to $200.00 lower. Such keen discrimination is a favorable sign, and promises more rapid improvement than has occurred heretofore.

The keener judgment manifested by purchasers carries a warning to breeders. If profits are to be expected from future operations, good sound sires of A1 type must be used, and the colts must be liberally nourished from birth till matured or sold. Grain should be given by the time the colts are a month old, and should not be discontinued, summer or winter, until the animals are at least three years old. The superior development of the French colts, as compared with most of those reared in this country, is directly traceable to the fact that the French feed their colts grain while they are on pasture, even where the grasses are usually abundant and nourishing. Half a pound of grain for each one hundred pounds of colt weight is none too much for weanlings, yearlings, or two-year-olds, even when on good pasture. Stunted colts never do recover their normal conformation, and excuses are of small avail when buyers are purchasing.

Free use of the knife on unsound or inferior stallions is sound business policy under present conditions. Many stallions of this character have sold in the past four months for less than they would have brought as geldings. The sale of an inferior or unsound animal for breeding purposes hurts the breeder more than any one else, for as long as such an animal is retained in stud, the name of the breeder is advertised in the pedigree and bills to the shame of the man who bred him. Think twice before you retain an unworthy colt, even for sale.

Stock Men Notice

3200A. open **Grassy Range Level Valley.** 600 A. **Hay** and **Alfalfa.** well watered. Good bldgs. Carrying **500 head. $13.50 per acre.**

1280 A. Clover Knee-deep. 500 A. tillable, well watered. Bldgs fenced. **$11.00** per acre.

5000 A. Sonoma, fine range, **water, fence & bldgs.** 100 A. farmed; **will trade** for **Alfalfa Ranch. $10.00** per acre.

71 A. Dairy, **10 A.** Clover, **30 A.** Hay. All **irrigated.** Good house and barn. **14 cows,** horse, turkeys, etc. $5000—½ cash.

Olive Land Irrigated, $35 per acre.

W. W. WILLIAMS,
110 Sutter Street, San Francisco.

REMEDYING OUR PORK BILL.

(Continued from page 521.)

varied ration and with our alfalfa, small grains, particularly barley, and ever-increasing supply of dairy by-products, there is no reason why the California farmer cannot turn off hard finished hogs, which have put on their gain in a short time, and at a moderate cost.

Sanitation.—Like breeding and feeding, disease is largely in the hands of the farmer himself, and while there is no other farm animal that is more susceptible to fatal diseases there is no other farm animal which has to live, as a rule, under poorer sanitary conditions than the hog, and as a consequence the yearly toll from cholera and other infectious diseases is appalling.

With our alfalfa pastures and moderate winter climate this should not be, as with a reasonable amount of care and cheap shelter from rain there is no reason for having filthy conditions exist under which the hog must live.

As one man puts it, "A clean hog lot and quarters is no place for disease germs to multiply, for in such lots hogs are vigorous and the disease germs weak, while in the filthy lot the opposite is true, the hogs being weak and the disease germs strong and vigorous."

Experienced swine breeders cannot place too much stress upon the necessity of furnishing the hog clean pens, clean drinking water and of keeping him free from lice and worms. These are the conditions, so think they, which are nearly ideal insurance against disease.

There is still much to be learned about hog raising in the west, but with the knowledge that hogs are in demand, that they are a sure money crop, can be marketed at any time of the year the California farmer sees fit, and are the most prolific farm animal we have, our pork bill should be materially decreased.

Economy of Operation and Dependability

Are Two Very Important Features in a Pumping Plant

The Alpha Gasoline and Distillate Engine

AND

The Viking Rotary Pump

Can always be depended upon to raise the maximum quantity of water with the least expense. Will run constantly without bother and with the minimum of attention.

NO BATTERIES — NO COIL — NO TROUBLES

A BIG HOT SPARK — A QUICK START — RESULTS

The Alpha Engine

has a built-in, gear-driven, gear-timed magneto, which is guaranteed for the life of the engine.

The Viking Pump

is not a deep-well pump, but will raise water against a higher head with less expense than any pump on the market, costing three times as much.

It can be used for any purpose for which a centrifugal is adapted, besides a great many others for which a centrifugal is not suited.

It is self-priming, requires no foot valve, is positive in delivery, with low speed and high efficiency. Made in sizes from 1-inch to 8-inch, the latter delivering 1600 gallons at 230 revolutions per minute.

What are your pumping problems? Write us. Our expert engineers will advise you.

WE MANUFACTURE THE IDEAL GREEN FEED SILO.
Everything for the Dairy.

De Laval Dairy Supply Co.

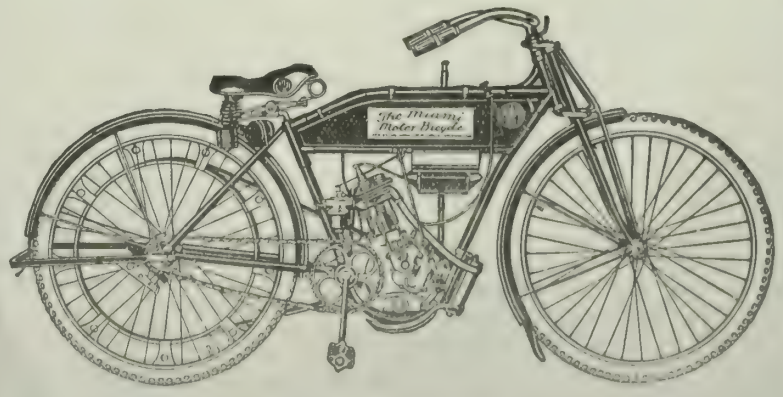
SAN FRANCISCO. SEATTLE.

Just Out!

Miami Motor Bicycle

EVER WANT TO GO TO TOWN QUICK?

Well, here is the surest and cheapest way to travel—cost, one gallon of gasoline to run 100 miles. Can you beat that?



Price, $140.00 f. o. b. San Francisco. Weight 110 lbs.

Let us send you a catalogue.

BAKER & HAMILTON, San Francisco

Swine Breeders Talk Better Hogs.

[Written for Pacific Rural Press.]

Glorifying their meeting by being able to say that theirs was the first meeting of livestock men to be held at the Exposition grounds, the California Swine Breeders' association held their annual meeting April 23 at the specially constructed livestock convention hall.

After assuring the members that the livestock show at the Exposition in the fall is daily assuming a brighter outlook on account of the satisfactory manner in which the foot and mouth disease is being handled in the East, Mr. Lively invited the Association, either as a whole or as individuals, to maintain a view herd or herds of swine from now until the livestock show proper begins; all breeds being acceptable except Berkshires, which are already being shown by the American Berkshire Swine Association.

A pronounced feature of the meeting was the interesting and instructive talks that were made by men either new to this State, or else visitors to the State; and it is interesting to note that as a whole they were greatly surprised with the advantages California has to offer the livestock growers and especially the swine raiser.

J. L. Thatcher, formerly of Iowa, where he was in charge of one of the finest herds of purebred hogs in the country, was most convincing in his argument favoring the raising of more and better hogs in this State.

In his opinion there is no place in the world more favorable for the raising of good hogs than California, for it is his belief that livestock and agriculture are inseparable and that agricultural possibilities are greater here than elsewhere.

A few remarks of Mr. Thatcher are well worth remembering. Among other things he said: "You can't breed elephants out of Shetland ponies, neither can you get good-sized hogs out of runt sows. Weed out your cull sows and add your best gilts from the pig crop to your breeding herd, instead of marketing all of the young, regardless of their sex. The latter method will get you nowhere fast!"

"The balanced ration, while theoretically correct, is only a basis. There can be no set rule to follow in feeding. The way a hog responds is the one and only guide as to the results you are getting from the feed. Observing the hogs' growth will tell you better than anything else whether his feed is right..

Swine Auctions Approved. — "There is no reason for going east for purebred hogs as long as they are available here. The quality of purebred hogs here is as high as anywhere.

"The holding of auction sales of purebred hogs is one of the most satisfactory ways of getting more and better hogs in the State. As a result of these sales throughout the East the grade of all classes of hogs has been improved and prices for purebred have been very materially improved."

Prof. Kennedy, formerly connected with the agricultural college of Iowa, was called on to give a few remarks, and while he, too, was a stranger to California, he was strongly impressed with the possibilities of stock raising in the State. Among other things he said that the most important factors governing the profit or loss in hog production was the size of the litter and the feeding for market.

Young Sows, Small Litters.—Of the former it was his belief that the young sow is chiefly responsible for small litters, as experience with thousands of sows has shown that the older sow has, as a rule, large litters and the young sow small ones. He believes the best results with hogs will be found where sows 24 to 36 months old are used.

Of feeding he stated that while alfalfa was undoubtedly the most wonderful forage crop grown, and when fed to hogs weighing 30 to 175 pounds, together with some grain, is the most profitable feed we can use, it is nevertheless a fact that after an animal reaches 200 pounds the gain can be put on more economically by grain alone than with pasture and grain.

Prof. Kennedy believes that the mere fact that we do not raise corn should not be a discouragement to hog raising, on account of our supplies of barley, which, when fed ground or soaked, makes economical gains and well finished hogs.

Union Stock Yards Help Small Growers.—In his address on the present status of the hog industry on the Pacific coast, C. M. McAlister of Portland told of the work which has been done throughout the northwest by the Portland Union Stock Yards in an effort to increase the number of livestock. Statistics show, he stated, that since this work was started, Oregon is producing her own pork instead of sending to other States, several million dollars annually, as California is doing.

Mr. McAlister devoted considerable time to the matter of union stock yards and gave as his belief that before California could expect to materially develop her livestock industry a change must come about in our marketing system which will allow the small farmer the same opportunity of receiving high prices that the large farmer now enjoys.

He compared our conditions with those of Oregon before the union stock yards were started at Portland and told how the present market there allows the small farmer to market his stock when they are fit, rather than being compelled to hold them till some buyer sees fit to buy them, as formerly. He said that in many instances, under the old system, buyers had been known to refuse to make an offer on stock at the time they were ready for market, knowing that by waiting the farmer would need money badly and would sell cheaper later. Such conditions, he said, could not exist under a union stock yards, where the stock was shipped to a market that recognized the value of the hog rather than the name of the shipper.

Dressed Percentage Talks.—As to which breed of hogs the packer likes best, Mr. McAlister said packers judged all hogs by percentage, regardless of their color. By percentage he meant the percentage of meat a hog dressed out, the higher the percentage the better they were liked by the packer and the better price they were able to pay. Breeding and feeding were both considered of prime importance in meeting this requirement.

Dr. Bert Cady of the U. S. Department of Agriculture gave an interesting and instructive illustrated lecture on hog cholera and its control, showing that precautionary measures are far cheaper than the disease, and urging all swine raisers to pay more attention to sanitation if they would raise more and better hogs.

A. M. Henry was re-elected president of the association, new officers for the coming year being J. L. Thatcher, A. D. McCarty, A. B. Humphrey, and J. K. Frazier, who were chosen as directors.

Oak Grove BERKSHIRES

CHOLERA IMMUNE.

Our herd is Cholera Immune, the only Immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit

We have at present some 300 Berkshires and we know that we can supply what you want.

WRITE US OR CALL

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.

Woodland, Cal.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengevild, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs in 7 days. For further particulars and prices write or call:

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.

Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hard-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.

Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules, which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.

W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us,

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

A 40-ACRE EQUIPPED FARM

in the Upper Sacramento Valley

LAND: Level, clean; no brush or stumps; ready for plowing; between two railroads and within 1½ miles of stations on Southern Pacific and Western Pacific.

SOIL: Deep San Joaquin loam.

WATER: Unlimited water at 20 to 25 feet.

EQUIPPED: With a plow, a harrow and a cultivator, a pumping plant, complete, trees and seed.

SPECIAL: Land absolutely above all flood from rivers: titles clear and guaranteed; no bonded indebtedness; no reclamation or irrigation assessments. This is clean, strong land without incumbrance of any kind.

DUDLEY MOULTON

1202-1204 First Nat'l Bank Bldg., San Francisco, Calif.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

COAL SCREENINGS FOR HOGS.

To the Editor: Are coal screenings good for hogs? Can you suggest anything better.—C. B., Modesto.

[Coal srceenings are good for hogs. A better form of carbon for pigs, however, is charcoal.]

GROWTHS ON HEIFERS' NECKS.

To the Editor: I have 38 heifers from two to eleven months old. Some of them have white growths on their necks like warts, as large as a marble, and at least a hundred have appeared on some of them. Can you tell me what to do for them, as they are constantly rubbing against posts, etc.?—J. L. R., Winton.

[Your calves are affected with herpes tonsauraus crustaceus. This disease is usually self-limiting, the animals recovering in one to two months. It is better to treat them, however, and remove the irritation. First soften the growths with creolin oil, one part creolin to 20 linseed oil. Allow this to remain on one to two days, when crusts can usually be easily removed, especially with the aid of soap and warm water. Then paint affected areas with tincture of iodine and repeat the painting in three to four days.]

HORSE CUT BY WIRE.

To the Editor: We had a young 3-year-old mare cut about eight months ago by a wire. She was cut from the shoulder to a little above the knee, and laid it open to the bone, not cutting an artery. Had a veterinary fix it up; it commenced to heal, when she tore it open with her teeth. After that we kept her tied up in the barn, but just as soon as it would get partly healed she would hurt it again. For the first three months she wasn't stiff in the knee, but I think standing on a board floor so long has caused it to be stiff, for the knee was not hurt. Can you suggest a remedy?—A. A. C., Modesto.

[Paint the leg with tincture of iodine once daily. Paint from just below the knee to the elbow, but do not paint just back of the knee in the joint. Give animal moderate exercise and continue the treatment from two to three weeks. If skin becomes badly blistered, discontinue treatment for a few days and apply vaseline to the surface.]

RECTUM PROTRUDES.

To the Editor: The inside of the rectum of my three-months-old pig protrudes like a telescope till it projects two or three inches from rump of the pig. The pig has been this way for a week. I used carbolic acid as a disinfectant. I have difficulty in keeping her bowels loose and she has pains in excreting. What is the cause of this and how shall I treat the pig?—D. F. F., Lakeport.

[The cause is constipation. Give pig two to six ounces epsom salts, depending on size, as needed to remedy this trouble. On the prolapsed rectum use the following ointment: Adrenaline and chloretone ointment (P. D. Co.) applied twice daily. Before applying the ointment, hang pig up by hind legs and give injection of warm soap and water to reduce the prolapse, then insert finger and apply ointment.]

BLOODY MILK.

To the Editor: I have a cow whose milk is bloody. We first noticed it about two months ago, which was about three weeks before she was dried up. She was eight days late in freshening and her udder was hard at that time and somewhat extended. We treated it with camphor and warm lard, massaging it and giving small doses of saltpeter and nitre at the same time. This treatment quickly overcame the congested condition, but there are still traces of blood left in the separator, although it is not discernable when the milk is left in pans and then skimmed. The feeding for the past ten days has been pasture, with two quarts of bran night and morning. The only way we can account for the condition described is the fact that she was chased by a saddle pony some six weeks before freshening, and may have received some internal injury.—B. B., Saratoga.

[Give this cow two drachm doses of potassium iodide twice a day before feeding. Dissolve the potassium iodide in a little water. Continue this for ten days.]

CORRECTIONS.

Teats Inflamed.

Give internally the following: red iodide of mercury, 90 grains; potassium iodide, 2 ounces, water enough to make a pint.

Heaves.

Give Fowler's solution of arsenic in one-half ounce doses three times daily.

Impotent Boar.

Give your boar 1-12 grain of yohimbine three times daily.

COW HAS BLOODY DISCHARGE.

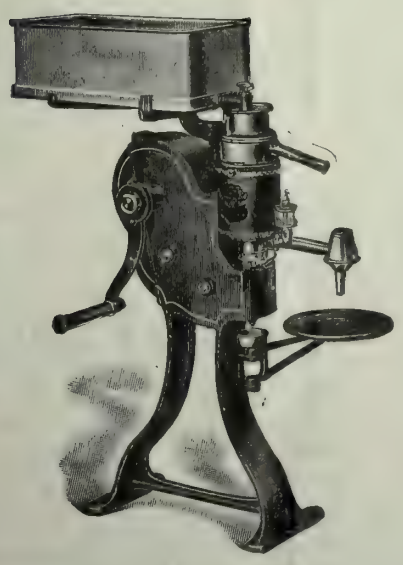
To the Editor: I have a cow that came fresh just two weeks ago, calf came hind feet first and dead. The afterbirth came three hours after calf was taken, but she has quite a lot of bloody discharge yet. She is a fine Holstein, just her second colf, milks 21 pounds of milk at a milking and 1¾ pounds of butter a day. Could you kindly tell me why her calf came as it did, and is she apt to have all of her calves the same way. I think the first calf came the same way. Is this discharge for two weeks natural, and is there anything I can do?—Mrs. J. H. E., Acampo.

[The discharge is not natural. Irrigate her vagina and uterus with two gallons of a one per cent potassium permanganate warmed to body temperature once a day for one to two weeks, or until discharge ceases. Also give internally two drachms of potassium iodide twice a day. Dilute this in water and give for one week. A normal presentation is either fore feet and head or hind feet. Some animals for unknown reasons never present normally again; it is the exception with others.]

THE UNITED STATES CREAM SEPARATOR

A MODERN

Not a "Disc" Separator



Holds the World's Record

Demonstration gladly given right at your home. No obligation.

MODERN—Because not "Disc" Type.
When you buy the "United States" you get a Cream Separator with modern impr vements. Separators of the disc type were originated many years ago. No recent improvements of importance have been made on them.

MODERN—Because Latest Patents.
U. S. Separators are manufactured under the most recent patents on separators that are effective. All basic "disc" separator patents are old and have expired. This accounts for the unrestricted use of this type by many manufacturers.

MODERN—Because of Vertical Blade System
The "vertical blade" skimming device and "disc" skimming device are the two systems mostly used in cream separators. The vertical blade system, as used in U. S. Separators, completely overcomes the defects found in disc bowls. The vertical blade is the modern system, and fully protected by patents.

MODERN—Because no Central Core in Bowl.
The U. S. bowl has an open center, without cumbersome central core, split wing, or disc, on, or between which cream lodges. U. S. bowls flush perfectly.

MODERN—Because Uses Bowl Chamber Liner.
The United States Cream Separator is the first to adopt this liner. It makes the separator much easier cleaned, and is the only way to keep it strictly sanitary. It has the approval of the Board of Health.

MODERN—Because of Nickel Silver.
The use of Nickel-Silver in the U. S. skimming device makes for easy cleaning, and does away with rust, thereby meeting the requirements of sanitary laws. Steel discs rust badly and contaminate milk and cream, and are hard to keep clean.

MODERN—Because Mechanically Washed, Sterilized and Dried.
The U. S. is the only separator adapted to mechanical washing. This process also sterilizes and dries the bowl. A mechanical washer furnished free with every U. S. Separator.

MODERN—Because Skims Nature's Way.
The U. S. is the only well known bowl that skims nature's way—cream to top, skim milk to bottom. We haven't known of anyone improving on nature. Have you?

MODERN—Because the U. S. is self-draining,
never any sloppy mess over person or floor when taking the bowl apart.

VERMONT FARM MACHINE COMPANY,
BELLOWS FALLS, VT.

CHICAGO, SALT LAKE CITY, PORTLAND, ORE. OAKLAND, CAL.

Hayward Poultry Producers' Association
A Success in Co-operation.
Opening of the New Warehouse
Saturday Evening, 8 P. M.
April 24, 1915.

Members Come! Your Friends Welcome.

IN RESPONSE to the above announcement and invitation, a gathering of about five hundred poultry people assembled to inspect the new building of the Association; to hold the quarterly meeting of members; to participate in a social, including music, singing, and dancing, with refreshments; and, last but not least, to fraternally welcome to California, T. E. Quisenberry, Chief of the Poultry Department of Missouri, and who has been appointed Superintendent of Poultry at the Panama-Pacific Exposition.

As President of the Federated Poultry Association of California, the welcome honor of officially presenting the invitation and escorting Mr. Quisenberry to this meeting fell to our lot.

Stopping the $7,000,000 Loss.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Ass'n. of California.]

It was originally intended that at this meeting we were to bring up for discussion improved methods of marketing poultry and eggs; but owing to the timely arrival of Mr. Quisenberry in California and the desire to afford him all the time possible to speak to the meeting, we simply made a few concrete statements, in substance as follows:

A system that will provide for the thorough inspection of eggs and poultry in order to determine and certify their quality and at the same time educate the general public to appreciate such a guaranteed, high grade, sanitarily produced product, holds great possibilities for increased net profits for the members of such organizations as the Hayward Poultry Producers' Association.

As you know, the Federated Poultry Association of California has been striving to obtain State legislation that would assist in establishing an official system of inspection and otherwise help the industry; but there is very little hope of obtaining this assistance during the present session of the Legislature because of the peculiar condition of the State's finances. It, therefore, seems necessary for the utility associations and individual producers of market poultry and eggs to proceed to establish their own system.

The Federated Poultry Association, as the representative of the unified interests of all the poultrymen of the State, is endeavoring to discover a practical system that will meet the approval of the poultrymen of California at large; and to that end, we request everyone in all parts of the State to send us any suggestions in regard to this undertaking as a whole or bearing on any detail pertaining to it.

It has been variously estimated that a well-regulated system of inspection and distribution will be productive of a directly added net profit for the producer of $1,000,000 to $3,000,000, to say nothing of the probable increased demand for poultry and eggs.

The poultry producers everywhere should understand that the officers of the Federation are only administering its affairs subject to the wishes of the poultrymen themselves. Therefore, as members of the Hayward Poultry Producers' Association, get busy and help us with suggestions which may be sent direct or through the Executive Committee of your association.

MR. QUISENBERRY first gave a brief description of the Missouri State Poultry Department, which is conducted by and for the poultrymen of the State, independent of any other State institution. The only link connecting it with the general administration of agricultural industries is established in this manner: The Dean of the Agricultural College and the Secretary of the Agricultural Board, together with the Governor, act as an advisory council.

His reference to the one hundred acre experimental poultry farm; demonstration railway trains, carrying traveling poultry schools; moving picture shows; sanitarily operated egg-canning establishments, and other means used to dispose of the surplus poultry products not required for use within the State, which surplus amounts to approximately fifty million dollars annually; and the liberal appropriations, totaling over one hundred thousand dollars provided by the State Legislature to maintain this educational work and regulation, caused the gathering to audibly gasp.

The road builder is the philanthropist par excellence. He helps people to help themselves. He paves the way to church, market, and city. He pulls the feet of neighborliness out of the swamp of selfishness and provides them with Mercurial sandals.

The tendency of the times is towards monuments that breathe. Memorials are taking the vital form of coffee houses, social settlements, hospitals, asylums, schools and colleges.

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

WANTED.

WANTED—To lease on shares, an equipped general ranch in California. One at present a source of expense to non-resident owner preferred. Address Box 53, Pacific Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

TREES AND NURSERY STOCK.

FOR SALE—Burbank's Santa Rosa variety Spineless best forage varieties. Large selected slabs in quantities to suit; prices packed F. O. B. cars, Napa, $10 per hundred, $42.50 per five hundred, $75 per thousand. Special prices on lots of five thousand or more. William Watt, Napa, Calif.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety; from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

SUDAN PRICES REDUCED—To close out the remainder of our Sudan Grass Seed quickly, the price has been greatly reduced. It's pure Northern-grown seed free from Johnson Grass. Address Fred Leidigh, Box 26, Hutchinson, Kansas.

TEPARY BEANS—Fourteen Hundred pounds per acre was our returns last year, planted two rows to the middle of our young orchard. We have a limited supply of seed to offer at ten cents per pound. Address Lindsay Feed & Fuel Co., Lindsay, Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

SUDAN GRASS SEED—U. S. Dept. of Agriculture highly recommends Sudan Grass as a forage crop, especially for dairy purposes. Pure reliable seed is worth $1.00 per pound. I have pure officially inspected seed to put out on shares. Write for particulars. Small or large acreages considered. Box 261, Venice, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SOUDAN GRASS SEED—First-class guaranteed seed, free from Johnson Grass. Now 35c per pound or $25 per hundred f. o. b. Santa Ana. C. E. Lewis, R. 5, Santa Ana, Cal.

FRUIT TREES, PLANTS—Cut prices; shipped from 4 coast nurseries. Catalog free. Old Hickory Supply Co., Department 3, Portland, Sacramento, Capitola, Los Angeles.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

BURBANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

TEXAS YAM SWEET POTATO PLANTS for May delivery. $2 per 1000; 25 cents per 100 f. o. b. Lindsay. C. W. Braswell, Lindsay, Cal.

FOR SALE—Burbank's Santa Rosa variety Spineless Cactus Slabs, $15 per 100, F. O. B. Hollister. S. G. Button, Hollister, Cal.

BURBANK'S SPINELESS CACTUS—Mature slabs, forage varieties, $5 per hundred. A. H. Phillips, R. 5, Santa Rosa.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

FOR THE BEST Orange, Lemon and Grapefruit trees, write us J. G. Gillian, El Monte, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New thread and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

"SMITHS' PAY THE FEIGHT." To reduce the high cost of living send for our Wholesale to Consumer Catalogue. SMITHS' CASH STORE, 106 Clay St., San Francisco.

WANTED—Mule team four years old, not over 900 lbs. each. Must be sound and broke. Reply, giving description and lowest price. P. O. Box 188, Healdsburg, Cal.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

$20,000 EQUITY—Apartment house in San Francisco. Income $400 per week. Will trade for country property. Box 54, Pacific Rural Press.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

LAND FOR SALE.

FOR SALE—107 acres of irrigated sand bottom land at $250. Good terms. 8 acres in bearing olives and apricots, 12 in woodlot, the rest in alfalfa. Water, $1 per acre per year. Fine barn for 85 head of cows, house, separator house, horse barn. Crossfenced. Address George Thresher, R. F. D., Gridley, Cal.

CALIFORNIA LAND—Money-making little farms. High-class, low-priced properties in all counties First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

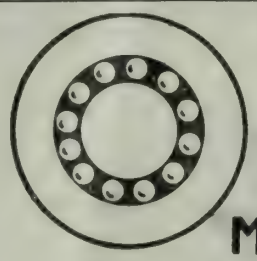
FARMS WANTED—We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and prices, write or call on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

FOR RENT—Land suitable for corn or other late crops. Irrigation water available. Share crop rental. Address Box 29, Willows, Glenn County, Calif.



When you use Mica Axle Grease it's just like putting ball bearings on your wagon.

MICA AXLE GREASE

gives *better* lubrication. It's a combination of high-grade grease and powdered mica. The mica is also a good lubricant and has the power to resist heat and wear. It makes the spindle smoother and the grease last longer. Dealers everywhere.

Standard Oil Company
(California)
San Francisco

CALIFORNIA POULTRY PRACTICE
By Mrs. Susan Swaysgood.
PACIFIC RURAL PRESS, Publishers.
525 MARKET STREET, SAN FRANCISCO, CAL.

Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

QUESTIONS AND ANSWERS.

This week there are so many letters from subscribers asking for information that we decided to make a full copy of them, then the printer man can't put them "on the table," as they do legislative questions.

Honest, he does table them, sometimes. Being in the secret, I know, but that is because he has only just so much space to give us and if I send in other matter to fill the space, why, the poor printer is in a fix to know what to do; so he just naturally tables the questions because they are in short pieces.

The first question is concerning rabbits, and is a puzzler, because I don't know as much about rabbits as poultry. But in this case I am going to use what I call "horse sense" to judge of the trouble.

Rabbits Die Suddenly.—What ails my rabbits? Recently ten of them about three months old have died, apparently suffering pain for several hours. They sicken very suddenly. I made a post-mortem of some cases and in every case the liver was very dark, with white blotches. The stomach is usually full of food, and the intestines full of excreta, except in one or two cases when the lower intestines were empty, but distended with gas. The rabbits seem too thin in flesh. I feed alfalfa, rolled barley, and occasionally oats.—J. B. L.

Now this appears to me to be a case where the alfalfa is at fault if it has been fed wet. As our friend did not say anything on that score, I am merely guessing; but that is my idea, that the alfalfa had been fed while there was dew or wet, maybe rain, on it. Then the rabbits have not had variety enough; a little bran, some carrots, or other vegetables would have been much better than just three articles of diet. Turnips and carrots are much relished by rabbits; and as they can be grown the year round in this State, it is poor economy not to raise a few. The trouble evidently was in the bowels and too much green food of any kind is liable to cause bowel trouble.

Chickens Act Crazy with Ticks.—I have a flock of Orpington chickens three months old. They lay their heads to one side and then turn around and jump and run and holler like there was something after them, then they die. Is there anything to cure?—I. W. S.

I am afraid it is too late now. If you had sent your full address I would have written you in a case like this because I think there was something after them. I think it was ticks. Now, if they are not all dead, make an examination. You will have to look close, for the ticks bury themselves in the flesh, and unless you open up the feathers and look close you will not see them. There is a white tick and a dark colored one; they are both flat bodied, except when full of blood. If you find them on the chickens, lose no time in getting after them. Clean up and spray the buildings and dip the chickens in a dip of Kreso No. 1 and warm water. Kreso dip kills ticks, but does not hurt the chickens; hence, it is about the safest remedy. There is an ointment sold by someone for ticks, but I do not know exactly where it can be bought.

Chickens Weak.—Can you tell me what is the matter with my chickens? I have a flock of 250 in an 8x8 house, and I keep the temperature at about 85 degrees. I feed according to the directions of the University. After they are a week old, up till over two weeks old, they don't eat, and get down and are too weak to get up again. We have a small yard we let them out in. Is it lack of exercise that causes this?—Roseville Subscriber.

You have partly diagnosed the trouble yourself. Lack of exercise and too much heat. It is a pity you did not apply the remedy. Fresh air and mother earth are what those chicks need. Get them out on the ground and induce them to run and scratch. If you can't get them to exercise any other way, boil a piece of liver tender, then cut it in very small shreds and throw down a few at a time until you get them interested. Keep your house warm so that when the chicks need to get warm they can do so, but do get them out on the ground and in fresh air. That is your only hope, and the quicker you act on it the better for the chicks.

Turkeys Die with Diarrhoea.—Kindly give me a cure for turkeys that are running on alfalfa, that become sick for a few days with a diarrhoea, then die. Upon examining one, I found its liver was all spotted, and almost ready to decay. Don't think they have been poisoned.—F. E. L.

This is a case where the first symptoms have not been noticed and it ran on, ending in death. The real cure for all liver troubles is watchfulness and prevention as far as possible. Give each bird a teaspoonful of castor oil to clear the bowels, then give two or three of Carter's liver pills for a week. The birds should also have good feed, clean, dry grain along with the alfalfa.

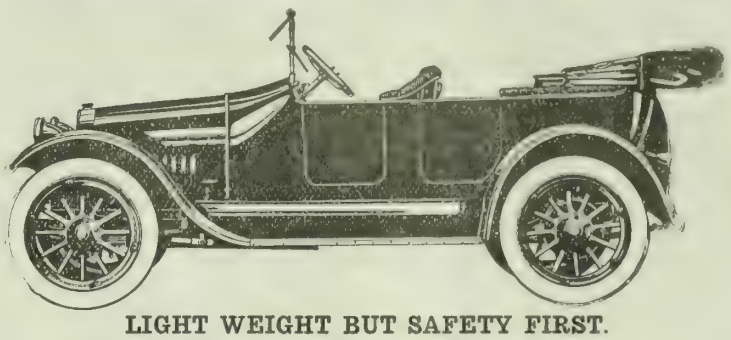
Turkey's Skin Swells Up.—We had three young turkeys last year, small ones weighing from one to three pounds, and now we have one so far this year, on which the skin from the neck, all along the breast and under the wings, seems to fill up with air and puff them out. We punctured the skin in several places, but it fills right up again. In a few hours they are as bad as ever. Will you kindly tell us what it is, and what to do for it, as they finally die?—C. H. L.

This is caused from a constitutional weakness of one of the parent stock. It has no name that I ever heard of, but it does appear sometimes in flocks. The only way is to find out which hen lays the eggs that breed this deformity. This is not near so formidable a job as it would appear to be. Get a Pettit toe marker and mark the poults that come from each hen's eggs. The place to begin is with the eggs; mark each egg, as it is laid, with a certain mark, put that down in a little book kept for that purpose, and hatch each hen's eggs separate. Then toe mark the poults as they are hatched and you finally come down to the findings. As soon as you know which hen's eggs these poults are from, fatten her up and eat her. If it were on the male side there would be more of them, but if it should prove that they are hatched from more than one hen's eggs, then you may figure the fault is on the male side of the house.

1915

Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.



LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.

1st & St. James Sts., San Jose.

Yearling and 2-year-old hens do not lay many eggs in the fall, as they are molting at that time, and the feed they consume goes not only to keep up the energy and life of the birds but also to put on or grow a new coat of feathers.

Get the Best for your chicks

Coulson's Poultry Foods

Special Chick Food

Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

THE EVERLASTING LAYERS—"BROWN LEGHORNS"—My strain matures early, grow like weeds—and hardy. Give them feed and exercise, and the egg basket will pay the bills. Baby chicks, delivered, $9.50 hundred. I send only A1 chicks. Guarantee safe arrival. J. H. Stubbe, Campbell, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

BABY CHICKS—WHITE LEGHORNS—Having greatly increased my capacity, I am now ready to accept orders. Do not delay your order Do it today. Price, $10.00 per 100, or $90 per 1000. Circular free. H. A. Schlotthouer, Exeter, Cal., R. 1, Box 95.

BABY CHICKS—Varieties, Pullets and Hatching Eggs from our Santa Clara Valley Farm. Birds, Incubators, Brooders and Poultry Supplies. Globe Hatchery & Feed Co., 1378 Market St., San Francisco, California.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W J. Hicks, R. 2, Petaluma, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H Croley Co., Inc. 631-637 Brannan St., San Francisco.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons. Susan Swaysgood, Route 2, Pomona, Calif.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beegle & Cullen, Empire, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

GOLDEN CAMPINE eggs for hatching. Choice stock. Prolific layers, Kennedy strain. R. W. Messer, Box 1000, Fresno, California.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto. Cal.

PEERLESS BARRED ROCKS—Eggs $3, $4 and $5 per 15 Cockerels, $7.50 and $10. Nellie Preeber, 3107 22nd Ave., Oakland, Cal.

TRAPNESTED LEGHORNS — White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

WHITE AND BROWN Leghorn Chicks. Good stock. Also other breeds. Write James D. Yates, Poultry Judge, Modesto, Cal.

BARRED ROCKS ONLY—Eggs for hatching, $5 per 100, and chicks $12 per 100 in April. G. S. Hawley, Madera, Cal.

TURKEYS, DUCKS AND GEESE.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Big reduction on all orders received before January 15th. Write today. Eastern blooded stock. Prize winners. John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL, Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHESANTS.

WHILE THEY LAST—Plymouth Rock Homer Pigeons for $3 per dozen. Very fine. Geo. M. Bosworth, Geyserville, Cal.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

RIPON RABBITRY—We breed the highest class Rufus Red Belgian Hares. 25% off on youngsters this month. Others for less. Start right. Get the best. Howard C. Jones, Ripon, Cal.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

Free Book

Raising Calves without milk. Everything you need for stock and poultry raising. Write today.

"Kilmel" Squirrel and Gopher Killer.

F. F. SMITH & CO., 1006 J Street, Sacramento.

The Home Circle.

MOTHER'S ALMANAC.

I tell you when it comes to dates
My mother's just the boss!
She tells me all I want to know
'Thout ever gettin' cross.

You'd think she'd get mixed up sometimes;
At school I know I do—
'Bout Washington and Plymouth Rock,
And 1492.

But mother says: "The war with Spain
Was fought in '98.
The year you all had chickenpox,
Exceptin' Sister Kate.

"The Boer war in Africa —
That was a dreadful thing—
Begun in '99, I know.
For Jack was born that spring.

"In '98 the Spanish ships
Were sunk in Cuban channels,
'Twas summer, for you children had
Just changed your winter flannels.

"In 1904, my dear,
The Russians fought the Japs,
That year was very cold, and you
Had chilblains and the chaps."

There's six of us, and we're mixed up
With hist'ry just that way;
Sometimes it's measles, croup, or mumps,
But there's no date that ever stumps
My mother, night or day.

—Lippincott's Magazine.

CLARENCE AND THE PEACE TALK.

[By Louisa A. Nash.]

There had been a meeting in the City Hall in behalf of the Peace Movement, and Clarence's parents were talking it over,—about The Hague Conferences and the Arbitration treaty,—while the little boy kept interrupting them every other moment.

"It doesn't concern you. That's what you think, my boy, isn't it?" said his father. "Suppose we talk about the Children's Crusade instead!"

At this Clarence pricked up his ears and kept his mouth shut. He had heard about the Children's Crusade of hundreds of years ago; how the children wandered half through Europe, with the idea of helping drive the Turks out of the Holy Land and the place where Christ was born.

"Yes, that was mean for a fighting crusade," his father went on. "This is a new crusade, for peace. A cross was on the old banner, and a cross will be on this,—a truer cross than the old one, for Christ's birth-song was 'Peace on earth!'"

"Tell me about the Cherry Crusade that Montie was talking about," Clarence said to his mother.

"Yes, son, there were three hundred children in that one. Their home city, Hamburg, was surrounded by the enemy, and it seemed as though they could not turn them off. They allowed no food to come into the city, and the people were half starving. A man then thought of a plan to conquer the enemy's hearts. It was cherry season. They had more than they could eat of cherries, while they got nothing else. The soldiers outside were as thirsty as they were hungry.

"So the three hundred children were dressed in white and, half-hidden by the cherry boughs in their hands, they marched through the opened gate. The general of the army thought at first it was a trick to deceive him; but, as his soldiers put the bright cherries in their parched mouths, he acknoldedged himself beaten by kindness and pity.

"It's a funny thing, Clarence, this new crusade has been started by a cherry blossom army. You know that in Japan that is the national flower. It was the children in Tokyo, Japan, who sent a letter, asking the children of our country to join on a peaceful war for peace."

Then Clarence's father told him how all the students of the public schools of Everton, Mo., joined, and this is part of the letter they sent to the Tokyo children:

"Little brothers and sisters of Japan: We hail you as a band of mission workers, and thank you for your letter. May we all love one another, and may we never lift a sword against each other. We hail the day of peace in dawning."

Lately Togo, the great Japanese general, spoke to the children about "Blessed Peace." No one knows better than he the horrors of war.

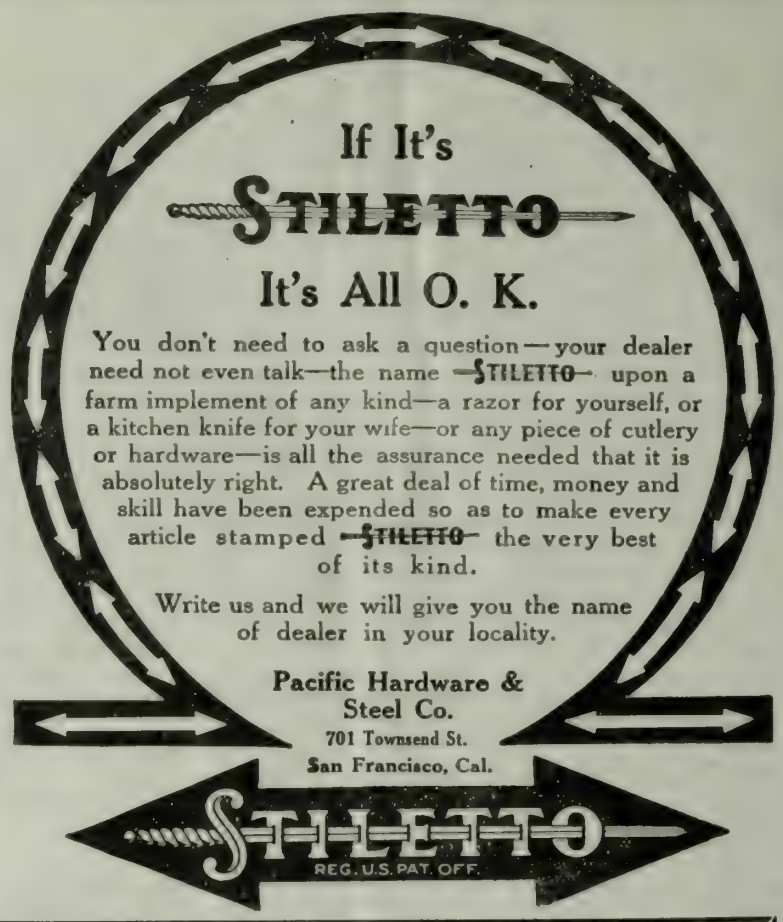
"My name is Togo," he said, "which means 'from the East,' and Hashi-mura, which means 'a man of peace.'" He wants all the children to be the children of peace, so that, when they are grown up, there will be no one who will want to fight!"

Clarence listened attentively and said, "I like that kind of peace talk, mother."

"That's all right, and I know by that, when you're a man you'll like the other, too!" said father.

Mother added: "You'll like to know how the people of Hamburg have kept that cherry victory in memory: they put a spire to their great church, four hundred and seventy-three feet high, the highest spire in the world. I think their idea was that we must climb to heaven in thought and prayer if we want to bring heaven's peace down here upon earth.

An English rector preached a severe sermon on the eternal fate of the wicked. Meeting an old woman noted for her gossiping disposition, he said to her: "I hope my sermon has borne fruit in your mind. You heard what I said about the place



It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

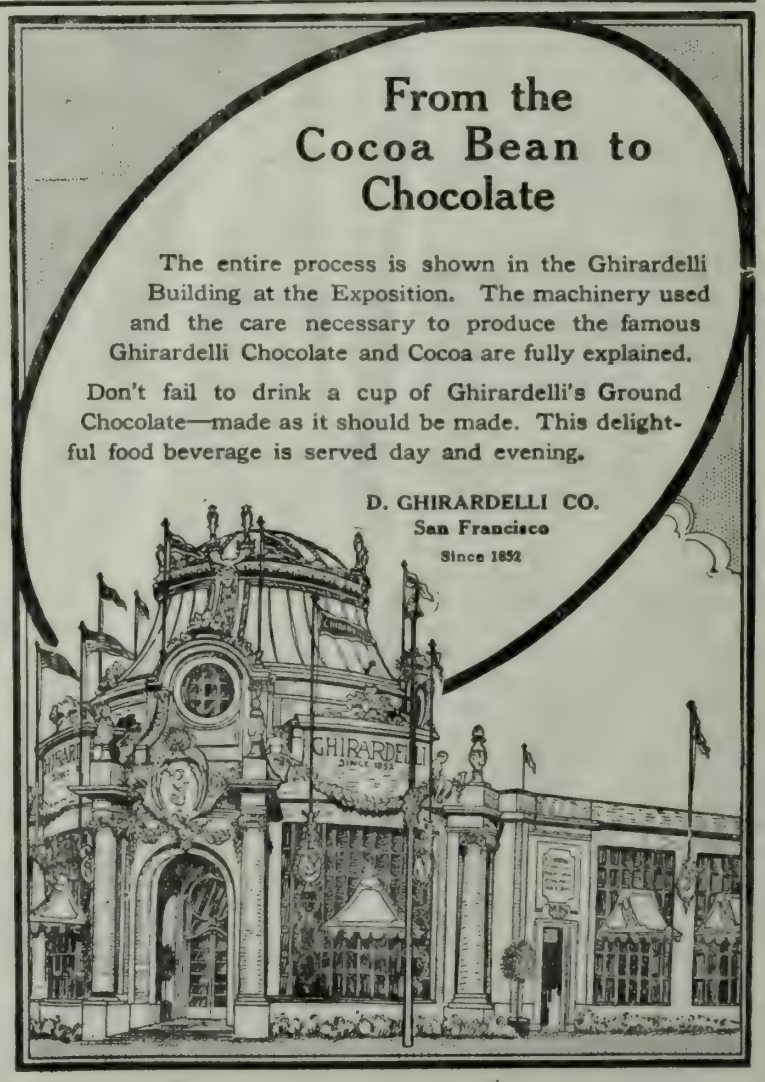
Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339. Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.



Rid Your House of Ants

Something Every Woman Should Know in Regard to this Pest.

There is no annoyance with which the housewife has to contend more aggravating than ants. They get into the pantry and infest the sugar, jams and other foods in a manner that is almost uncanny.

Women everywhere, therefore, will rejoice to learn that a remedy has been discovered—something that will not only exterminate all the ants in the house, but that will do it quickly. This remedy is the result of long experimenting on the part of a baker and candymaker, who was on the verge of being driven out of business by ants.

The preparation proved so efficacious that it has been put up for general use under the name of Kellogg's Ant Paste. It is provided with a patent rattle cap, which assures the purchaser that it is the original brand, and provides a warning night and day that the contents are poisonous.

Get a bottle of Kellogg's from your druggist today and your ant troubles will be at an end.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

Pioneer Roofing

"The roofing that covers California."

Pioneer Roofing is sun-proof, rain-proof, warp-proof, and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."

WRITE US for samples and prices—or ask your dealer.

Pioneer Paper Co.

Manufacturers,

247-251 SO. LOS ANGELES ST., Los Angeles.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO — Blake, Moffitt & Towne, Los Angeles — Blake, McFall & Co., Portland, Oregon

where there shall be wailing and gnashing of teeth?"

"Well, as to that," answered the dame, "if I 'as anythink to say, it be this: Let them gnash their teeth as 'as 'em—I ain't!"—Youth's Companion.

HOME CANNING TO REDUCE COST OF LIVING.

The European war should give added impetus to the canning campaign representatives of the United States Government are carrying on through the northern and western states.

For the past eight years, the Girls' Clubs of the south have canned such quantities that the output for last year had an estimated value of $80,000. This year Uncle Sam is carrying the work to the farm girls of the north who want to share in this enormous industrial economy.

There is no reason why we should allow our vegetables to go to waste, and then buy at the store for 15 cents, goods which could have been canned at home for a trifle more than one-fourth of that sum; or, do as many families do, go without vegetables in the winter because canned goods are considered too expensive. The can of tomatoes which costs 15 cents on the market, can be canned at home for 4 cents; and the home-canned goods contain one-third more pulp than the factory-canned.

Health experts say the eating of more fruit and vegetables would reduce doctor bills, and make us more efficient by keeping us in better condition to do our work. Therefore, it is the part of wisdom to eat more fruit and vegetables.

Most families now can some fruits. It is no less wise and economical to can our own vegetables instead of buying commercial products. It is certain that with the whole of Europe in arms, European countries can produce little or nothing, and that that continent must draw on America for food supplies.

Corn, string beans, beets, carrots, tomatoes, and all the fruits of the farm should be canned in quantities. The windfall apples will not keep as they are; but cored and canned, they will serve for pies and salads next winter.

One reason why the housewife has not canned more is that by the open kettle method it is hard, hot, slow work. She couldn't find time along with her other household duties; she was too tired when she did have time; and when her daily routine work was done, she could not endure canning over the hot stove. But the cold-pack method of canning brushes aside all these objections. The worker does not need to stand over the hot stove; she can can a bushel as easily, and in the same space of time, as she could hitherto can a peck; and she has a more palatable food when her work is done.

What is more, it doesn't require any special equipment, nor any special recipes. Nearly 300 demonstrators working under the direction of the U. S. Department of Agriculture are helping to spread the story of how simple and easy the process is.

Women's clubs, the farmers' institute workers, members of the American Society of Thrift, schools, and other local organizations are taking up the work and helping spread the story of how, by canning, the farm girl at home can provide a balanced ration for her family, and in addition make a goodly sum of money for herself. Not just pin money, but money in quantity sufficient to be called an income. Numbers of Canning Club girls have earned enough in this way to pay their expenses at a college, others have assisted in paying off farm mortgages, saved money to take little vacation trips, bought new furniture for the home, new machines for the farm work, labor saving equipment for the kitchen, or whatever necessity or luxury they may have wished to have and been able to devote money to.

O. H. Benson, Specialist in Charge of Club Work, Office of Farm Management, U. S. Department of Agriculture, Washington, will send information, time tables, and necessary instructions.

There is no reason why there should not be a canning club in every district of every state of the North, affording the farm girl an opportunity to earn money, to develop her business ability, and to meet in the social gatherings which grow out of the canning clubs. Get busy now before the season opens.—Grace Marian Smith, Agricultural Extension Dept., I. H. Co.

Encourage your child to be merry and to laugh aloud; a good, hearty laugh expands the chest and makes the blood bound. Commend me to a good laugh—not a little, sniggling laugh, but to one that will sound right through the house; it will not only do your child good, but will be a benefit to all who hear, and be an important means of driving the blues away from a dwelling. Merriment is very catching, and spreads in a remarkable manner, few being able to resist the contagion. A hearty laugh is delightful harmony; indeed, it is the best of all music.

Neighbors, use judgment in visiting the very sick. Make known to the family that you want to help when they need you. A short call at the home is always appreciated, but the chronic visitors should be told to go home. It is a grand charity to help in times of sickness. The good neighbor is one who takes home the family washing in the back of the buggy, and the twins in the front. There are some who know how to help. God bless 'em!

The mother was delivering a bedtime lecture to her two small boys on the subject of courtesy, when Arthur interrupted his mother. Master Fred instantly said, "Arthur, shut up; you ought to be courteous!"

Senator Hoar once had a dear friend ill with appendicitis and was becoming uneasy, when a letter announced joyfully that the surgeons had declared the illness not appendicitis, after all, but acute indigestion. "That is good news," said the senator. "I rejoice that the difficulty lay in the table of contents rather than in the appendix."—Saturday Evening Post.

ACCURATELY STATED.

"I can tell you," said he, "how much water runs over Niagara Falls to a quart." "How much?" replied she. "Two pints." — Pittsburg Chronicle-Telegraph.

Touring—Out of Oil

—a change from the oil you have been using means bother in adjusting the feed. Otherwise too much or too little is fed into the cylinders. No trouble if you use

ZEROLENE

the Standard Oil for Motor Cars

It is *obtainable everywhere*, from Seattle to San Diego, from Spokane to Phoenix—at city garage or roadside hamlet.

And it is always uniform—the same body—the same perfect lubricating quality.

Dealers everywhere, or at all agencies and Service Stations of the

Standard Oil Company (California) San Francisco

MANLESS LAND for the LANDLESS MAN

2,000,000 Acres

of Good Land Along the

Western Pacific Railway

IN CALIFORNIA, NEVADA and UTAH

Opportunities for The Man of Modest Means As Well as the Capitalist

EVERY SECTION HOLDS OUT A WELCOME

Write for Copies of Our "Opportunities" and "Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH, Asst. General Pass. Agent. San Francisco, Cal.

Bee Keepers Supplies

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco.

Weekly Crop Report

[Written for Pacific Rural Press.]

This week's crop reports show considerable improvement for the State as a whole over the estimates of last week.

Almonds.—In the north San Joaquin valley, several sections will have a larger crop of almonds than normal. In most of the Yo-Solano section, the prospects are for a full crop; Alameda only reports a considerable drop.

Apples have grown enough so that a report from the southern part of the State gives conditions as 100 per cent.

Apricots again are spotted throughout the State, though most reports seem better than last week. The central and north San Joaquin valleys and the Yo-Solano district promise full crops, while at Winters some people are thinning by hand; others had their fruit thinned by the wind. Some estimate the biggest crop in several years. One company has bought two lots of the Winters' crop at eight cents, while others are offering seven cents; but most of the growers are wisely holding for future information. Alameda and Santa Clara report not over 75 per cent.

Cherries. — Several varieties of cherries in the Vacaville district were hurt by the late rains, though the early ones have been shipped in pony refrigerators for two weeks. The first ten-pound box, which was of Chapmans, sold in Detroit for $35. Early varieties in Placer county are estimated at 50 per cent, late ones at 100. Orange county is despondent, with 25 per cent for no apparent reason.

Grapes are reported from Madera, Yolo and Vacaville as promising well

Peaches.—In most places, peaches are almost up to a full crop. Low reports are 65 per cent for Elbertas in Stanislaus county, but 100 per cent for the other varieties, while the shipping peaches in Placer county are estimated at 95; and in Madera, at 75 per cent. Futures in dried peaches at Suisun are quoted at 3½ cents without sellers. Orange county drops to 75 per cent of a crop.

Pears in the Rogue river valley are heavy set and have very favorable chances. In the Yo-Solano district, the thrips took about one-half of the crop on account of failure to spray and because of wet weather and wet ground. Alameda pears seem 75 per cent.

Plums.—Early plums in Placer county are estimated at 100 per cent and practically all other districts report 100 per cent, except Orange county, which goes twenty per cent better.

Prunes.—One report from Santa Clara county on prunes is so optimistic over recent developments, that it places the crop at 100,000,000 pounds, though most reports indicate less. Napa County Horticultural Commissioner gives the crop as a whole as 100 per cent on account of the extra heavy setting of Sugars, which will be hurt if not thinned. French prunes and Imperials set at about 85 per cent and should be excellent quality on account of not being bunched in the trees. The best offer for futures in the Suisun district was 3¾ cents, with no sellers. The Sonoma county crop is very light.

Walnuts in Orange county are far enough along so that the estimate is 100 per cent, though the damp weather of last week was favorable to blight.

Alfalfa has been cut all over the State and no one has complained of the late rains which have played an important part in boosting winter sown grain and hay, so that these are in excellent condition as a rule.

Notes.—In Placer county the season is reported as a week behind normal on account of late rains, which were very welcome to grain and hay farmers. The same rains prevented spraying in Yolo county so that shothole fungus has been worse than usual, though it is noted that the trees which have been constantly sprayed for several years have been hurt much less than the others. Orange county reports sugar beets in excellent condition. Imperial valley will have about 7,000 acres in cantaloupes, though the conditions are not up to standard. Canker worm has been exceptionally bad at Vacaville.

EASTERN CROP REPORT.

Owing to the ever changing conditions in the East during the past thirty days, we have not deemed it advisable to publish a crop report until the present writing. Even now reports are conflicting.

The Texas crop of peaches was estimated last month at five thousand cars, indicating that the bloom was set at one hundred per cent, forecasting a heavier crop than could be successfully marketed. Since then, however, heavy rains, wind, and frost have reduced the crop and we think it safe to estimate that the output will not exceed twenty-five hundred cars.

Reports from Atlanta and Byron, Georgia, indicate that the trees are in very good condition with a heavy bloom, notwithstanding the fact that the recent cold weather affected the blossoms throughout the State generally, but serious damage was noticed in the lowlands only. We estimate the total shipments from Georgia this season at four thousand cars.

The United States Government experts have made a careful survey of the fruit-producing districts of the country and their reports of the various states are as follows: Peach trees in New Jersey full of buds, rain badly needed. The temperature on the 19th of April rose to eighty degrees, where three days previous the weather was freezing. This variation in the climate may show its effect later. Light killing frosts were general on the 14th and 16th of April throughout Virginia, but on account of the lateness of the season little damage has been done. Indications are for a normal crop. Fruit prospects are exceptionally good in Arkansas. This is true also of Michigan, though in both of these states rain is badly needed and the soil is very dry. The weather in Colorado this winter has been exceptionally mild and conducive to growing crops. Fruit prospects continue good. Fruit buds are just open in Ohio and though cold weather prevailed about the middle of April the buds were not affected on account of the lateness of the season. The season is also late in Utah, but fruit trees are in full bloom and crop prospects good.

The United States Department of Agriculture has just issued a bulletin stating that the fruit season, with the exception of the northwest, will be two to three weeks later than last year and that crop prospects are favorable at the present time.

We estimate also that California will be one to two weeks late on a great many varieties. This is especially noticeable in apricots.

CALIFORNIA FRUIT EXCHANGE.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, Apr. 28, 1915.

WHEAT.

Some buying in the north for this market is reported, but with no vessels available for export business the tendency of the market is downward, and local prices on all grades show a further decline, as there is still quite a heavy tonnage in the north.

Cal. Club, ctl.	$2.32½ @ 2.37½
Forty-fold	2.35 @ 2.40
Northern Bluestem	2.40 @ 2.42½
Northern Club	2.32½ @ 2.37½
Northern Red	2.30 @ 2.40

BARLEY.

The barley market has softened a little this week, but there is no quotable decline. There is practically no speculative business, and spot trading is limited to small jobbing purchases of feed. The crop, it is admitted, will be much less than last year, as much of the acreage has been turned to wheat.

Choice Feed, per ctl.	$1.27½ @ 1.35

OATS.

There is hardly any white here, and while the demand is light prices are nominally held as before. Red feed is offered freely, and a slight decline is noted in the quotation.

Red Feed	$1.55 @ 1.60
White	1.85 @ 1.90

CORN.

California corn is coming in rather freely, much of it being of poor quality, which tends to hold values down. Eastern also is quoted lower, though rather firm at the new price. A good deal of poor Manchurian stock is arriving, and is offered at low prices.

California Yellow	$1.75 @ 1.80
Eastern Yellow	1.80 @ 1.85
Egyptian White	1.75 @ 1.85
Milo Maize	1.75 @ 1.80
Manchurian	1.40 @ 1.60

BEANS.

There is not much to report in this line, prices being fairly steady as quoted last week. The market has quieted down since the recent export orders were filled, and there is little demand at the moment from any quarter, while there still seems to be a good deal of stock of various kinds around the country. It is believed that the remainder of the old crop will clean up at good prices, but the outlook is a little uncertain, as prospects are favorable for a large acreage of all varieties.

(On Wharf.)

Bayos Cal., per ctl.	$4.90 @ 5.00
Blackeyes	5.50 @ 5.65
Cranberry Beans	4.50 @ 4.75
Horse Beans	3.50 @ 4.00
Small Whites	4.75 @ 4.90
Large Whites	4.65 @ 4.75
Pink	3.75 @ 3.90
Limas	5.00 @ 5.10
Red Kidneys	5.75
Mexican Reds	4.75 @ 4.90
Garbanza	7.00

SEEDS.

Values stand as last quoted, with very little demand in any line.

(Wholesale prices, San Francisco.)

Alfalfa	17½ @ 18½
Brown Mustard, per lb.	Nominal
Canary	10 @ 12½c
Hemp	3 @ 3½c
Millet	2½ @ 3 c
Timothy	7½ @ 8 c

HAY.

Reports of improvement in the market situation come from various quarters, and whether on account of export demand or larger local requirements, business appears to be better, with a slight improvement in local prices for wheat hay. More large sales are reported at Hollister, where the new crop is said to be light; and more activity is also reported at Sacramento Valley points. Locally arrivals are fairly large, but have been pretty well absorbed. An eastern market is being built up for alfalfa meal, which may relieve the alfalfa situation. Cutting of new alfalfa is under way along the River, and the late rain may have done some damage. A large crop of volunteer hay is expected soon.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50 @ 11.00
do No 2	7.00 @ 9.00
Barley	5.00 @ 8.00
Tame Oats	6.00 @ 12.00
Wild Oats	6.00 @ 8.00
Alfalfa	6.00 @ 9.00
Stock Hay	4.50 @ 5.00
Straw, per bale	.30 @ .45

FEEDSTUFFS.

No change in prices is noted this week, everything on the list being quiet, with little firmness as to prices.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa Meal, ton	$16.00 @ 17.00
Alfalfa Molasses meal per ton	19.00 @ 20.00
Bran, per ton	27.00 @ 28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00 @ 26.00
Cracked Corn	40.00 @ 41.00
Middlings	32.00 @ 33.00
Rolled Barley	27.00 @ 28.00
Rolled Oats	33.00 @ 34.00

VEGETABLES.

Summer vegetables are appearing in much larger quantities, though some lines, such as bell peppers, cucumbers and eggplant, still command high prices. Summer squash also is high, though lower than last week. Asparagus has dropped a little, the week's offerings being very heavy, while peas and string beans have declined sharply. All the tomatoes are still coming from Mexico, and are held at stiff prices. Offerings of rhubarb are more moderate, bringing a little firmer prices, Oregon stock taking the top figure.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 c
No. 2	25 @ 35 c
Asparagus, box	$1.25 @ 1.90
Peas, lb	2 @ 4 c
String Beans, lb	5 @ 7 c
Peppers, bell, lb	5 @ 10 c
Tomatoes	3.00 @ 3.50
Celery, crate	1.50 @ 1.75
Rhubarb, box	50c @ 1.00
Lettuce, crate	75c @ 1.00
Cucumbers, Southern, bx	1.25 @ 1.50
Eggplant, lb	10 @ 15 c
Summer Squash, crate	65 @ 85 c

POTATOES AND ONIONS.

Old potatoes are scarce, and stock is being brought in from distant points, though prices are no higher than last week. New potatoes are declining, but will not be really plentiful for some time. Onions are easy, with lower prices for local stock, though Australian is steadily held. Some new garlic is arriving, but it is scarce and high.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75 @ 2.25
Lompoc	2.35 @ 2.50
River Burbanks, ctl.	1.60 @ 2.00
New Potatoes, lb	2 @ 4 c
Sweet Potatoes, ctl.	2.25 @ 2.50
Onions, yellow, sack	65 @ 75 c
Australian, ctl	3.75 @ 4.00
Garlic, per lb	17 @ 25 c

POULTRY.

A good deal of Eastern poultry is coming in, and old stock is easy, but shows no further decline. Fryers and other young stock are steadily held at the recent advance.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @ 18 c
Broilers, small	25 @ 30 c
Fryers	25 @ 26 c
Hens, extra, per lb.	17 @ 18 c
Small Hens, per lb.	16 @ 17 c
Smooth Young Roosters, per lb.	22 @ 25 c
Squabs, per doz	$2.50 @ 4.00
Geese, per pair	2.50 @ 3.00
Ducks, young, lb.	18 @ 20 c
Old	15 @ 17 c
Belgian Hares	8 @ 9 c

BUTTER.

The market shows very little feature. There is no particular demand for shipment, and local requirements are not above normal, leaving a good deal of stock to go into storage. Prices stand precisely the same as a week ago.

(S. F. Dairy Exchange prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	--	23	23½	23
Prime	22½	22½	--	22½	22½	22½
Firsts	22	22	--	22	22	22

EGGS.

Offerings of etxras are rather heavy in proportion, and the lower grades have been marked up a little

this week, the top grade showing no change. There is some movement into storage.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	22	—	22	22	22
Firsts	18½	19	—	19½	19½	20
Sel. Pul.	19	19	—	19½	20	20

CHEESE.

Y. A.'s are a little firmer, with an advance of 1c, flats standing as before. Offerings of Monterey cheese continue excessive, and prices are very low.

(S. F. Dairy Exchange prices on flats and Y. A.'s)

Y. A.'s, fancy	13 c
Fancy Calif. flats, per lb.	11 c
Monterey Cheese	8@11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	22	22	22	22	22	22
Eggs	22	22	22	22	22	22
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

Cherries have been coming in all week, the first shipments as usual bringing extreme prices. Offerings have increased quite rapidly, however, and prices are now low enough to induce a lively demand. Arrivals of strawberries from Fresno and nearby points have also been large, and prices show a further drop. Los Angeles stock is about out of this market. Ordinary apples are rather cheap, but desirable stock is moving off fairly well.

(Wholesale prices, San Francisco.)

Strawberries:

Fresno, large crate	75c@1.00
Longworth, chest	$7.00@9.00
Banner, chest	4.00@7.00
Cherries, 10-lb. box	1.40@1.65
Apples, Newtown	50 @90 c
do, fancy	1.00@1.25
Other varieties	30@75 c

DRIED FRUITS.

There is not much going on in the dried fruit trade that is of real interest. Business everywhere is very quiet, and all sorts of rumors are floating around about high or low prices. In fact, there is probably a rather wide variation in values, as the movement is mostly in small scattered lots sold under various conditions. Some local handlers report many offerings of prunes, and express the belief that there is a rather large tonnage left in the country; but this is denied by the large packers. It is hard to get more than a 4c price, however. A good many peaches are being offered, and some holders are quite anxious to sell, causing a decidedly easy feeling; and there is a general desire to clean up odd lots in other lines. Some buyers are out feeling the market for new-crop fruit, but apparently little business has yet been done. Offers for prunes are quoted at 3½c. The New York Journal of Commerce says:

According to brokers and jobbers, there is a better feeling in the market for the various Coast products based on an increased demand from distributors in the interior. The improvement, however, seems to be confined to prunes. There is a stronger tone to reports as to futures in this line, and most holders are now demanding 3¾c for 40s, 3½c for 50s and 3¼c for 60s f. o. b. Coast for the four-sizes for early October shipment out of the 1915 crop, or an advance of about a quarter of a cent on prices recently named.

Export business seems to have slackened materally of late, and, as the home trade is not doing much buying, the market for goods on the Coast is somewhat nominal. On the spot here a fair jobbing business is being done at prices within the range of quotations.

For apricots there appears to be little home or export demand. Peaches also are dull, with prices on goods on the Coast in buyers' favor. Stocks here are said to be light. Raisins are getting a little more attention in a jobbing way, especially the seedless varieties, which are rather scarce and closely controlled.

Evap. Apples, 1914	5 @5½c
Apricots, 1914	6 @8½c
Figs: White, 1914	3 @3½c
Black	2½ @2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	4 @5½c
Peaches	3 @3¼c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

Shippers of oranges from Southern California are feeling more hopeful of profitable prices for the balance of the season. The recent advance of price in the eastern markets is already sufficient to make shipments profitable and a further advance will go a long way towards making the season an average. On the eastern auctions, Monday, April 26th, oranges sold for a little higher prices than for the week previous. At New York fifty-six carloads were sold at prices averaging for the car, from $1.95 to $3.15 per box. All of the other auction points showed about the same prices that day. Lemons are still low, the prices being $1.75 up to $2.75. Shipments from California are averaging over 200 cars daily.

Orange prices show a slight upward tendency, the inside price in San Francisco having been marked up, following an advance at primary points. Ordinary grapefruit and lemons are a little easier.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.65@2.50
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx	1.25@1.75
Fancy	2.50@2.75
Lemons, box	1.50@2.50

NUTS.

There seems to be some demand for almonds, as a fair amount has been sold recently, though the prices were comparatively low. There are no large lots on the market, but a good many small scattered holdings are still reported around the country. The trade is now supplied with Manchurian walnuts, for which the demand is rather light.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:	
IXL	10 @13 c
Ne Plus Ultra	10 @13 c
Drakes	8 @10 c
Texas Prolific	8 @10 c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
Ungraded	8 @10 c
Manchurian	6 @11 c

HONEY.

A little honey is being shiped out, but there is very little demand for it, either here or in outside markets, and there are still large stocks held by local dealers. The first offerings of the new comb are expected in a few weeks.

(Prices on cars, San Francisco.)

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	5 @ 6 c
Light Amber	3 @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

Beef cattle are again quoted a little lower, with an increasing disposition to sell on the part of stockmen. Sheep are steady, and dressed hogs show a slight advance.

(Prices at Butchertown, S. F.)

Steers, No. 1	6½ @ 6¾c
No. 2	6 @ 6¼c
Cows and Heifers, No. 1	5¾ @ 6 c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
225 to 300 lbs.	7½c
100 to 225 lbs.	7¾ @ 8 c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½c
Shorn sheep, less by	¾ @ 1 c
Suckling lambs	7¾ @ 8 c

DRESSED MEATS.

Steers	10¾ @11½c
Veal, large	13½ @14 c
Small	15 @15½c
Prime Wethers	13 @14 c
Ewes	11½ @12 c
Suckling Lambs	14 @15 c
Hogs	12½ @13 c

WOOL.

The wool market is still in very uncertain shape, with widely divergent reports in various sources. Some local buyers are still holding off, claiming that the prices asked are altogether higher than the situation warrants; and little wool is moving, though a few scattered sales are reported. A large amount of Australian wool has passed through here on the way east. Some wool, sold at 21½ to 22½c, has lately been shipped from Live Oak; and a few sales are reported in the Inyo country. Sales of Utah wools were made last week at 23½ to 26c.

Wool ..... Nominal

HORSES.

The results of local auction sales have been rather disappointing to the sellers of late, but there is a very fair demand for well-broke wagon horses and drafters, and prices are pretty well maintained on such stock. It is reported that further heavy buying is to be done for Europe, but this does not seem to have affected the local markets perceptibly. A good many mules are being sent to the Hawaiian Islands.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks, 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green Mountain range horses, 950 to 1200 lbs	50@ 90
Farm workers	60@ 75

MULES.

1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

Prices show no change. The local market is very quiet, and there is no large demand elsewhere.

HIDES.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @15½c
Medium	15 @15½c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lb.	15 @15½c
Light Cows, 30 to 50 lb.	14½ @15 c
Kip	15½ @16 c
Veal	16 c
Calf	16 c
Dry Hides	25½ @26½c
Dry Kip, 10 to 15	24½ @25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

ALMOND GROWERS

Percentage of European shelled almonds used in the United States, 97%.

Percentage of California shelled almonds used in the United States, 3%.

Can you, without co-operation, and selling individually, obtain your share of the demand for shelled almonds?

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

Publisher's Dep't.

During April we have added 791 new paid subscribers to our list, which has been growing steadily at about the same rate for several months past. To our new, as well as old readers, we wish to call attention to our advertisers. All papers get a large part of their revenue from their advertising columns, and if our readers when trading with an advertiser would mention seeing the announcement in the Rural Press it would help us a great deal and enable us to give you better service. An advertised article is the cheapest one to buy.

Send us your order for one of our books. "California Garden Flowers" and "California Poultry Practice" both should be in your home.

"Electricity for the Farm" by Frederick Irving Anderson, is a new 265-page book just received from the Macmillan Company of 66 Fifth Ave., New York. That many a farmer might enjoy the benefits of electricity if he would but make the most of the natural resources at his command is Mr. Anderson's contention in this book. The volume gives a practical working knowledge of electricity for use as light, heat and power. It tells the farm mechanic how to install his own plant without the aid and expense of an expert, discussing not alone the plant that derives its power from falling water but also the gasoline engine plant, with chapters on the storage battery and battery charging devices. The book sells for $1.25 net.

I X L's LAST WEEK 13½ CENTS.

To the Editor: We note the market quotations on almonds in your issue of the 24th.

The object of this letter is not to criticise, but to tell you what we have been doing. The lowest selling of Drakes we have made has been 11c, San Francisco, and 13c for I X L Sold ½ car I X L here to one buyer last week at 13½c. It is, of course, quite likely that some one else is selling at lower figures, but we obtained the above named prices in San Francisco last week. At the present moment we have nothing to offer in San Francisco; hence, are not interested in the market except to see that as much protection as possible is given our customers by quotations.

T. C. Tucker, Manager

California Almond Growers' Exchange.

NAPA BEET TROUBLES.

To the Editor: Always have more or less trouble with late sown beets unless a shower of rain follows sowing. Last season sowed first beets in adobe soil April 2; made perfect stand: second sowing about Apr. 20—failure; third sowing about May 1—failure. We then planted corn on land where we had planted beets, using same rows. Here and there in the rows quite a few beets came up and made fine specimens, showing no signs of disease. The early sown beets made a splendid growth for awhile; then a disease similar to the one that attacks Swiss Chard struck them in streaks.

In sowing I open up drill 2 inches deep, sow seed that has been soaked a couple of days; cover up seed, and if prospects are for dry weather tramp seeds with feet. Everybody that I am acquainted with seems to have trouble with their beet sowing.

Napa. **Chas. Blom.**

Building Material

NEW AND USED.

Everything for the house from foundation to shingles. Satisfaction guaranteed. Each shipment as represented. Car lot special rate. Largest stock on coast.

SYMON BROS., Wreckers

11th and Market Sts., San Francisco, Calif.

UNITED STATES PATENT AGENCY — PATENTS — SCIENTIFIC PRESS

Circular containing 100 mechanical movements mailed free.

SALT LAKE ROUTE

YOU WILL LIKE THIS WAY GOING EAST

For the service is excellent and the scenic attractions are very pleasing—through Nevada and the Rocky Mountain country. Our fast trains, the Los Angeles Limited and the Pacific Limited, run every day in less than three days to Chicago, over the Union Pacific Ry. with through Standard and Tourist sleepers and dining cars; also through sleepers to Denver, St. Paul, Butte and Kansas City.

The Overland Express, daily, has a through tourist sleeper to Chicago over the Denver and Rio Grande and Burlington Route, stopping at dining stations for meals.

Your certainly will be pleased if you go East over the

SALT LAKE ROUTE

Full particulars at all of our ticket offices.

SAN FRANCISCO OFFICE is at 643 MARKET STREET.

LOS ANGELES at 601 SO. SPRING ST.

NOTE—Eastern Excursions commence June 14th. Low fares for the round trip.

"Soil-Tone"

MINERAL FERTILIZER

Lowest priced, safest and best fertilizer on the market. Contains highest percentage of sulphides obtainable. Proven best for citrus groves, farm lands, garden, shrubbery, etc. Develops more plant food at low price of $3.70 per ton than ordinary commercial fertilizers produce at $50 per ton.

$3.70 per ton (sacked)

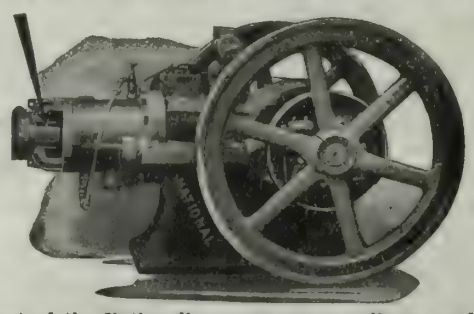
$2.25 per ton (in bulk) (f. o. b. Corona Cal.)

The Soil-Tone Company,
POMONA, CAL.
(We have no Los Angeles office.)

FOLSOM & SON,
Local Representatives.
170 S. Main Street.

THE NATIONAL OIL ENGINE

Runs On 2½c Fuel



Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

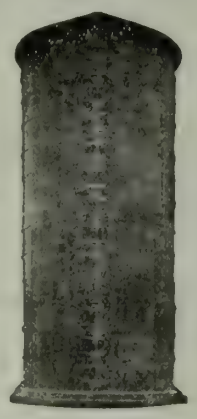
National Steam Pump Company

Upper Sandusky, Ohio.

Address California Distributor, J. C. WIGHT,
4927 Budlong Ave., Los Angeles, Cal.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS



16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915

TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

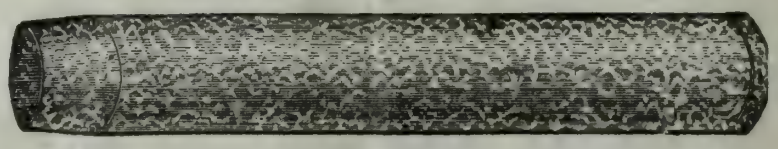
1608 Hobart Bldg., San Francisco.

BIGGER

THAN THE WORK IT WILL BE PUT TO

AMERICAN

SURFACE IRRIGATION PIPE



PROVES

its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.

American Steel Pipe & Tank Company
354-56 Pacific Electric Building, Los Angeles, Cal.
Branch 1228 "H" Street, Fresno.

Vol. LXXXIX—No. 19 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, May 8, 1915 LOS ANGELES

State Library 7-1-16

Relieving Table Grape Market Pressure.

[Written for Pacific Rural Press.]

"Reports from the San Joaquin Valley, including the American River, Florin, Woodbridge, Acampo and Lodi, indicate that the crop of Tokays will not exceed sixty-five per cent, as the vines have set light. We consider this, however, a benefit to the industry and with favorable growing conditions the short crop should, naturally, regulate prices. So far as can be estimated at this time there will be a full crop of Malagas from the Fresno district. It is too early to estimate the Emperor crop, but indications are that it will be normal."

This comment by J. L. Nagle of the California Fruit Exchange is a strong pointer concerning the interest of all table grape growers in any profitable method of relieving the pressure on markets in rush seasons, which lowers the price sometimes pretty near the cost of production.

Means of storing grapes on the vines or in sawdust until the pressure is gone, would be welcomed. Storing and shipping in drums has been tried commercially for three years, so far with poor success on Tokays but fine success on Emperors.

This is no time to be discouraged about the Tokays; not all of their storage possibilities have been explored, though perhaps the most important factors will be found to be sweet ripeness before picking, and careful handling all the way through.

Meanwhile, it is time now to decide on the methods and equipment to be used in packing Emperors, whose storage success has been demonstrated by three years' commercial experience. About half of the sawdust-drums shipped last season were handled by the Earl Fruit Co., whose manager, C. B. Dewees, writes us as follows:

"Presume your letter refers to Emperor grapes, as Earl Fruit Company has not shipped any Tokay grapes in drums in sawdust to Eastern markets this season. The experiments we have been conducting in the past three or four years in connection with Tokay grapes have not given satisfactory results. However, the Emperor grape, which is a later table grape and has a tougher skin than the Tokay, can be very successfully kept three months in cold storage packed in redwood sawdust." Mr. Dewees in his letter also says:

"The shipping of Emperor grapes under this form of packing began as a commercial proposition in 1912, in which year about 50 cars were shipped. About half this number of cars were shipped in redwood sawdust and these carried very successfully and brought good returns. The other half were packed in cork dust, which was obtained from some Eastern cork product factory, and evidently something was wrong with the cork dust, as all the California grapes packed in cork dust did not carry well and brought very poor results." Mr. Dewees says of the redwood sawdust experiments:

"As a result of the experience with cork dust in 1912, no shipments in cork dust were sent forward in 1913, redwood sawdust being the only packing material used. About 75 cars went forward in 1913, every car being reported as arriving in good condition at destination, the buyers being well pleased with the condition of the fruit.

"We are unable to advise you how many cars of sawdust-packed Emperors were forwarded from California by all shippers in 1914. We estimate there were between 250 and 300 cars, of which Earl Fruit Company handled for its patrons 144 cars, all of which arrived at destination in good condition. About 85 per cent of our cars were sold at private sale on a basis that would return the grower about $60 per ton for his fruit.

"This new method of packing Emperor grapes is going to be of great benefit to the growers of late table grapes, of which the Emperor is the principal variety grown in California. You will perceive that shipments have increased very rapidly in three years, and if proper attention is paid to packing, this business can be developed to very large proportions within the next five years. The proper development of the business depends on the packing of first-class fancy fruit in these drums. Some mistakes were made last year by new packers packing ordinary fruit, and these drums in some cases arrived at destination in bad condition and sold at low prices. This trouble can, however, be obviated by giving proper attention to the packing, and packing only the very best of fruit from the vineyard in the drums. Fruit that does not have good qualities should be packed in crates and

(Continued on page 551.)

Packing Prime Emperors in Sawdust and Devising Other Means to Keep Part of the Tokays Off the Market in the Heavy Shipping Season Are Needed to Make Grape Shipping More Profitable.

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., May 4, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.62	40.89	42.85	56°	42°
Red Bluff...	.16	32.88	23.49	84	40
Sacramento.	.41	14.54	19.18	72	44
S. Francisco.	.74	24.98	21.45	60	46
San Jose...	1.25	21.21	16.15	68	42
Fresno.....	.61	10.12	9.07	66	40
Indep'nd'nce	.47	3.47	8.91	72	27
S. L. Obispo.	2.54	27.46	19.75	62	36
Los Angeles.	1.14	16.91	15.21	64	42
San Diego..	.63	14.18	9.66	66	44

The Week.

The weather has been behaving like a spoiled child: over-coddled and over-praised, it has broken out into daring disagreeableness than which worse, for the month of May, cannot be remembered. We were coursing up one of the greater valleys the other day, while fog-drives, rain-dashes and wind-whistles beset for several hours a railway car crowded with Exposition-explorers from the East. "And so this is the land of sunshine and flowers," said a lady in musical mockery. Of course a near-by Californian had to offer an explanation that never since Balboa discovered the Coronado Hotel had the sky skated in like that. "I cannot see," retorted the lady, "why you Californians always feel called upon to defend your weather. We always slam our weather at the East. This sort of thing seems to make you really feel bad. Our weather only makes us mad, and there's a lot of relief in that." There is a good deal of sense in what the lady said. Why should we grieve as does the mother of the spoiled child who slaps his grandmother's face? If we do it to emphasize our surprise over such behavior, we only get laughed at behind the cushions—just as she does. The raw Easterners will not believe that our weather is not always likely to be bad as theirs is. It is probably better to say, "Confound the weather!" and let it go at that.

And yet, whether it appeals to the stranger or not, the Californian has to be true to his own experience, in private at least. When May-Day temperature went to 41° in San Diego, the Californian knows that it never did that before since records began. And when the wind hurtled through the Golden Gate at one hundred miles an hour, or blew a gale along the coast which sent ships back to sea or to port, while it played havoc with landings and beach pavilions all along the coast, every Californian knew that it was a January storm, which had no right of way in May. And the comfort is that so little harm was done. The clouds persisted so that apprehended freezing was prevented: the water which was driven down will be worth much in later growth; the fruit-thinning will enlarge that which held fast, though some injury was doubtless done to early, tender truck and though much extra work may be necessitated—the storm as a whole was a gain for the State.

California the Classic of the Future.

Following the suggestion of feminine philosophy credited to the passionate lady cited above, we are prompted to continue treatment by suggestion in the lady's way. We have recently attempted to characterize and to ultimate California's points of views and endowments in the words of certain poets, philosophers and prophets of the male persuasion. Just now we doubt if they see so far and so clearly as some women do, and we haste to add tokens of the latter's foresight. Has there been a deeper, broader view of the California of the future, for example, than the prophecy of Mary Austin, who has lived the California life from the desert to the metropolis and pictured it so faithfully in her books? Mrs. Austin, in the Century, after detailed comparison of California with ancient Greece, says: "When you reflect that the Greeks began with just these things, great natural beauty, an adventuring, colonizing people such as settled the Sacramento and the San Joaquin, and with a legendary and dramatic representation of man's relation to vast invisible forces, it is possible to believe that people beginning there and on a scale so much more magnificent will be justified in any expectation. Any one going west to look for it must find the index of what the art of the West is to be not in the art palace, but in life as it is lived there, in the mastery of modes of living in which the West suggests its as yet unutterable things."

Greek also in their suggestiveness are the words of Margaret Anglin, who reproduces classic plays and seeks the best environment for them. In an interview in a New York journal, she recently said: "I have seen most of the ancient Greek and Roman theaters, and they are interesting as ruins, but none of them can compare with the one at Berkeley for beauty. It would be impossible to duplicate in New York that first performance in Berkeley. California nights happen only in California, and I am not so sure it is not the same with their audiences. The young women for the Greek dramas I will recruit in California. They are wonderful to work with, the Western women, so unspoiled and imaginative." Such words are but tokens of significance, which require deep thinking to appreciate and to estimate in terms of their causativeness. They indicate potentiality and efficiency in women in State-building which cannot now be measured. Although they can be but dimly foreseen, they exist—unique in power and promise.

Public Marketing in California.

While all the rest of the country is eagerly discussing the matter of national marketing of food products, California is apparently on the verge of going to it concretely, as has already been noted in these columns. We pass over the country-wide discussion, for it will all arise again later, as the proposition is practically sure to engage the attention of the next session of Congress, and we can have plenty of time to promote the general principle involved, which seems to be soundly for the public good. At this moment the most interesting fact is that, on Monday of this week, Assemblyman McPherson's bill, providing for State sale of food products on commission, passed the Assembly and went to the Senate for approval. Its fate will probably be known before the end of the week. If it passes the Senate and receives the Governor's signature there "will be created a State organization to carry on the business of receiving from the producers thereof the agricultural, fishery, dairy and farm products of the State of California and selling the same on commissions." A fee for each transaction will be fixed by the commissioner, and the aggregate of fees collected will be placed in a revolving fund, which must be built up to contain $25,000, the amount of the original appropriation. Thus the undertaking must be made self-supporting and the fees must cover the compensation of a State commission market director at a salary of $5000 a year, a secretary at $3600 a year, as many employes as are deemed necessary. We presume there is no restriction upon the amount of earnings which can be deposited with the State as a reserve fund to capitalize the undertaking, for, if it does what the people expect of it, it will need to use a lot of money. In Europe this is secured by accumulated surplus earnings, which become very large, even from a very small commission per cent, because there is no rake-off for owners of the business. California producers have clearly declared, through their organizations, that they desire to try such a scheme of public marketing.

We Are Indicted.

We must needs rise to the energetic defense of a too ready writer, to wit: ourselves. This writer is haled before the bar of public opinion by two prominent journals of "daily habit," whose output we must briefly describe: The Oakland Tribune of April 27, with an array of head-lines in such type as it customarily reserves for accounts of high crimes and misdemeanors, says this:

"Professor Wickson has arisen in the midst of his University friends within recent months, not only as an agriculturist and horticulturist of ability, which they all knew, but as a humorist as well, which was news to many of them. He is the author of a book entitled "California Garden-Flowers," and so far does it depart from the ordinary work on scientific subjects as to be really a work of literature, as well. More than that, it offers proof of Wickson's eligibility to the Society of Wits of America. Not with a definite effort at humor has Wickson composed this volume, but it has sort of spurted out of him unconsciously."

And the Berkeley Daily Gazette of April 28, following in the footsteps of the great leader of East-Bay journalism, says this: "Making his debut as a wit as well as a scientist, Prof. Wickson is responsible for a volume on "California Garden-Flowers," which places him in the front rank of humorists. He is famous as a horticulturist and agriculturist of ability, but his latest innovation has taken his university colleagues by surprise."

And both these journals follow their declarations with a column or so of extracts from the

book "California Garden-Flowers," which are alleged to be of humorous quality and which are apparently depended upon by them as evidence of the truth of their allegations, viz.: that this writer, having lived a long life of seriousness and sobriety, comes, near the end of it, to the production, not only of "literature," but of the humorous phase thereof, which is compounding a felony with and within ourselves and, obviously, against the interests of this young and growing State.

To the foregoing complaint we demur on the ground that the charges are by their nature false and incapable of proof, and that the alleged evidence is therefore incompetent, irrelevant and immaterial. We contend, first, that the production of literature is by its nature indeterminable contemporarily; second, that the revelation of humor as a distinct surprise to old associates is impossible, as shown by the common experience of mankind.

What Is Literature?

No one but a professor thereof ever knew, and such a one has never told anyone else, to the latter's satisfaction. Our own contention is that literature is writing which the human race has never been able to forget, when it has had a fair chance to do so. Of course, we do not mean to say that literature is never lost—that is, passed from view before mankind could get it through its nut. We suspect we have lost some paragraphs that way and perhaps the Alexandrian library lost some also. But of words which stand up long enough to be counted—long enough to make an image on the moving film of human consciousness—those only constitute literature which have not been afterwards forgotten. By this definition it would of course be impossible to inventory the world's literature until the day of judgment, and those who are writing on the eve of that cataclysm may have undue advantage, but we cannot stop to settle that now. For practical purposes it may be decided that mankind's memory for a millennium may admit writing to literature, and some jokes we hear seem to endure that standard of measurement without loss of hair or teeth. Surely no one will contend that less than a century of memory should admit. Therefore, although we may be guilty of literature no one living thing can prove it on us, and the charge thereof is one not fit to be made.

Manifestation of Humor as a Surprise!

This charge is surely a scream. The idea that any one could live unconsciously under the anvil of a joke-smith and be unaware of his clank and clangor! We beg our opponents not to introduce witnesses which could only disprove their charge, and, while doing so, leave us under something worse than suspicion. And yet, we must protest against the unearned reputation which their suggestions may engender. Have we not for nearly forty years filled these columns with weighty facts and great moral reflections, avoiding facetiousness and frivolity; sober even to stupidity—but that is another thing we do not desire to hear proven. Manifestly we are alarmed lest our imputers prove not wisely, but too much.

Our situation is very delicate and a misstep might wreck our purpose. We took much pleasure in writing what seems to us a perfectly simple little book of practical suggestions to amateur flower growers in California—a book to have frequently on hand, to chuck into the seed box or leave upon the garden seat. Our reviewers call it "literature," which means that it ought to go on the mantel beside the clock, and be dusted occasionally; or "humor," which consigns it to the pocket of the after-dinner speaker and to go with him under the table—which is the common fate of joke-books. While in such stress of anxiety we get much relief from the law, for, in the midst of our dilemma, Hon. Harmon Bell of Oakland, not only eminent in his profession, but owner of many flower-decked California acres, kindly wrote us this comforting message: "To one who has spent so much time mousing through the musty tomes of the law, your book is certainly a delight, and I cannot tell you of the pleasure I take in its pages. You need have no fear that anyone will get the wrong squint upon the happy humor of many of your paragraphs. On the contrary, I think that it is perfectly in keeping with the subject, as no man could truly write about flowers without bubbling over with pleasant thoughts."

And we remark, incidentally in closing, that the price is $1.50 per copy, and Uncle Sam is so firmly convinced of the national blessing in the work that he will deliver it to you without additional cost.

Queries and Replies.

Querists must give name and address.

Buckwheat as Cover Crop.

To the Editor: Kindly tell me where I could buy buckwheat seed. Also if it will do well in the months of July and August as a cover crop in an apricot orchard. My intention is to sow it as soon as I take the crop off. I have water to irrigate every 30 days.—H. M. E., Banning.

Buckwheat is successfully used in the way you propose, chiefly in the coast district of Southern California. The plant does not particularly enjoy dry air and it will require an actual test to determine what growth you will get in your upland, inland situation, even with irrigation. Los Angeles seedsmen can supply you any amount of seed.

Wealth in Water Cress?

To the Editor: I have bought a little place with a number of springs on it. I recently read an article in a paper saying that water cress could be profitably raised wherever one had a spring. Could you give me any information about raising and marketing, also how it is used?—A Reader, Paradise.

Water cress (Nasturtium officinale) grows wild in California, having been introduced at some remote period undoubtedly, for one is apt to find it now on the margins of slow-flowing streams and rivulets and along the outflow from springs or uplands. If your springs are running free, the chances are that you may already have it growing. It looks a little like spinach and it has a mild peppery flavor. If you do not find it you can get seeds from the seedsmen, start the plants in the moist margin of the rivulet and after the plants are up let the water rise higher so as to flood the roots. By making new, zig-zag ditches, just a little off the level or contour line, so the water will run very slowly, you can grow any amount of cress that you can find use or sale for and pluck it continuously from the old roots, but we would not advise you to have anything to do with it in a commercial way until you know more about it than you do now. It is used for garnishing, for salads, for boiling as greens, etc. There is little chance of selling cress except in cities where they fuss up their grub more than ruralists usually do, and there is small chance of profit far away from city consumers because the cress will wilt before you can deliver it. Your inquiry creates the suspicion that you have been reading some near-farming journal.

For an Alleged Leaf-Eeater.

To the Editor: I have a few trees that are troubled by a small bug, about as long as a house fly, and rather slender, black in color and pointed head. They can and do fly when disturbed. Is there any remedy to prevent them eating the leaves from the trees?—Subscriber, Cupertino.

Why did you not catch one and put him in your letter so that we could see what you are writing about? Your description is very lucid, but, as nearly as we can calculate, it equally fits 4,781 different insects. If you are sure that the one which you see is really eating the leaves you can stop it by spraying the trees with arsenate of lead, just as you would for the codling moth larvae or other caterpillars. But the chances are that if the insect looks at all like a house-fly, he is not eating leaves at all. The only exception we think of at this moment might possibly be a small carpenter bee. When asking questions about insects always let us see what is biting you.

Grafting Experiences.

To the Editor: In the last issue an Oakley reader asks about cherry grafted on Damson plum. I tried it the same way and found out that the union is poor. His graft will grow and bear as mine did, but the first heavy wind will bring down his cherry graft. This spring I grafted some walnut scions on a White Oak. I put in six scions and four have made a good growth—as much as five inches already. Will the union in this case be good or not?—S. J. M., Campbell.

We have heard of walnut grafts on oak which failed after they had grown several feet and held on for several years, but, according to our present knowledge, they always fail sooner or later. Who has experience or observation on this point?

Whitewashing Young Prune Trees.

To the Editor: We have recently planted about 1,000 year-old prune trees and the man who has been on the ranch for the last ten years claims that whitewash is harmful to such young trees. He claims it injures the tender bark. I want to put whitewash on to prevent sunburn and any other benefits as an insecticide. What are the facts?—Reader, Healdsburg.

There seems to be quite a wide notion that whitewash is more likely to injure bark of young prune trees than any others. We doubt the accuracy of the claim, but, if true, it is probably caused by using too sharp a whitewash. We have avoided the chance of this by using 16 lbs. of tallow to the barrel of lime—cutting the tallow into small pieces and stirring it into the lime while boiling with the heat of slaking—increasing the heat by using hot water on the lime whenever convenient. This seems to saponify the tallow so that no free oil appears when diluting with water afterwards. We have used such whitewash on young prune trees very largely vithout injury.

Time To Sulphur Red Spider.

[Written for Pacific Rural Press.]

Prune, plum, and almond trees are now in the beginnings of what later in the season will be a serious infestation of brown mites and red spiders, if the weather conditions prove favorable to the pests.

The red spiders will shortly be hatched and climbing the trees, where they will multiply a new generation about every two weeks. Some form of sulphur is the best known method of controlling them and early sulphuring will prevent great multiplication. The damage done by the insects is due to their sucking the sap and killing the leaves, thus preventing the elaboration of plant food into such material as can be used in making fruit, nuts, and fruit buds for next year. If the infestation is severe, the leaves may all fall off by the end of July; and while this may not kill the tree, will so weaken it that future crops will surely suffer more or less.

Atomic sulphur sprayed thoroughly will do the work; so will lime-sulphur weakened to the proportion recommended for summer spraying by the commercial makers of that combination. Dry sulphur, however, is most used and less expensive for material and for its application.

P. D. Bane of Glenn county mixes dry sulphur and slaked lime in equal parts and uses a blower made by Baker & Hamilton to gear to the wagon and blow sulphur high into the air. A large gear wheel is fastened to the inside of the wagon wheel, and this runs a small cog-wheel and axle which operates a fan. The fan blows air through the sulphur box, which holds about a bushel, and through a pipe straight up between the tree rows as the wagon is drawn through the orchard. The sulphur rises higher than the trees and settles very slowly on a still day, working itself in among the leaves from the top and the sides, too. Mr. Bane prefers a still, hot day for the application. A little wind is not objectionable because it helps in working the sulphur through the trees, but much wind makes poor distribution and poor efficiency. The application is made the first thing in the morning so that the heat of the sun may have full effect in oxidizing the sulphur and making the fumes which kill the brown mites and red spiders. It takes no time at all to go over the ten acres, and this saving of time is important, because the application may have to be repeated several times through the season. Repeated applications are much preferable to weakening of the trees and loss of crops by the insects, after spending all the time and money necessary in cultivation, irrigation, pruning, etc. The first application should be made as soon as inspection of the tree trunks, leaves, and especially the twigs, with a hand lens shows any of the insects on the trees. This is likely to be early in May. One insect killed now will prevent thousands later in the season.

"Our only almond troubles are root knot and red spider," says Mr. Bane. "To avoid root knot I avoid deep cultivation, because that tends to injure the roots and form places in which the root knot infection may get a start."

His orchard is never plowed, but is cultivated with a spring tooth harrow.

TOPS alone, of each the covercrops mentioned in the table, analyzed more nitrogen than either of the three kinds of manure, after all the water was dried out. These analyses were made February 2, 1915, by Prof. MacBeth of the Riverside Experiment Station. On March 4, 1915, W. M. Mertz cut and weighed the tops of cover crops grown at the Station. Purple vetch yielded at the rate of 21⅔ tons per acre, 5% of which was weeds. Melilotus yielded 17 tons, 15% of which was weeds.. At this rate purple vetch yielded 185¼ pounds nitrogen per acre from own tops alone. This is equivalent to more than 16 tons fresh manure per acre, besides the nitrogen in the roots, the humus added to the soil, and the physical improvement due to penetration by the vetch roots.

Material	% Water	% Nitrogen after drying*	% Nitrogen before drying
Alfalfa Hay	10.75	2.40	2.14
Purple Vetch (tops)	84.00	2.82	.45
Melilotus indica (tops)	85.00	2.89	.43
Fresh Manure	60.50	1.45	.57
Pit Manure	65.75	1.73	.59
Corral Manure	64.00	1.39	.50

*Average of two analyses after complete drying.

Persistence Prevents Pear Worms.

[Written for Pacific Rural Press.]

"I do not believe that the skin of the pear is what prevents codling moth from entering it," says Eugene Anderson of Contra Costa county. "I've left pears standing in the lug box two or three days that I knew were not wormy when I put them there, but when they were sent to the cannery there was complaint about them. The eggs had hatched and the worms had eaten into the pears in that short time."

Persistence and Thoroughness.—"You found me spraying this afternoon (Apr. 20), and you would most any other time during eight months of the year, for there is scarcely any let-up. I've already sprayed once for the thrips with nicotine and distillate emulsion in the middle of March. I'm using a combination spray now for thrips and codling moth. I will spray about three times more for the codling moth. The next time will be about the seventh of May when the pears will be about three-quarters of an inch in diameter. There will be no need of nicotine or distillate in that, but I use arsenate of lead stronger than some people, just to be on the safe side. Ten pounds per 200 gallons of water is the strength that I will use then, and again about three weeks later, and then again ten days to two weeks before harvest. And you will always see me in these clothes when spraying is on."

Thus he emphasized the necessity of persistence and of wearing clothes such that he could get right into it and be sure of a thorough job.

"Won't the poison show up on your pears when you pick them, with such late spraying?"

"Yes, it does to some extent, but the worms do not. You can wash off the poison, but you can't wash off the worms, and there is not enough to hurt, anyway."

"Ever use a Paris green spray?"

"I wouldn't if you'd give it to me. I've never found anything it would kill except the leaves; and arsenate of lead is entirely sufficient for our purpose, without being so dangerous. We get 98 to 99 per cent clean in this section. We used to have to inspect every pear in every bucketful picked before we could send the fruit to the canners or pack it for shipment East; and we would usually miss some wormy fruit; or else codling moth eggs would hatch after they were shipped, and we would get a complaint from the other end. Now, we don't even look for the worms. The exceedingly small proportion that may be injured are not enough to cause complaint.

Oranges Do Well Among Walnuts.

[Written for Pacific Rural Press.]

Walnuts interplanted with oranges and oranges interplanted with walnuts are quite a common sight in Orange county. This is done for two reasons, one of which is to provide a means of having bearing trees in the future for whichever crop seems likely to be best when one or the other must be taken out. Another is to use all of the ground at a profit, as M. Nisson of Santa Ana does. He has about twenty acres of which eleven acres of Santa Barbara soft-shell seedlings were planted about twenty-two years ago on the quincunx system; that is, in fifty-foot squares with a tree in the center of each square.

About ten years ago it seemed well to grub out the center trees, but that left a big gap in each square, and these gaps were filled with Valencia orange trees, at the same time that about nine acres were set solid to Valencia oranges on the same place.

The walnuts were set on opposite sides of the place. The section next to the creek is on sandy loam soil of unknown depth, while the section on the opposite side of the place is of considerably heavier soil. The solid planting of oranges lies between the two sections of mixed walnuts and oranges.

About a ton of walnuts per acre have been harvested on an average during the past five years. The oranges are heavily loaded and the trees which are mixed with the walnuts on the heavier land have made almost as good growth as those in the open, but the difference is noticeable. However, they have not been so well cared for as those in the open, and the oranges mixed with walnuts on the sandy loam are fully equal to the ones in the solid lot. The oranges among walnuts would have done better if both had been planted at the same time. Mr. Nisson thinks they require different food materials from the walnuts, so neither hurts the other.

Fertilized Only Recently.—It is only recently that manure or cover crops have been used in the walnut orchard and never much commercial fertilizer. On one section of the walnut orchard, bur clover was sown, but the cold weather of winter prevented it from growing until along in late February. It then started up well, but was far behind the sections where melilotus indica was planted last October. This seemed to stand still until about the first of January, but then it started fast and grew "fearfully" through February so that it was considerably more than knee deep early in March. The melilotus is just beginning to be tried out in the citrus orchards of the South and has shown exceptional value as a leguminous winter grower.

A section of the walnut orchard was planted to vetch, but that has been so badly hurt by aphis and mildew that the cover crop does not amount to anything, and this seems to be the general result of vetch cover crops all over the South. It needs hot weather for these reasons and for best growth, so it will have to be irrigated and the plowing deferred till May. Next year a small part of the orchards may be volunteer-seeded to bur clover, but will be sown almost entirely to melilotus.

The section sown to this cover legume last year had been cultivated to fine condition, irrigated, and broadcasted with melilotus in October; then furrowed into trenches about 3 feet apart for any necessary irrigation to make spring plowing easy.

The bur clover seed had been broadcasted on disked and ridged ground, but an immediate rain prevented further cultivation, though it covered the seed sufficiently.

On account of late gathering of walnuts, the cultivation for melilotus sowing will be delayed till late December. It remains to be seen whether the growth will be as good with late planting as with early.

IRRIGATES PEACHES LATE.

[Written for Pacific Rural Press.]

After the middle of May, Elberta peaches stop growing, according to Ed. Ames of Placer county, until about June 20 to July 1, perhaps two weeks before they are ripe. The ground is then furrowed and irrigated so that the peaches have their chance to swell to the maximum size when they start to grow again just before ripening.

All of his Elbertas are shipped East and they were so large, and at the same time of good quality, that they packed 72 per box and were highly prized by the shippers.

About two weeks before they are ripe and before they begin their final increase in size, Mr. Ames thins the fruit also, because at that time he knows that what are left are quite likely to mature.

Almonds, Cows, and Alfalfa Combined.

[Written for Pacific Rural Press.]

Growing alfalfa to feed dairy cows, to sell the cream and use the manure on almonds, making profit all along the line, is the practice of B. A. Goodwin on his farm in San Joaquin county.

Both the cows and the almonds are contributing to the cash income, and each is helping to support the other. It is planned never to allow any of the 160 acres of alfalfa hay to go off from the place.

Mr. Goodwin, with a 480-acre ranch, feeds cows and puts no fertilizer except the manure onto his fine 18- to 21-year almond grove of 30 acres and 6-year orchard of the same size which has just come into bearing. The old orchard yields 12 to 18 tons of half a dozen different varieties of almonds every year. It was 16 tons last year, and the trees are well set for the coming crop, because there was nothing to hurt them during the bloom this year.

"I'd rather talk almonds than anything else, because my son is in charge of the dairy," said Mr. Goodwin as he walked out to show us the thrifty old orchard.

"When do you spray?" noticing moss on the trees.

"I never did. Intended to this year, but rain prevented when it should have been done."

Likes Peerless Best.—"What varieties have you here?"

"In the old orchard, I expected to alternate two rows of IXL with one of Nonpareil, but they were badly mixed in the nursery. Those varieties are good together for pollination; Peerless blooms next. Texas Prolific and Drake Seedling are late bloomers. Nonpareil beats IXL all to pieces in regularity of bearing here, and makes me more money. Peerless is most regular of all and I get a cent a pound more for them than for Languedocs, of which I have a few seedlings. The Nonpareils are set very heavy and the rest will make a good crop this year. The orchard is not bearing any more now than it did eight years ago."

Parts of the economical harvesting outfit shown us are described in another article.

Back in the barn we saw the power almond huller which is used not only for Mr. Goodwin's crop but for those of his neighbors. In the yard are some sulphur houses, relics of the days before he became an enthusiastic member of the California Almond Growers' Exchange and took the nuts to the Exchange warehouse for more economical bleaching.

The Dairy.—While almonds are Mr. Goodwin's hobby, he long ago realized the importance of diversified farming, and in line with this, a dairy has been conducted for many years.

Registered Holstein sires have been used on the herd for 15 years, and alfalfa has been the chief feed, but it was not till the South San Joaquin Irrigation district, with its resultant increase of water, was completed, that the dairy assumed its present importance.

Since that time a new barn has been erected, milking machines which were used years ago were taken out to give place to those of more modern design; and more alfalfa planted, with the aim of having two strings of 30 cows each on the place before the present year has passed.

As to the desirability of milking machines, Mr. Goodwin, Jr., who runs the dairy, believes they are entirely practicable for any dairyman who is willing to take care of them in the proper manner. He states, however, that where they are not taken care of the results are, as with other machinery, not satisfactory. Through the aid of the machines the labor problem is not nearly so perplexing as it would otherwise be, for when the need arises Mr. Goodwin is able to do without the aid of hired men.

The testing of the cows for butter fat is another matter which has been done in a more or less dilatory manner in the past, but with the incorporation of other progressive methods about the dairy we were assured that hereafter the herd is to be tested regularly and all cows which show themselves to be unprofitable at the pail will have to give way to those with better records.

With the advent of renewed activity in the dairy, the necessity of rotation of crops and a more complete ration of feed has been noticeable; and with the idea in mind of remedying these conditions, a silo will be erected this year.

With these improvements, which are already completed or are under way, entirely worked out, more manure being furnished for the fertilization of the almonds and a consequent improvement in crops all along the line, Mr. Goodwin will have solved a workable plan for diversification in this State.

THE most important eight commercial strawberry districts in 1914 were as follows, ranked according to carload shipments: Central California, 1,905 cars; Tennessee, 1,571.5 cars; Maryland, 1,569.3 cars; Delaware, 1,374 cars; southern Louisiana, 1,243 cars; North and South Carolina, 967.3 cars; Virginia, 779 cars; Ozark region, 748 cars.

It must be remembered that great quantities of berries are grown in the North in small patches and are shipped to market by trolley, by express, and by less than carload freight, while a great many go directly to the consuming centers in the producers' wagons.

Fine Lemon Resets.

[Written for Pacific Rural Press.]

"Talking about resetting a lemon orchard with the same kind of fruit," says J. T. Culbertson of the Limoneira Ranch at Santa Paula, "you can do it to first-class advantage, but you must take good care of the trees. We have resets here and there throughout our 260 acres of lemon trees twenty years and over. They are growing fine, stocky trunks, with good dark green leaves, and are bearing about four times as much as might be expected on trees their age. This is because we have treated them right."

The old trees are 15x26, and as one goes through the orchard he sees here and there, in springtime, mounds of earth where old trees have been taken out and new ones are to be reset. The old roots have been dug out to a depth of three and a half feet and a diameter of four feet. The hole has then been filled with top dirt mixed with rotted manure; and heaped above the surrounding surface; because in setting trees on a freshly dug place of that kind they are always bound to settle some.

The management of the ranch does not intend that the young trees shall get in the same predicament as the old trees, around which basins have been dug and must be continually kept open in order to expose the big orange roots around the crown below the bud. This is because the fungus which produces gum disease lives in the ground in the form of spores and it affects lemon bark much worse than orange. Thus, if the dirt can be kept entirely away from the lower trunks they are considerably safer from gum disease. The replants will probably never settle below the surrounding ground level, having been planted so high.

The depth and size of the hole are inspired by the fact that some of the trees reset five years ago were found in a very poor condition, making little growth and less fruit. Investigation showed that the roots of the old trees had been cut off perhaps a foot below the surface and the new trees set on top of them, which accounted for their unthriftiness.

Continual individual care is given to these reset trees both in hoeing, cultivation, and irrigation from a tank wagon throughout the summer.

Farm Club Orchard Spraying.

The novel idea of spraying farm orchards by the club plan is carried out by the Ohio Agricultural Experiment Station. Russel D. Jay, under whose supervision the work was carried on, emphasizes the following points in regard to the work:

A good machine may be bought for $225 to $275.

The outfit should be of a size adapted to the work. An engine of one and one-half horse power attached to a good pump was found sufficient to keep a uniform pressure above 150 pounds for two lines of hose.

Parts liable to wear and break should be easy of access so that they may be quickly replaced.

The pump should by all means have an air-chamber in order that the pressure will be uniform and that the air cushion will relieve the shock when the "cut-off" valve is closed.

The line of hose for the man on the ground should be long enough so that he may spray one tree while the man on the tower is spraying another. At least 30 feet should be provided, while 50 feet might be better. By this means very little spray material will be thrown in the eyes of the operator.

The nozzles should be of large capacity and without projections which would catch on limbs. The shut-off valve at base of extension pipe should be very simple and easily used.

The gasoline engine should be easily started. This was found to be an important matter, as it is necessary to start and stop the machine many times a day. A clutch for throwing the pump out of gear when starting would have been an advantage.

The belt driven pump has some advantages over the gear driven. In one instance with the gear driven pump a break occurred, while if it had been belt driven the belt would have slipped and saved the machinery from harm.

In this work it was also found that in selecting orchards to be handled in a club, the total number of trees that may be cared for by one outfit depends upon a number of things, such as, size of orchards, distance between orchards, ease of obtaining water, location of trees, previous care, etc., and last but not least the ability of the men doing the work.

With the water supply near at hand little time is lost in filling the spray tank. Trees scattered all around the farm home require more time and labor than when all are planted in a block together. Trees properly pruned require a less amount of spray material and labor in applying it than those which have never had this attention given them.

The manager of the orchard club can accomplish more by having the same man and team help him through the whole season. The men should be willing to work long hours on the days when the work needs to be done. Each learns to supplement the other, spraying certain parts of the tree so that their work does not over-lap. It is possible to eliminate the third man as driver by having the lines fastened near the man on the tower. When the team becomes accustomed to the work it may be guided mostly by speaking.

EARLY STOCK FOR LATE NUT

[Written for Pacific Rural Press.]

The influence of the stock on grafts is shown this spring on a California Black walnut tree on E. F. Straight's place in Contra Costa county, which was grafted five years ago at the age of five years. Franquettes were put on two of the limbs and Bijou was put on the other. The former are late in putting out their leaves, while the Bijou is an early nut.

The past winter, Frank Straight grafted a Franquette onto the Bijou graft, and about the middle of April the Franquette on the Bijou was ten to fourteen days ahead of the Franquette on the California Black limbs of the same tree. His objection to Franquette in that section is that it ripens so late that rains get the nuts.

Farmers' Profits Not Adequate.

[Mr. Lee's article was written promptly after that of Mr. Ashley, to which he alludes, appeared. It has been accidentally delayed in publication.—Editors.]

To the Editor: I read with interest the article in the issue of Feb. 13, from the pen of Hon. Geo. W. Ashley, Assemblyman, and am glad to know that the farmer has at least one friend in the California Legislature. Permit me, if you will, to continue Mr. Ashley's article by adding a little of my own experience and observations. I am not without experience in this matter, as I was raised on a farm under an accomplished instructor. I farmed for eight years a thousand acres of the best land in northern Idaho. For four years was chairman of the executive committee of the State Agronomy Association, and State Hay and Grain Inspector under Gov. James Brady, now U. S. Senator from that state. I had instructions from the Governor to meet the farmers in their organizations and study their needs and report on same.

I learned from careful investigation that the farmer's great need today is organization and a closer union of their work, which would enable them to compete with commercial organizations in securing needful legislation and industrial protection. The farmers' inability to organize and hold together is due to hard work, tired evenings, long distances from each other, and no comfortable place in which to hold their public meetings.

The American farmer is not the ignoramus our public press pictures him to be, but on the other hand he is high above the average European farmer in intelligence. Throughout the northwest are to be found colonies of Germans, Scandinavians, Poles, and almost every other class of Europe's best blood. Wherever you find these foreigners you will find the American farmer of the old practical type outclassing his foreign neighbor on every hand. True, on the small truck farms that can be handled with one horse, our foreigner leads, but I have yet to see the first one who can hitch up and handle a four-horse team until he has gone through many painful experiences.

Because of his inability to defend himself through an organized head, every other industry is inclined to charge the high cost of living, shortage of crops, panicky conditions, etc., to the farmer. But give the farmer the same protection given the European farmer, and watch him go forward.

The department records tell us that in the United States there are 12,000,000 farmers. Each year their annual crops add $8,000,000,000 to the nation's wealth. They have a borrowed capital amounting to $6,000,000,000. They pay $500,000,000 interest each year, or an average rate of over eight per cent. The lenders get much of this money from the state and nation at two per cent. The European farmer can borrow money under national protection at 4 per cent, and on as long a time as they want, up to thirty-five years. These just laws have much to do with keeping down money panics, they keep the money out of hiding, and keep it in the hands of the people. Just now the public press is advising the farmers to make their purchases in advance of their needs as a means of restoring commercial activity, but he finds the banks tight and himself powerless to make such advances. If he, like the European farmer, could borrow money up to eighty per cent of his property valuation at low rate and long time, the money stringency would soon relax. The farmer is not the man who hoards his money, but spends it freely with all classes. A dollar in activity is worth more to the country at large than a hundred dollars locked up in the bank vaults.

Living is high and going higher, but it is all due to conditions over which the farmers have no control. Our entire system of living is extravagant. Down to the time of Jackson, it was not an uncommon sight to see the President and members of Congress walking down to the central market with their market basket on their arm, and there purchasing such eatables as their appetites craved. Today everything must be ordered by phone, and a horse delivery is not quick enough; it must come by auto delivery. The city consumer has it in his power to reduce his high cost of living by returning to the old system of buying his potatoes by the sack, his apples by the box, his dried fruit by the hundred pounds direct from the farmer. The farmer has the goods and will sell at less than wholesale prices, but he can not deliver in five cent lots. But there are many conditions over which no class of individuals have any control. The enormous expense of our national, state, and local government which is increasing out of all proportion to our increasing wealth and the ever increasing army of public officers, the enormous burden of overcapitalization of railroads and other public utility corporations and the practice of large institutions dropping the price of their commodities below the price of production for the sole purpose of freezing out new institutions, and many other such conditions, add to the high cost of living.

The Almighty has blessed the country with all the natural resources with which to make life a comfort, but today we see these blessings in the hands of corporate power that have made prices a burden on the people. The settler gets an average of $1.50 per thousand for his timber. The lumber trust charges the consumer $15 to $60 per thousand. The waterfalls put here to furnish the people light, heat, and power for pumping and other purposes are controlled by corporate power and prices charged to make such dividends as they wish to produce. The great oil reservoirs in the bowels of the earth are among the greatest blessings given man, and just now the oil is reasonable in price, but why? Because the big companies are playing the freeze-out game; just as soon as the smaller independent concerns die the death of starvation, oil will go to a point sufficient for the big trust to recover all loss.

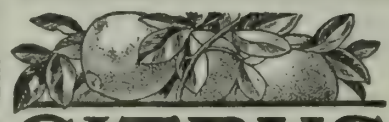
The industrial cry today coming from our agricultural educational institutions is, "Teach the farmer how to grow two blades of grass where one has formerly grown." This state of affairs would help the commission man and the transportation companies, but not the masses. We are exporters of almost every agricultural product. We need more consumers for what we produce.

What the country needs today is cheap money in the hands of the farmer, that will enable him to make improvements. Buying lumber will start the hum of activity in the forests. Buying hardware and machinery will give employment to labor, work for the smelters and foundries and business for the transportation companies.

The common practice of the public press in producing large figures, showing that the farmers are wealthy, happy, and contented, is just about as inconsistent as mine, if I were to say that the inmates of the state penitentiary are producing five million grain bags worth $400,000, and because of the enormous value they produce they are rich, happy, independent, and contented. A Congressional committee appointed some four years ago to investigate the farmers' profits found that for every three dollars spent for farm products the farmer gets but one, and that is consumed in expenses.

Farmers should get the gray matter under their hats to working. Organize either under the Grange or the Farmers' Educational and Cooperative Union and be able to meet other industrial organizations in a business way.

Corning. A. W. Lee.



CITRUS TREES

Grown by TEAGUE —in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries Inc. Established 1900 Farm Tract San Dimas, Cal. U.S.A.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

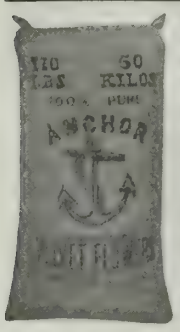
Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.



SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.

634 California St., San Francisco, Cal.

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Concrete Cement

The first cost is the last cost.

KIRKMAN NURSERIES

WHOLESALE GROWERS OF

True to Name Nursery Stock

Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Relieving Table Grape Market Pressure.

(Continued from page 545.)

placed in immediate consumption. Experience, however, will straighten out all these things and these mistakes will be corrected in future seasons."

Between one-third and one-half of the Emperor crop last season was put up in drums for the holiday trade. F. H. Wilson of Dinuba, who sold thirteen carloads before they were packed and had no rejections, realizing a price which returned to the growers $1.15 per 31-pound drum, wishes to emphasize strongly the necessity of packing only the best fruit. Last year the jobbers lost thousands of dollars on account of spoilage. They won't get stuck that way many times and will cut the price or not buy at all unless they can depend on good quality.

Mr. Wilson also emphasizes the need of standard net weight packages. He, himself, used 31 pounds of grapes per drum last season; others packed in drums 30 pounds net; others, 35 and 36.

"It would be all right for them to give away their grapes if they want to, but this varying pack is a cutthroat competition which would ruin the industry because somebody will always give a little more and a little more until all the profit is gone."

Though his pack was 31 pounds net, he believes, after consultation with other large shippers, that 30 pounds would be more desirable. At any rate, one standard weight should be adopted for all Emperors shipped in drums.

It is necessary to pick Emperors for drum packs before rain comes. Rain softens the skins and raises an excess of sap which bursts the skins. Considerable trouble was experienced last year with Emperors bursting.

Crated Emperors may be shipped until November 15. Drum-packed Emperors should be picked during the first half of October as a rule and then shipped and cold stored at the market end. Perhaps it would be better to cold store them here if we had the accommodations, to avoid the rush of the fruit trains and the damage due to hot weather en route. This feature may be developed later. Emperors for drum pack should be heavily sulphured two or three days before packing "to get away with mildew fungus spores" and make them keep longer. The sawdust will take off all that is necessary of the sulphur; and there is no objection if it doesn't; it is on the outside of the skins.

Mr. Wilson thinks on account of his experience in the past few years that five or six irrigations per season makes grapes which keep better in shipment, do not soften, and stay plump, crisp, and full of juice; this in addition to the fact that the water table is near the surface. But for drum shipment, they should not be watered very shortly before picking.

In picking the grapes for drum shipment, only the very best should be selected very carefully before damp weather comes, and laid stem up in one layer in lug boxes. Loose bunches only should be selected so that the sawdust will work into them between the berries and fill the whole mass solid. Clusters are not wanted for sawdust packing. After putting into the lug boxes, the grapes are hauled to the packing house and the small berries and water berries are clipped off by experienced help without injury to any of the other berries. The fruit is left over night in a cool, well-ventilated place to wilt and lose the heat of the day.

A layer of redwood, kiln-dried sawdust sifted to the required fineness is put in the bottom of the drum. A 2-inch layer of grapes on this is covered with another layer of sawdust which is worked into the bunches by the packers. Some extra sawdust is piled on, and the outside of the drum is pounded all around to sift the sawdust all through the bunches and around them and each berry is in a solid cast. The grapes in each drum are weighed to be sure of getting the correct net weight. A carload packs nicely with 520 drums as the minimum, which is seldom exceeded.

Lodi has been shipping an average of one hundred crates of strawberries per day to all Coast points. Growers have been receiving $1.50 per crate, which means $200 an acre. The acreage this season is reported to be about fifty per cent more than last year.

EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.

THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtholdt Co.
Geo. D. Kellog & Son	Pioneer Fruit Co.	Vacaville Fruit Co.

California Fruit Distributors

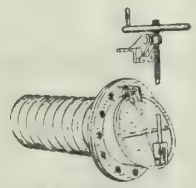
CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

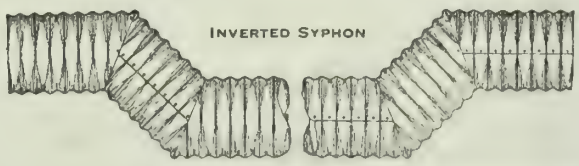
PIPE
For Every Purpose NEW Threads & Couplings. Hot Asphaltum
Second Hand and NEW
Screw Casings Fittings and Valves Guaranteed for Pressure
PACIFIC PIPE CO. Main and Howard Sts., San Francisco

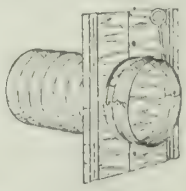
Get Rid of Destructive Gophers by Using Efficient Trap

E. J. Chubbuck Co., San Francisco, Gentlemen—I have found the Ideal Gopher Trap to be the best thing in the trap line. I have used many different kinds of traps but have put them all aside for the Ideal. I caught 104 gophers in the month of February with five of the Ideal Gopher Traps.—E. D. G., Lathrop, Cal., March 16, 1915.

The only trap guaranteed to catch small or the large pocket gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. 100 per cent efficient—catches gopher every time. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid upon receipt of 60c; two traps $1.10; six for $3.00. Money back if not satisfied. E. J. CHUBBUCK CO., Dept. B. San Francisco, California.


HINGE GATE


INVERTED SYPHON


4-C GATE

SLIDE GATE

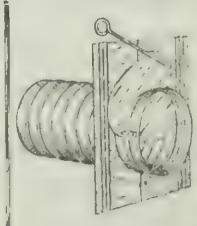
Irrigation Gates

For use in connection with RUST RESISTING ARMCO IRON CORRUGATED PIPE.

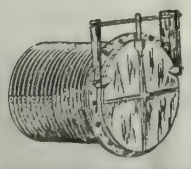
All stamped with the approval of experienced irrigators.

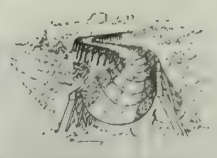
The cuts show only part of our line.
Write us your requirements. Consult our Engineers.

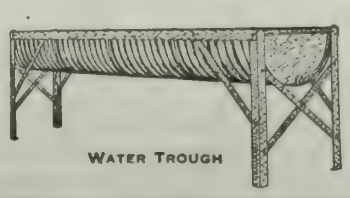
California Corrugated Culvert Co.
417 Leroy St., Los Angeles. 406 Parker St., Berkeley

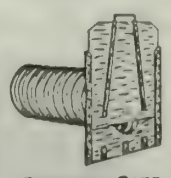

4-C GATE

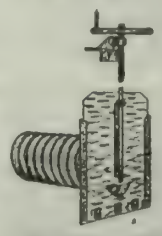
SIMPLEX STOCK TROUGH


AUTOMATIC TIDE GATE


LENNON FLUME


WATER TROUGH


BERKELEY GATE


WITH SCREW LIFT

Mechanical Power on the Farm.

THRESHING BY ELECTRICITY.

[Written for Pacific Rural Press.]

Back in Iowa we remember the happy days of unusually big dinners when the steam threshing machine made its usual rounds in the fall.

Down in the southeastern corner of the State is an association of farmers who have owned a steam threshing machine as a community proposition for many years. The engine a year ago last fall showed such signs of wearing out that the association saw the necessity of buying a new one or else a gas engine at a cost of $1800 to $2500. Investigation, however, showed that they might use electricity furnished by the Muscatine Lighting Co. on a 33,000 volt line which runs through their community by investing $800 in an electric motor outfit.

They bought the electric outfit, and found in threshing last fall that the constant speed made possible by the use of the motor avoided considerable loss of grain in the straw, which had been experienced with the steam engine on account of the necessity of speeding up when the straw was exceptionally heavy or wet.

They also found by the season's threshing that with electricity at five cents per kilowatt hour, they made a saving of 25 per cent over their old steam engine.

Motor on Wagon.—The outfit consists of a General Electric transformer mounted on the truck of an old road grader, in front of a Wagner motor, with a peaked, ladder-like pole to hold a cross arm high above the outfit, from which temporary wires are run to the primary line carrying 2200 volts, it being strung on the same poles as the 33,000 volt line. Two five per cent taps are used to connect the transformer primary to the wires and step the current down to 110 or 220 volts, as desired. The outfit is chained to a stake driven in the ground and tightened with small chain blocks to prevent its being pulled toward the separator, when running it, by a long, broad belt.

The 30 h. p., 60 cycle, 220 volt single phase motor has three different sized pulleys to furnish different speeds for threshing the different grains in different conditions of the straw and grain.

An Avery thresher is used having a 32-inch cylinder and a 54-inch separator. A cylinder speed of 1100 revolutions per minute has been found most satisfactory in threshing barley. On five jobs threshing barley, 1150, 1800, 1045, 1375, and 1045 bushels were threshed with 140, 278, 160, 170, and 160 kilowatt hours respectively. On an average, it took .1217 k. w. h. per bushel of barley costing about 6-10 of one cent. In two tests with oats, 1125 and 720 bushels were threshed with 73 and 67 kilowatt hours respectively, averaging .078 k.w.h. at a cost of $.0035 per bushel for electricity.

On the side of the truck is a two-pole, double-throw switch, so that a large capacity fuse may be used to start the motor and then the switch thrown on to the smaller capacity "running fuse" to protect the motor from overloads.

For the safety of the operators, two lightning arresters are placed at the top of the pole carried with the outfit. Also to ground any current that might be in the outfit itself, a one-inch galvanized iron rod five feet long is driven into the ground and connected with the transformer, the motor, and the truck body.

General Supt. F. S. Dewey of the Lighting Co. says this system is to be used by other farmers along the high tension line during the coming threshing season.

TRACTOR IN DEEP COVER CROP.

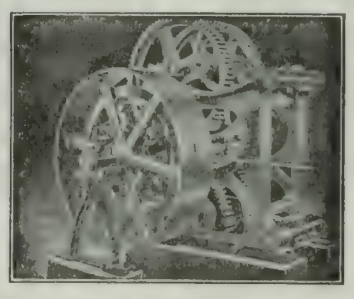
[Written for Pacific Rural Press.]

"One of my neighbors last spring had a cover crop on his twenty acres that got three feet deep; but he neglected the plowing so long that it got too dry to plow. He asked me to do the job with my Samson tractor and I told him, 'Sure I would in return for his help on my fruit later in the season.' I turned it all under with a disk plow in first-class condition, but I could not have done it without the tractor."

This is one of the reasons why R. M. Beattie of Tulare county is a tractor enthusiast.

POMONA
DEEP WELL
PUMPS

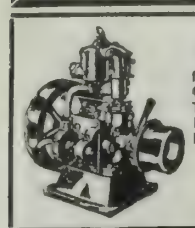
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required. Does not get oil into the water. Consumes less power per unit volume of water pumped.



Write for Catalogue 104, with valuable information on irrigation.

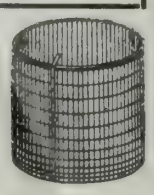
Pomona Mfg. Co.
Pomona, Cal.

Our "made right" irrigation valves are good, and not costly.



CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Light Weight.
Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

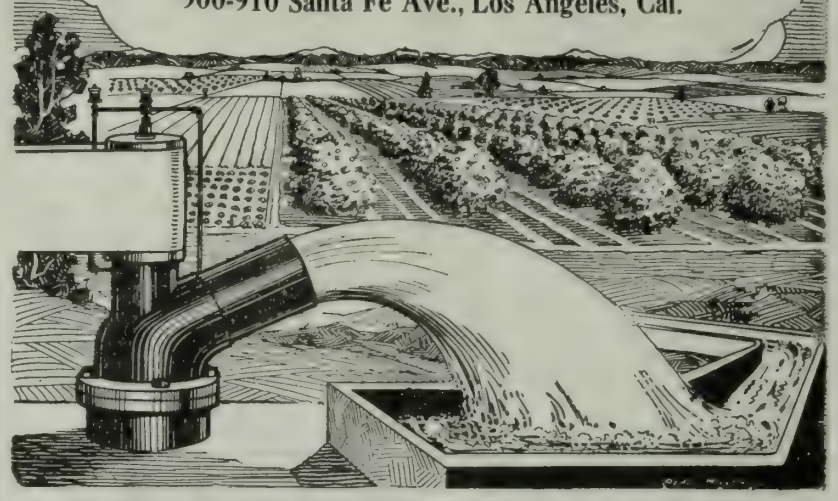
REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.
BROWN & DYSON,
640 So. Center St., STOCKTON, CAL.



The Pump that
is always spoken well of—the pump that meets the most rigid requirements and produces water at the lowest cost—that's the pump you should have.

Install The
Layne & Bowler Pump
Write Today for Pump Catalog No. 25

The Layne & Bowler Corporation
900-910 Santa Fe Ave., Los Angeles, Cal.



The KROGH Vertical Pumps

New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

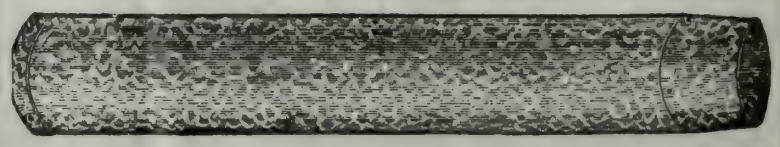
KROGH MNFG. CO.
SAN FRANCISCO, LOS ANGELES.

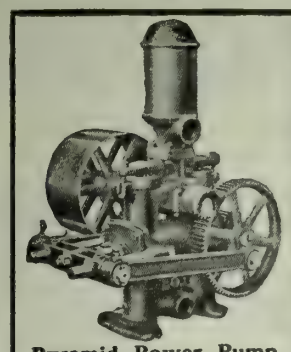
The Only Scientifically Constructed Surface IRRIGATION PIPE
Is The "AMERICAN"

LOCK SEAMS WITHOUT RIVETS. NO ROUND SEAMS TO LEAK.

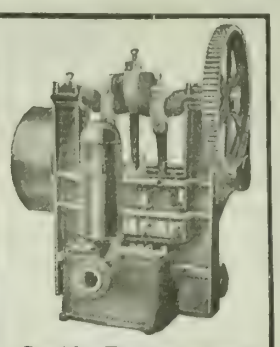
Will outlast any other pipe made—easily handled—best for irrigating alfalfa. (We make and recommend Riveted Pipe for underground use only.) Write for illustrated Catalogue, Irrigation Folder, and ask us "How to Test Pipe."

American Steel Pipe & Tank Co.
354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CAL.
Branch: 1228 H St., Fresno.




Pyramid Power Pump

WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEM
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
GASOLINE ENGINES
Send for our large No. 36 Catalogue Mailed Free.
Inquire of your Local Dealer for full particulars.


Goulds Triplex Pump

AUTO SAVED THE DAY IN TREE-PLANTING EMERGENCY.

[Written for Pacific Rural Press.]

A bunch of six men with a little money to invest searched the State for a location where they could grow a money-making crop. They found 120 acres favorably located close to a sure market where they could contract cling peaches ten years ahead at a good price.

F. C. Howe of Oakland was one of the partners. On his 20 acres he determined to plant this past winter 1000 Tuscan clings. In order to get the best trees available, he ordered them from the nursery late last fall and paid cash for them.

When planting time came and the gang was already on the place with water tanks, the shipment arrived at the farm and Mr. Howe went up to look at the trees. Little as he knew about farming, much to his disgust he found measly, crooked, little trees with practically no small roots, only the big bare ones having been saved in the careless handling in the nursery.

"What could I do?" said Mr. Howe. "There was the gang waiting to go to work, and there were the little trees I thought I could not stand it to have on my place. But planting time was passing, too, so I told them to go to work. A neighbor had 500 Phillip clings left over from his planting and these he offered to me. I drove my auto down and found them first-class trees, so I brought them back in the machine and left the gang setting them out. I did not want Phillip clings, but what could I do?

The nursery from which I had bought my scrubby little trees was, as I thought, a half day's journey away. Nevertheless, I put a few bundles of the little Tuscans into the machine and drove to the nursery to see if they really had the fine trees that they had advertised. I was surprised to get there in two or three hours and delighted to see their long rows of trees heeled in—just such trees as I had wanted in the first place, and expected to get because I had ordered and paid for them early. On walking over the yard with the man in charge, I found two or three little scrubby trees, the remains of those which had been sent to me. I asked him if he had shipped some such trees, and he said he had to a man named Howe at Oakland. I suppose he thought that being a city man, Mr. Howe would not inspect the trees before they were planted; and if he did, he wouldn't know the difference. I then told him that I was Mr. Howe and that I had paid for trees such as he had still standing in the yard.

"I then took the matter up with the head of the firm and he immediately ordered 500 of the good Tuscans shipped to me at once. I had no use for more, on account of the Phillips being planted while I was on this trip.

"On returning to the ranch, I had all of the scrubby Tuscans which had been planted pulled out and replanted with the new ones. Had it not been for the automobile, I would never have gotten the good trees in time to plant for this season."

MANLESS LAND
for the
LANDLESS MAN
2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway
BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

---delighted!

You will be delighted with

The Commercial Engine

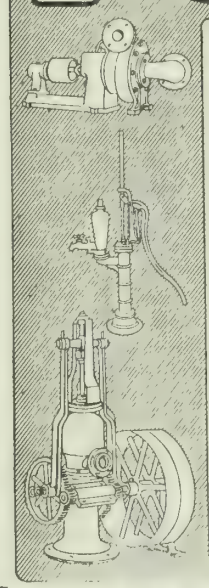
Does the work smoothly—simple in operation—lowest fuel cost.

Think of all the most desirable qualities in an engine—then get a Commercial — it has them all.

Write for Catalog 18-R.

Commercial Engine Co.
2416 PORTER ST., Los Angeles.

PUMPS



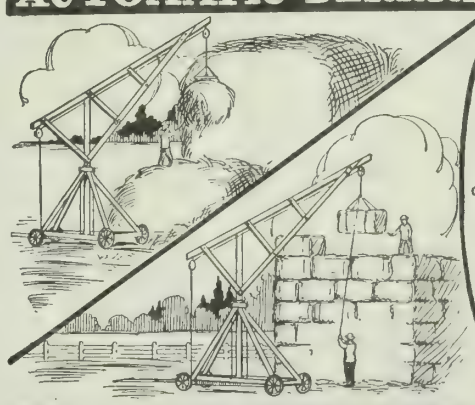
Whatever kind of a pump you need—we have it. Handling all styles of pumps we are not obliged to urge any one type on you, but are in a position to help you select the pump best adapted to your particular requirements. We manufacture and sell

Horizontal Centrifugal Pumps
Vertical Centrifugal Pumps
Deep Well Pumps, Power Heads
Windmill Pumps, House Pumps

Illustrated are three of the many different styles. Don't decide on a pump till you put your needs up to our Pump Specialists. Their advice and suggestions will cost you nothing.
WRITE TO US and state your requirements—by guiding you to a right selection we can probably save you both money and trouble.
FREE CATALOG 28-B describes Bean Horizontal and Vertical Centrifugal Pumps.
FREE CATALOG 28-D describes all other pumps; also Bean Distillate Engines.
A postal will bring either or both by return mail.

BEAN SPRAY PUMP CO.
211 West Julian St. San Jose, Cal.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK



The Best Way to Handle Loose or Baled Hay

This derrick is used by all modern farmers and will handle loose or baled hay in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved about as easily as a farm wagon. Has great lifting capacity, and is invaluable for hoisting machinery, timbers or heavy loads of any kind.

Write Us Now

and we will tell you all about this derrick—what it can do and how it can save you money.

SCHMEISER MANUFACTURING CO.
DAVIS — CALIFORNIA — BOX 87

If you want the most for your money ask for, insist on, and demand that your DEALER furnish you with

TEST SPECIAL RUBBER BELT

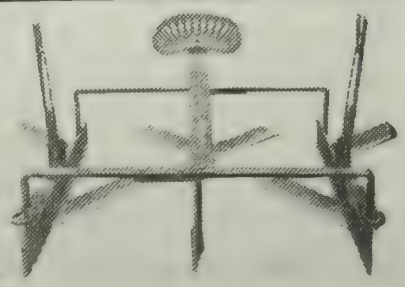
Take no other "Just as Good,"—it cannot be furnished. Every sale carries with it an unqualified guarantee.
Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives power tables, Belt Speeds, List Prices, Etc.

New York Belting and Packing Co. of New York
Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

GOLDEN GATE WEED CUTTER AND MULCHER

Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.

See them at the Exposition, Block 1, Agricultural Palace.
Write for Circular.
C. G. SIGURD,
CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



Agricultural Review.

CITRUS AND SEMI-TROPICAL.

The American Fruit Distributors shipped the first car of Valencias from Lindsay on April 28 for Chicago.

The Gillette Lemon company is preparing to set out 250 acres to Lisbon, Eureka, and Villa Francas lemons.

Valencia picking in the Porterville section is expected to commence about May 10, the crop promising to be heavy and of good quality.

Growers of Tulare county recently formed an organization to be known as the Mutual Orange Distributors of Tulare county, a branch of the Mutual Orange Distributors of Southern California, whose headquarters are at Redlands. It will be a growers' selling agency of oranges and lemons. The parent organization will send a sales force to Tulare county who will market the fruit under the direction of a board of directors composed of Tulare county growers. The officers of the new organization are: Chas. L. Bullard of Porterville, president; W. Todd Dofflemyer of Exeter, vice-president; and W. B. Kiggins of Lindsay, secretary; and a board of directors composed of growers from the various citrus-growing sections of Tulare county.

NUTS.

Santa Barbara county reports too heavy setting of walnuts to get good quality unless they are thinned.

Almond growers of Corning recently formed the Maywood Almond Growers' Association for the purpose of joining the California Almond Growers' Exchange. R. McEwen of Corning is President; Samuel Fox, Corning, secretary; and Fred Beresford was elected as delegate to the California Almond Growers' Exchange. This gives the Exchange the control of the major portion of the crop in Tehama county.

GRAPES AND SMALL FRUITS.

Visalia is shipping about three special refrigerator carloads daily of strawberries to Seattle and Portland.

The Bonner Packing company, which has been affiliated with the California Associated Raisin Company ever since its organization, has withdrawn and will operate as an outside packer.

GRAIN AND FIELD CROPS.

A large acreage to Tepary beans will be planted by farmers of Madera county this season.

The Alfalfa Growers' Association of Kings county will shortly install a plant at Burrell.

Eighty acres have been planted to tomatoes in the Manteca section by E. Powers, Louis Vistica, and Durwood Graves.

The planting of rice and Kaffir and Egyptian corn is being commenced as a new venture in Dixon, Solano county, this spring.

The bill providing for the growing of certified seed potatoes, drafted by Assemblyman Geo. W. Ashley, has passed both houses at Sacramento.

The Dixon Alfalfa Meal Company, which recently took over the Orland Alfalfa Meal mill, will start operations in about ten days, with a capacity of about thirty tons of hay daily.

About 2,000,000 pounds of beans have been shipped from Live Oak during the past two months to San Francisco brokers, which is the largest amount of beans for a season that has ever been shipped away. The demand still continues and it is expected that the 1914 crop, which is estimated will bring the growers about $350,000, will be disposed of within a few weeks.

MISCELLANEOUS.

May 30 is Oroville Day at the Butte County Spring Exposition.

Yolo county almond and apricot growers are losing heavily from "shot hole fungus."

Reno and Goldfield have had a storm, with freezing temperatures. The snow provides welcome moisture.

Oroville will hold the annual Olive and Orange Exposition this year, beginning December 6, two days after the close of the Panama-Pacific Exposition.

A Grain Conference for the benefit of those interested in the raising or marketing of cereal crops will be held by the College of Agriculture of the University of California at Davis on May 15.

The largest early shipment of cherries in years consisted of a carload sent by the California Fruit Distributors from Sacramento April 27 by fast express to New York City. It contained 2247 boxes.

Students of pomology of the University of California will visit the Sutter county orchards sometime in June. Particular attention will be made to the growing of peaches, prunes, and pears and the methods of canning them, and other matters of interest in this connection.

The honey industry is rapidly gaining prominence in Butte county. Recently the Diamond Match company of Chico received a shipment from San Francisco of 4,269 cans for honey, each with a capacity of 60 pounds. It is expected that this supply will be all consumed when the honey shipping season commences.

At the first annual meeting of the Tulare County Growers' Association the following officers were elected: Porterville, G. A. Williamson, C. H. Doyle, J. C. Freeman; Lindsay, H. C. Morrison, W. B. Kiggins, W. A. Bohland; Exeter, S. T. Pennebaker, E. Probasco, C. N. Jordan; Farmersville, G. W. Morrell, H. H. Newman.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

The Improved German Soil Inoculator. Nobbe-Hiltner Process

NITRAGIN

TRADE MARK REG'D DEC. 6, 1898 NO. 32212

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN"—the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

See your seed dealer or write for FREE BOOKLET.

Armour Fertilizer Works, Dept. 137, 803 Central Bldg., Los Angeles 1019 Front Street, Sacramento

Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

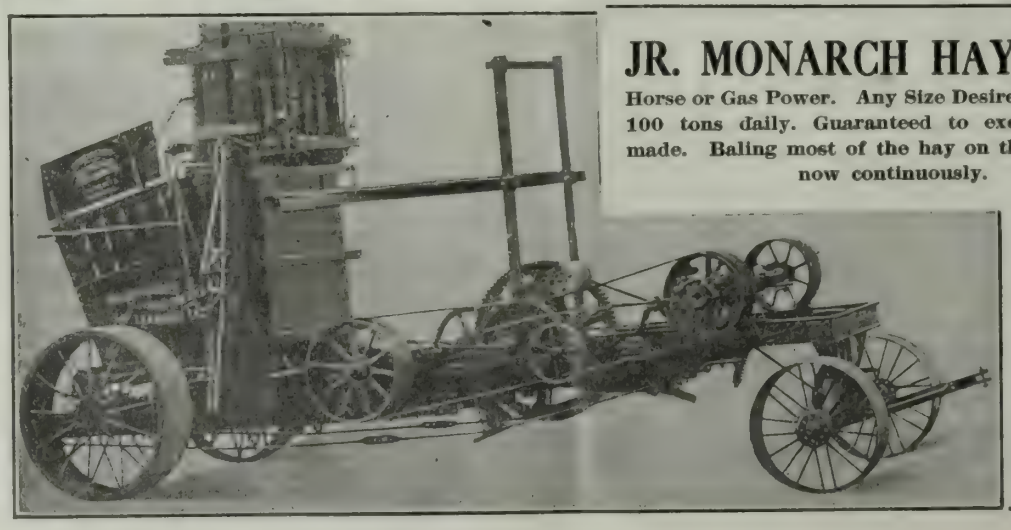
Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,

552-556 SOUTH FIRST STREET, SAN JOSE, CAL.



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

IMPERIAL VALLEY BOOMS.

To the Editor: The condition of Imperial Valley crops is very good for the year. The barley harvest is in full swing now, estimates of the crop ranging from 700,000 to 1,000,000 sacks for the valley. First deliveries are expected at the warehouse about May 3, opening prices quoted at $1.05 per sack. This will make the value of the crop exceed three quarters of a million dollars.

Cotton ginning for the season 1914-15 is now ending. The output is 45,000 bales, possibly half of this being raised and ginned around Calexico. This closes the season until about September, when the new crop will begin to move. Men well posted on cotton affairs do not look for any considerable decrease in production, feeling that conditions will adjust themselves satisfactorily.

Imperial Valley also produced about 200,000 hogs, 600,000 beef cattle, and 100,000 sheep. The prices for mutton are exceptionally good.

Of butter, about 7,000,000 pounds was shipped out of the Valley this year, the production of Imperial Valley now exceeding that of any county in the State.

About 450 acres of grapefruit is now planted in the Valley, including possibly 30,000 trees planted the past year. The fruit is of a very excellent quality, having much more sugar than the grapefruit of Florida and lacking the bitter taste usually so noticeable. From $5.00 to $6.00 per box was paid by the Southern Pacific dining service for Imperial Valley grapefruit last year.

Apricots will average 100 per cent of a crop this season.

Weather conditions have delayed cantaloupes and the winds of the last few days have hurt them. There are 6500 acres.

The honey bee is on the job. A prominent bee man estimates the honey production at fully 1,006,000 pounds from the immense acreage in alfalfa. **A. A. Wendell.**

SAN JOAQUIN STORM DAMAGE.

To the Editor: Almonds, and particularly the Nonpareil and IXL varieties, were the greatest sufferers from the recent high winds that visited this section. Drakes, Texas and Ne Plus seem to have withstood the gale much better than the other varieties mentioned.

In tree fruits, cherries were injured by bruising and of course there was some loss from falling. The crop, however, is a heavy one and will not be materially reduced.

All of the Tokay vineyards and many of the wine varieties suffered a loss of approximately 20 per cent by the wind. This is especially true of the younger vines where the growth is earlier and the foliage consequently heavier. The tender grape-bearing canes were whipped from the vines, and in many instances the broken canes hung suspended from the body of the vine.

Peaches were thinned by the norther, but not seriously damaged.

Most of the Bartletts in this district are grown on the river bottoms and were protected from the winds.

The damage to the almonds—that is the varieties herein mentioned—I would conservatively estimate at 60 pounds to the tree.

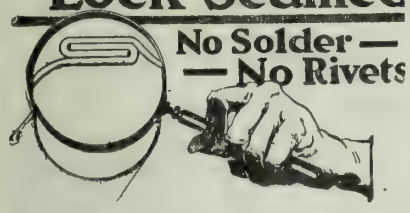
No buyers for either canned or cured fruit have yet appeared in this district.

Los Angeles cherry buyers are offering from 5 to 7 cents, but are endeavoring to secure consigned shipments. **H. F. Ellis, Lodi Agt.**
Cal. Fruit Exchange.

To the Editor: The recent winds were not severe in Tulare county; no damage was done. All fruit crops look fine. Olives are now in full bloom and there is every indication of a full crop.
Vernon Campbell, Mgr.
Tulare County Growers' Ass'n.

To the Editor: There has been no damage from either wind or frost in this vicinity, particularly because we have had pretty steady cloudy weather and some rain, and only wind enough to keep off the frost when it was clear and cool at intervals last week. There is danger of mildew if growers do not sulphur thoroughly. **W. R. Nutting.**
San Joaquin Valley Date Ass'n.

Lock Seamed



Nothing But the Sheet of Metal Itself is Used to Make

Ames - Irvin Irrigation Pipe

Neither solder or rivets are used in its construction. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Such a seam will not break or leak. It is simple, solid and strong, with no holes in the steel.

Ames-Irvin Lock-Seamed irrigation pipe was the first prize-winner against all competitors at the Sacramento State Fair in 1913 and the Fresno and San Jose County Fairs in 1912.

SEND FOR BOOKLET.

It gives full information about irrigation pipe and its construction. Get it—today.

Ames-Irvin Company
8th and Irwin Sts., San Francisco, Cal.

Bee Keepers Supplies
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

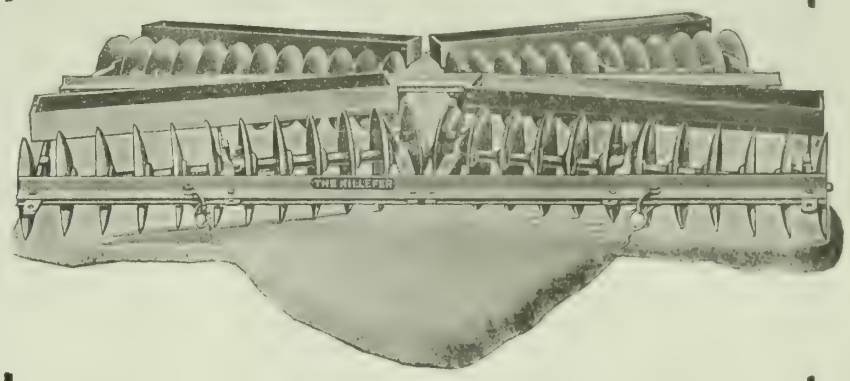
Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.
Orders Now Being Booked.
Write for prices and particulars.
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS — PATENTS — PATENT AGENCY
911 Crocker Bldg.
Circular containing 100 mechanics movements, methods, fr.

"Winter Rhubarb, Culture and Marketing"
Price 25c
Burbank's Crimson Winter and Wagner's Giant plants for sale. Best stock obtainable. Write for prices and terms.
REGINALD BLAND, SAN LUIS REY, CAL.

TRACTOR DISCS

Killefer Quality
Killefer Efficiency

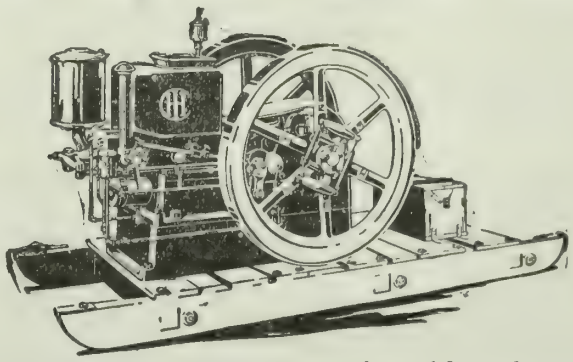


Our Tractor Discs are built in eight to sixteen foot cuts. The discs are made extra heavy for this work. Axle Bolts are large and all castings are heavier than usual to stand the strain required in Engine Tools. The draw bars are angle steel, reinforced with a high carbon steel bar.

The discs are equipped with weight boxes to give the necessary weight to insure the proper penetration on different characters of soil. The pitch of the disc is controlled by connecting arms bolted solidly in place, but which can be changed to any pitch within a radius of fifteen degrees.

The Killefer Manufacturing Company
2209-21 SANTA FE AVE., LOS ANGELES, CAL.

International Harvester Oil Engines—Mogul—Titan



THE man who buys an engine without knowing engines, takes a chance. He cannot know whether he has the best engine for his work or not, unless he knows engines and can make comparisons.

Our suggestion would be to take the I H C oil engine—recognized as standard in its construction; study its every feature closely, and use it as a basis of comparison when looking at other engines. That is the only way to choose correctly the best engine for the particular work you want your engine to do.

I H C oil engines—Mogul and Titan—are made in all sizes from 1 to 50-horse power and in every approved style—stationary, skidded, portable, tank and hopper-cooled, vertical and horizontal. They operate on gasoline, kerosene and even lower grade oils, and on gas or alcohol.

When you buy an I H C engine, the engine is not all you get for your money. Our service is worth knowing about. Get acquainted with an I H C engine at the place of business of the nearest dealer where they are sold. Ask him for one of our interesting catalogues or write to us for one.

International Harvester Company of America
(INCORPORATED)
Crawford, Neb. Denver, Col. Helena, Mont. Portland, Ore.
San Francisco, Cal. Spokane, Wash. Salt Lake City, Utah

Principles of Food Preservation.

[Written for Pacific Rural Press by W. V. Cruess, University of California Experiment Station.]

Much of the surplus and ordinarily wasted fruits and vegetables of the farm can be canned or preserved in other ways for home use.

Causes of Spoilage.—Spoiling of fruits and vegetables is not due to the action of heat or light or air, strictly speaking, and is not a simple inanimate chemical or physical change. The fermentation, or rotting, or souring, as the case may be, is due to the growth of living "germs," usually of microscopic character. They belong to the plant kingdom and may be divided into three groups, namely, molds, yeasts, and bacteria. Familiar examples of each group are the blue mold of spoiled fruits, the compressed and Magic yeasts used in bread making, and the "vinegar mother" of cider vinegar, which is simply a mass of vinegar bacteria. These "germs" or micro-organisms cause the souring of canned fruits, the production of ptomaines in canned meat, the swelling and souring of canned peas, asparagus, etc., and the molding of jelly and dried fruit. The character of the material determines largely which type will develop; e. g., fruits will become moldy or ferment with yeast; vegetables, because they have less acid than fruits, will usually be spoiled by bacteria, but neither vegetables nor fruits are favorable for the growth of bacteria producing the poisonous ptomaines found in spoiled meats.

Methods of Preservation. — The micro-organisms start from microscopic cells carried in the air by contact with the surfaces of fruits, vegetables, etc., and do not develop from non-living inert matter any more than wheat will be produced spontaneously in a soil devoid of living seed. Then we must realize in food preservation that we are dealing with living organisms and that preservation is simply killing all of these "germs" in some way and making it impossible for any more to get into material subsequently, or consists in making conditions so unfavorable for "germ" growth that even if molds, yeasts, or bacteria get into the product, they can not grow and cause spoilage.

The first method is used in canning fruits and vegetables. The processes involved are, placing the material to be preserved into cans or jars, hermetically sealing them, i. e., making them air-tight, and then killing all micro-organisms present by heat. If the cans or jars are air-tight and if all of the "germs" have been killed by the heating, then, of course, spoiling can not take place until the container is opened, thus admitting air containing new and living organisms. That the air itself is not the cause of spoilage of fruits, etc., can be proven by placing fruit in a milk or other wide-mouth bottle, plugging the bottle with cotton, sterilizing the material (i. e., killing all "germ" life present) by leaving it in a steam box at 212 degrees F. After this treatment, the fruit will not spoil if the cotton plug is not tampered with, although the air passes in and out of the bottle through the cotton quite freely. The reason is that the cotton filters out all of the germs contained in the air, and the air that gets into the bottle is sterile or free from living organisms. Molds and yeasts occurring on the fruit and vegetables in the cans are all killed by temperatures below 212 degrees F., the boiling point of water. In fact, most of them are killed at temperatures of 150 to 165 degrees F. On the other hand, the micro-organisms occurring on vegetables are often very hard to kill, many of them withstanding the temperature of boiling water for an hour or more. These hardy "germs" are all bacteria and owe their astonishing resistance to the spore forms of the organisms. Spores are nothing more nor less to the bacteria than seeds are to higher plants and are resistant for the same reasons; namely, because of their very thick, tough skins, their great reserve powers, and their low water content. These resistant bacteria can not grow in the presence of much fruit acid; therefore, we do not find them growing in canned fruit, even if the spores are not killed by the heating of the fruit. In sterilizing fruit it is only necessary to kill the molds and yeasts; the bacteria of the spore-forming types can not grow in the fruit, and if they survive the temperature of sterilization can do no harm. With vegetables, the case is entirely different because these, with the exception of tomatoes and rhubarb, have practically no acid and make an excellent food for growth of the bacteria. Since these bacterial spores can not be killed at 212 degrees F., in boiling water, we must use temperatures above the boiling point of water. These can be attained by heating the cans or jars in a closed boiler with steam under pressure because the water under steam pressure boils only at temperatures above 212 degrees F., varying with the pressure. In vegetable canning, steam pressures of three to fifteen pounds, corresponding to temperatures of 221.3 degrees F. to 249.1 degrees F. are generally used. The higher the pressure, the shorter the time necessary to kill the spores. The addition of ordinary salt or calcium chloride to water raises its boiling point; and temperatures to 130 degrees F. or over can be attained in this way without the use of steam pressure.

Fractional Sterilization. — The spores sprout after heating to 212 degrees. F. Therefore, if a can of vegetables containing spores be heated on two succeeding days, the ordinary bacteria are killed the first day; in the meanwhile, the spores sprout and are killed on the second day while still tender. A third heating on the third day usually kills all of the spores. This method is known as fractional sterilization at 212 degrees F.

Preserving without Heat.—Fruit and vegetables may be preserved without heat or hermetical sealing by use of preservatives. Sugar is the most common preservative. If a fruit juice, jelly, marmalade, or jam, etc., is made to contain 65 per cent sugar by concentration, evaporation, removal of excess water by freezing or by increase of sugar by addition of sugar to give the above percentage, micro-organisms can not grow. This is why dried fruit does not spoil and why jellies must be made so sweet.

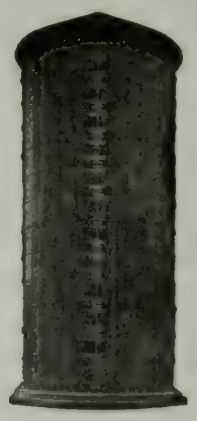
Ordinary cooking salt is used very extensively in meat curing, for certain types of vegetable pickles, and in preserving pickled olives in barrels. It is one of the permissible non-injurious preservatives.

Vinegar is used as a non-inurious preservative for fruit and vegetable pickles and makes a very effective means against growth of molds, yeasts, and bacteria.

SILOS

BUILT FOR YOUR PARTICULAR NEEDS.
EXACTLY AS YOU WANT THEM.
ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manuafactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



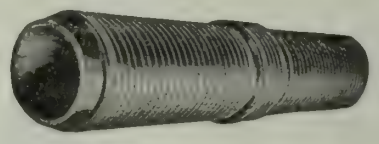
TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.



All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

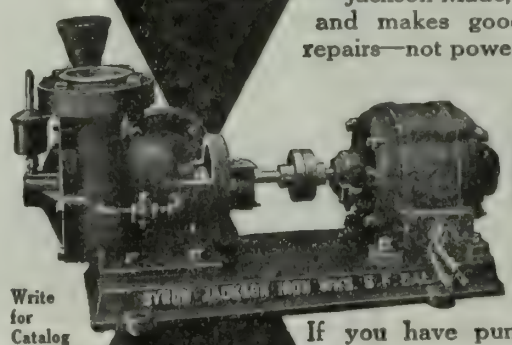
ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

"Jackson MADE"

The secret of the wonderful popularity of "Jackson Made" pumps is their all the year round efficiency. No matter what the job may be to which you put a "Jackson Made," it takes right hold and makes good. No expensive repairs—not power eaters.



"Jackson Made" Pumps save practically their first cost in a very few months.

Write for Catalog No. 47J

If you have pumping worries—tell them to our expert engineers—they'll help you free of charge.

A Better Make Not Made

Byron-Jackson Iron Works, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
WORKS: WEST BERKELEY, CAL.

No Matter What Crop You Grow

YOUR SOIL MUST BE RIGHT ALWAYS

California's great soil need is Phosphorus. The most economical and logical source of Phosphorus is

Finely Ground High Grade
Shield Brand

Phosphate Rock

The Phosphate of Lime.
Efficiency and Economy are Inseparable Everywhere.

UNITED STATES PHOSPHATE CO.

405 Marsh-Strong Building, Los Angeles.

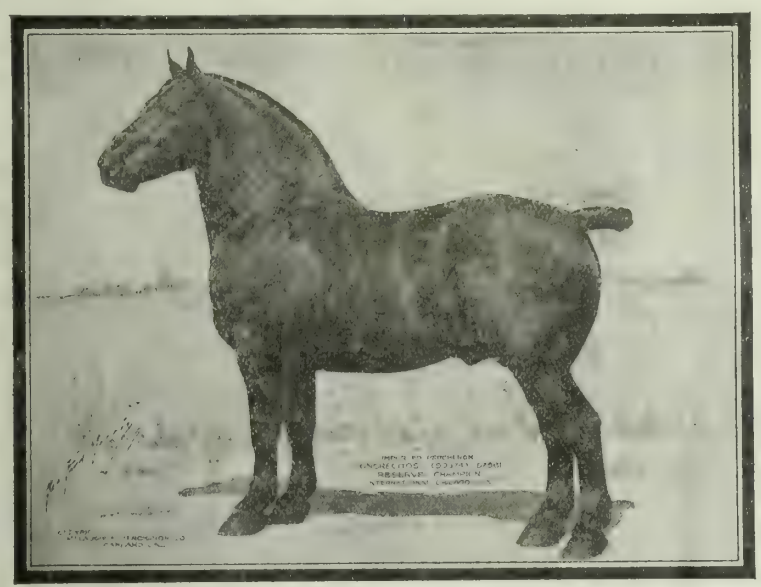
Large Diversified Purebred Venture.

[Written for Pacific Rural Press.]

Starting to raise purebred livestock on a scale that is mystifying to the ordinary laymen on account of the magnitude of their operations, the Whitehall Estates company, on their ranch near Tracy, hope to demonstrate the desirability of investing money in purebred livestock rather than in public utility corporations or other regulated business of the modern city.

Situated along the banks of the San Joaquin river, where opportunity is offered for irrigating 5,000 acres of their 18,000 acre ranch, together with thousands of acres of uplands upon which barley and other small grain crops grow in abundance, this company selected one of the finest locations in the State for the carrying out of their purpose.

Horses.—The breeding of Percheron horses was the first work taken up on this ranch, that branch having been started several years ago under the management of Luis Titus, before the present company was formed. Naturally that branch has advanced farther along purebred lines on account of the time devoted to it.



Londricitos, One of the Three Percheron Sires being Used on the Whitehall Estates Company's Ranch at Tracy. His Owners Paid the McLaughlin Percheron Company a Record Price for Him.

To begin with, 30 Percheron mares were imported from France as a foundation stud, making a total of 120 purebred and grade mares. As sires for this stud, three stallions were purchased, one the grand individual Londrocitis, who was Grand Jr. Champion at the Chicago International in 1913 and Grand Champion at the California State Fair in 1914; Jacquard, who was first prize winner at the State Fair in 1913 and second in 1914, and Kapet, a fine black stallion weighing 21,000 pounds.

Ordinarily the keeping of so many brood mares, together with the young growing fillies and stallions, would run up expenses enormously, but on this ranch every brood mare is called upon to do her share of the farm work, except when she is heavy with foal and before the colts are weaned, at which times they are held in small pastures or in the stable, the custom being to bring them into the barn to foal.

While the mares are called upon to do both heavy or light work, they are not allowed to do so much that the work affects their value as brood mares, for their main value is thought to be their ability to produce high quality colts.

Cattle.—While new to the ranch, the herds of registered Shorthorns and Herefords are to be outstanding features, if the present plans of the company are carried out. At present there are 44 registered Herefords headed by a young bull just imported from Omaha. The Shorthorn herd consists of 30 females headed by the bull Sultan Mayflower and about 25 young bulls that were from the famous herd of Shorthorns formerly owned by White and Smith. In addition to the registered cows 130 well-bred grade cows have been selected for breeding purposes. All female stock in both of these herds will be maintained for the purpose of building up larger herds, and while 1400 head of range cattle are owned by the company, purebreds in this, as with the other departments, are to be the first consideration.

Swine.—Numerically the hog department is stronger than any other branch of the farm's operations, there being at present 4,000 head. Of this number there are 24 choice registered Berkshire sows, 35 registered Berkshire boars, 1100 grade sows and about 3800 head of young stock.

The tendency will be to develop and increase the Berkshire herd, making it the largest purebred herd on the coast. Berkshire blood will also predominate in the grade stock, as registered boars will be used on the grade sows.

The method of handling the hog department is completely worked out, the bulk of this work having been done in the past eight months.

Three batteries of farrowing houses, each having 50 farrowing pens and an equal number of individual lots have been erected for use in the farrowing seasons of the year. About ten days before the sows are due to farrow they are taken up from the feed lots and put in lots near the houses. Just before farrowing they are put into the houses, remaining there till about two or three weeks old, when they are turned into another lot where the pigs are weaned at eight to ten weeks, according to condition.

The weanling pigs are then transferred into the weanling lots from which they are put into the permanent forage fields of alfalfa and barley. After rebreeding the sows, they also are turned back into the main forage lots till the next farrowing season.

At all times the hogs are given proper rations consisting of ground or soaked barley, wheat, tankage, and skim milk when it is available, together with either alfalfa or barley forage.

Care is taken to keep conditions in the hog lots sanitary. Charcoal, air-slaked lime, and salt are kept before the hogs all of the time. The hogs are regularly dipped to take care of lice and everything done to keep them in a healthy growing condition.

While it will require years to develop this ranch to the point of perfection sought, the progress so far made indicates that the owners are thoroughly convinced of the practicability of purebred livestock breeding in this State.

DE LAVAL

Cream Separators are not the mail order or farm implement kind

EVERY prospective buyer, as well as every user of an inferior cream separator, should always keep in mind that there is a very decided difference between the De Laval and either the so-called "mail-order" or agricultural implement kinds of cream separators.

DE LAVAL Cream Separators may cost a little more than other separators to begin with, but they save this slight difference as a rule the very first month, and go on saving it every month thereafter, while they last from ten to twenty years longer than other machines.

The differences are self-evident

THE differences between De Laval and other separators are not difficult to see or understand and no one needs to be an expert to appreciate them. A De Laval catalog to be had for the asking makes them clear, and a De Laval machine itself, placed side-by-side with any other, does so better still.

EVERY De Laval local agent is glad to afford such an opportunity for comparision without cost or obligation to buy. If you don't know the nearest De Laval agent simply address the nearest office of the Company as below.

DE LAVAL DAIRY SUPPLY CO.

101 Drumm St., San Francisco 1016 Western Ave., Seattle

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

With the Live Stock Men.

DAIRYING.

California now has nine cow-testing associations, the largest of which is the Ferndale Cow Testing Association. More than 4,000 cows are on its list and it is the largest association in the world.

A co-operative creamery has recently been organized in Loyalton, Sierra county. Four thousand dollars in stock has been subscribed and a weekly output of 160 cans of cream promised.

The Prosperity Alfalfa company of Porterville recently bought 140 head of cattle, including 78 head of Holsteins, which will be a part of the 150-head herd which the company will put on their ranch at Tipton.

On account of the growth of the dairy industry in Glenn county, a new butter and cheese factory has recently been established at Orland, which is declared to be one of the most complete for its size in California.

The management of the Churchill Creamery, Inc., of Fallon, Nev., recently called a meeting of the farmers in that section for the purpose of taking orders for high grade dairy stock. The manager of the creamery plans to visit Idaho and Utah in behalf of the farmers and to date orders for about 250 head of choice dairy cattle were taken.

HORSES AND SWINE.

Dr. N. E. Sanders of Chowchilla recently purchased ten Poland-China sows from W. D. Trewhitt of Hanford.

A 700-acre hog ranch is to be established by the Massachusetts company on their ranch four miles from Ripon.

James Palmer of Imperial Valley recently made a trip to the San Joaquin Valley and while there purchased a car of saddle horses.

An order for 2500 horses to be delivered within three months has been placed with Neil West, a Reno, Nev., stockman, by agents of the French and English governments.

British agents have placed orders with Kansas City, Mo., stockmen for 80,000 mules, to be delivered during the next six months. The mules are to be assembled at Grand Island, Neb., and shipped to the seaboard in Canada.

SHEEP.

In Umatilla county, Ore., several thousand dollars' worth of sheared sheep were recently destroyed by a cold rainstorm.

The Tehama county wool clip is estimated at 2,500 bags. Some difficulty is being experienced, however, in disposing of the product. Growers complain that buyers will not make offers, and that there is a difference of five cents between what the majority of the growers are asking and what the buyers want to pay.

MISCELLANEOUS.

Modoc county stock went through the winter in splendid shape, and the fruit prospects could not be better, according to Horticultural Commissioner O. C. McManus.

A commission to have charge of all stock quarantine measures in Nevada has been organized, with the following men in charge: H. F. Dangberg of Minden, T. J. Bell of Austin, and John H. Cozier of Wells.

Rucker & Coppin of Fair Oaks will exhibit a herd of imported ponies at the Butte County Spring Exposition to be held at Chico the last week in May. They will also show a prize Duroc-Jersey boar, weighing 1,100 pounds the sire of which recently sold for $3,000.

H. L. Murphy of Perkins writes us as follows: "Change my ad to read 'ten bulls' instead of 'twenty.' I have sold the following stock, and the demand is very strong: Two Shorthorn bulls to E. P. Denny of Etna Mills; two bulls to A. F. Fancher, Merced; five bulls to Jas. Barry, Cottonwood; five cows to Alexander & Kellogg, Suisun; and three Berkshire sows to C. C. Perkins of Perkins; two sows to Henry Rehm, Milford, Utah; one boar to Harbinson Bros., Sacramento; and one boar to Jos. Holdener, Cosumne, Cal. Continue my ad until further notice, as it is bringing good results. I will show a carload of stock at the Chico Fair in May."

A registered hog and cattle farm is to be established in San Joaquin county on the ranch of the Owen Registered Hog and Cattle Association. C. H. Owen, president of the company, recently purchased the 102 registered Holstein cows on display by the Carnation Cream Company at the Panama-Pacific Exposition. These animals will be transferred to the ranch at the close of the Fair. An effort is now being made to secure 200 registered sows to place on the ranch. The industry is to be conducted on a gigantic scale on the 1000 acres of land belonging to the company, an important phase being the construction of one of the finest and largest dairies in the country.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or carried weekly for one year, 2½c per word.

DAIRY CATTLE.

WANTED—12 to 60 Holstein cows, registered or well-bred grades, in exchange for high-class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. R. H. Whitten, R. D. 5, Box 646, Los Angeles.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

HOLSTEINS FOR SALE—Four cows, three heifers, one aged bull and two bull calves. These are registered and very well bred, being exceptionally heavy milkers. W. N. Totman, Emmaton, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FOR SALE—Guernsey Bull Calf of three months. Something choice in breeding and individuality, with producing ancestors back of him. $200 f. o. b. Bella Vista Ranch, Martinez. J. W. Henderson, 508 1st National Bank, Berkeley, Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Eule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

TWENTY GRADE PERCHERON MARES with colts. Weight 1500 lbs. Imported Percheron Stallion, 8 years old. Also other horse stock for sale. S. L. Skaggs, Madera, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Registered Short Horn Bulls. L. A. Macomber, Tipton, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sacramento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

CHESTER WHITE PIGS—We offer for immediate delivery choice, well-bred registered Chester White (O. I. C.) pigs of either sex. We will sell in trios (boar and two sows) not akin, or in any number and registered at from $15.00 to $25.00 each at 8 weeks of age. Get busy with the Chester Whites and you will never regret it. F. T. Knewing, 261 Mills Bldg., San Francisco.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Joe. P. Daggs, Modesto, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc., 919 Hearst Building, San Francisco.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

FOR SALE—50 Brood Sows, registered Berkshire and Grades. Four registered boars, 1 O. I. C., 2 Berkshire, 1 Duroc Jersey. 125 pigs—all ages. Newark Farms, Newark, Cal.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Robson Co., 819 J St., Sacramento.

REGISTERED BERKSHIRES—Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

REGISTERED POLAND-CHINAS — Prize-winning Nebraska stock. Large type. Young pigs for sale. C. N. White, Phelan Bldg., San Francisco.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. E. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

REGISTERED BERKSHIRES for sale. All ages. Boars ready for service. Stanislaus Ranch Co., Crows Landing, Cal.

REGISTERED DUROC-JERSEY SWINE—Bred sows, gilts, weanlings, young boars. H. D. Van Vleer, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood sows. Weanlings, $10. F. H. Wilson, Mgr., Allison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

REGISTERED BERKSHIRES—Young stock for sale. John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS—Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Pederas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

READAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock. E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS — T. H. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric car at Santa Rosa or Petaluma for Live Oak.

SHROPSHIRES—Registered yearling rams for sale, $25 and up. Enterprise Stock Farm, H. P. Eakle, Woodland, Cal.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

Stock Men Notice

3200A. open Grassy Range Level Valley. 600 A. Hay and Alfalfa, well watered. Good bldgs. Carrying 500 head. $13.50 per acre.

1280 A. Clover Knee-deep. 500 A. tillable, well watered. Bldgs fenced. $11.00 per acre.

5000 A. Sonoma, fine range, water, fence & bldgs. 100 A. farmed; $10.00 per acre. Will exchange for alfalfa ranch.

71 A. Dairy, 10 A. Clover, 30 A. Hay. All irrigated. Good house and barn. 14 cows, horse, turkeys, etc. $5000—½ cash.

Olive Land Irrigated, $35 per acre.

W. W. WILLIAMS,
110 Sutter Street, San Francisco.

CAMPBELL
IRRIGATION

We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Tubo-Irrigator, and the new Automatic Oscillator for overhead pipes.

J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, BOLIVER, MO.

Machine Milkers' School.

[Written for Pacific Rural Press.]

The most common objection that large dairymen have advanced toward the milking machine was that they were unable to get experienced operators to handle them, having to depend in the main upon the foreigner, who, being prejudiced against them, did not get the best results.

It is to overcome just this factor that a milking machine school has been started by the McCormick Dairy company on their ranch close to Stockton, in connection with their large city milk dairy.

Being an entirely new project, only 88 cows were being milked at the time of our visit, the milking barn, which is modern in every respect, having a capacity of 120 cows. Work on another barn of the same type is to be started at once, making a total barn capacity of 240 cows, which number will be secured as soon as possible.

Eight units of the Sharples milking machines were being used and more will be added as the herd is increased. All of the milking is done by students, who are given a complete course of instruction by an experienced operator, who teaches them both the scientific and practical points about the machines, as well as how to handle the cow to the best advantage, how to keep the stable in sanitary condition and all other work pertaining to a milking stable.

A six weeks' course of this kind, we were told, usually enables the student to handle a 60 cow dairy, doing the milking and taking care of the barn.

Since the advent of this school, a surprising demand for operators has developed and there are at present more positions open than there are applicants.

Students taking up this course are not only given an opportunity of learning how to run milking machines but are also afforded an excellent opportunity of learning the most approved methods of handling milk for the city market, the milk room on the ranch being entirely new and equipped with the most modern appliances of the Sharples company.

No fee is charged students, they receiving their board and lodging free while in attendance. While no set salary is guaranteed them when they secure a position, most dairymen are willing to pay $50 a month as the minimum price for their services, in view of their practical knowledge and the fact that with the machines they can handle just twice as many cows as the ordinary hand milker.

The idea looks to be a good one and should do much toward advancing the mechanical milker on dairies where the labor question is a vexing one.

WHITEHALL ESTATES HOLD ANNUAL LIVE STOCK SALES.

In line with their policy to hold annual auction sales of livestock, the Whitehall Estates, Inc. of Tracy announce on another page of this issue that their first sale will be held May 15 on their ranch near Tracy. Included in the sale are a number of high class young horses which have been bred on the ranch and sired by the horse Londrecitos, whose show records place him high in the esteem of horsemen in this State. Also included in the sale are a choice lot of young Shorthorn bulls which are ready to do service on the range, and three hundred head of brood sows and gilts. Numerically, this is one of the largest offerings made so far this year and should mark a new era of livestock breeding in this State. Wm. Higginbottom will cry the sale, and visitors will be taken to the ranch from Tracy by automobile.

California

AND PACIFIC COAST

Nature's Exposition

AND

ALL-THE-YEAR VACATION GROUND

San Francisco, Oakland, Berkeley and Bay Region.
Sacramento and San Joaquin Valleys.
Santa Clara, Pajaro and Salinas Valleys.
Santa Cruz, Mountains and Big Trees.
Del Monte and Monterey Bay Points.
Byron, Paraiso, El Pajaro and Gilroy Hot Springs.
Yosemite National Park.
Mariposa Big Tree Grove.
Lake Tahoe and Sierra Region.
Kings and Kern River Canyons.
Lake County Resorts and Springs.
Paso Robles Hot Springs, Santa Barbara and Coast Country.
Los Angeles and Its Beaches.
Pasadena, Riverside and Redlands.
Imperial and Coachella Valleys.
Shasta Springs and Resorts.
Klamath and Crater Lakes.
Willamette, Umpqua and Rogue River Valleys.
Portland, Tacoma and Seattle.

For Fares, Train Service and Descriptive Booklets
Inquire
Flood Building, Palace Hotel,
Third and Townsend Sts.
Ferry Station,
San Francisco.
or ask any Agent of

Southern Pacific

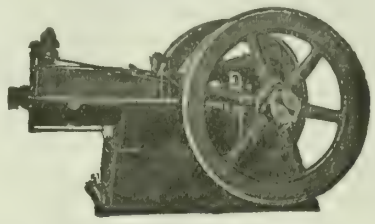
THE EXPOSITION LINE 1915
—FIRST IN SAFETY

Economy of Operation and Dependability
Are Two Very Important Features in a Pumping Plant

The Alpha Gasoline and Distillate Engine
AND
The Viking Rotary Pump

Can always be depended upon to raise the maximum quantity of water with the least expense. Will run constantly without bother and with the minimum of attention.

NO BATTERIES — NO COIL — NO TROUBLES



A BIG HOT SPARK — A QUICK START — RESULTS

The Alpha Engine
has a built-in, gear-driven, gear-timed magneto, which is guaranteed for the life of the engine.

The Viking Pump
is not a deep-well pump, but will raise water against a higher head with less expense than any pump on the market, costing three times as much.

It can be used for any purpose for which a centrifugal is adapted, besides a great many others for which a centrifugal is not suited.

It is self-priming, requires no foot valve, is positive in delivery, with low speed and high efficiency. Made in sizes from 1-inch to 8-inch, the latter delivering 1600 gallons at 230 revolutions per minute.

What are your pumping problems? Write us. Our expert engineers will advise you.

WE MANUFACTURE THE IDEAL GREEN FEED SILO.
Everything for the Dairy.

De Laval Dairy Supply Co.
SAN FRANCISCO. SEATTLE.

Hillcrest Stock Farm

THORNTON S. GLIDE, Prop., Davis, Cal.

Breeder of

Short Horn Cattle
Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

LAST CALL
—FOR THE GREAT—
Dispersion Sale
—OF THE—
P. F. Schumacher Herd
—OF—
75---Registered Holsteins---75
Cows, Heifers, Bulls
Ascot Park Los Angeles May 12, 1915
Be One of the Lucky Buyers
JAMES W. McALISTER, JR., Sales Manager.
Chino, Calif.
COL. BEN A. RHOADES, Auctioneer,
1501-3-5 South Main St., Los Angeles, Calif.

Kale and Beets for Sheep.

[Written for Pacific Rural Press.]

The feeding of mangel wurzel beets to sheep is an old practice in many countries but has not in the past been very extensively used in this State except by breeders who were fitting their stock for the shows, in which case they have been considered almost invaluable.

On Bishop Brothers' ranch in Contra Costa County these beets are one of the principal feeds grown for the flock of registered Shropshires, and according to T. Ballard, shepherd, they are the best single feed for sheep that one can raise, as they furnish a complete ration, are easily stored and do not bloat the sheep, a factor of considerable importance with many other feeds, including alfalfa.

These beets are grown in the field, being cultivated and cared for the same as all other root crops. In the fall of the year they are allowed to stay in the ground till the leaves are all dead and they are fully matured. They are then pulled and hauled to a trench where they are piled in a long pile about three feet high and six feet across the bottom, the pile gradually sloping to a point at the top. This pile is then covered with loose earth, enough soil being used to protect the beets from frost.

In the spring, feeding from these piles is started, the earth being removed from the top after which the beets are taken from the trench, the dirt scraped off and then run through a beet slicer. Fed in this manner they are nice and fresh and according to Mr. Ballard ewes fed on beets alone will produce milk for lambs as quick as though green pasture were used.

If a sufficient amount of beets are available they may be fed all summer and fall as they keep well and the sheep will do well on them if no other feed is used.

Another feed which is grown quite extensively on this ranch for sheep pasturage is kale. This is drilled in rows about three feet apart and except for a little cultivation to keep the ground stirred up, no other work is done in growing them. As soon as the plants are a few inches high the sheep are turned into the field and allowed to eat at will. In this way weeds are kept down and a heavy crop of pasture grown without irrigation upon which the sheep will not bloat. By allowing the field to go unplowed during the winter the same seeding does for the next year; the old plants again sending out shoots and leaves, thus making it a very inexpensive feed.

HOW HOGS WERE FATTENED QUICKLY.

[Written for Pacific Rural Press.]

Before the California farmer can make the most of the pork shortage he must learn to feed, is the belief of one of the largest buyers of pork in California. He bases this conclusion on the experience of eastern hog raisers who have found it more profitable to feed young pigs good from the time they are ready to wean to eight or nine months of age than it is to carry the same stock on poor feed for a year and a half in order to secure the same weights.

To illustrate what is possible in hog finishing Ralph Watson, manager of the Rancho Dos Rios ranch in Stanislaus county, has recently finished an experiment which was both profitable and interesting.

Eight hogs were taken from the grade herd, the gross weight of the entire lot being 782 pounds. The hogs were shut up in a pen where, to quote Mr. Watson, "they had nothing to do but eat."

The ration fed consisted of barley soaked in skim milk, enough grain being used to soak up all of the milk after standing over night. The following day this mixture was steamed for four hours by turning a hose into the barrel which conveyed the steam from the boiler in the milk house. After cooking in this manner a trifle over a gallon of heavy black strap molasses was mixed into the slop, together with a small amount of oil cake meal, a sack of the latter having been fed in this manner during the five weeks.

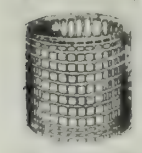
Seven sacks of barley were consumed by the eight head during the test of five weeks, at which time the hogs were sold, weighing on the average 155 pounds or a gain on the average of 57 pounds per head, or a little better than 11 pounds a week. Mr. Watson states that this is the most satisfactory gain that he has ever been able to secure and attributes the gain largely to the molasses and skim milk.

Hopland Shorthorns
Hopland Berkshires
All Stock Registered.
Bulls of Highest Quality
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
Hopland Stock Farm
HOPLAND, CAL.

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland
TAMWORTHS, DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles


Redwood Tanks
I sell to the consumer. Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. WILSON, Stockton, Cal.

The Strength of STILETTO
Protect your pocket by using to the utmost the full protective strength of that word STILETTO
It is stamped on countless things you buy—Tools, Cutlery, Garden Implements, Farm Implements, Paints, Hardware—and everything so stamped is absolutely the very best of its kind—it is the stamp of Quality.
STILETTO is to merchandise what the mint mark is to a coin—it is the sovereign symbol of value—a guarantee of worth.
In all towns, large and small, wherever good goods are sold, you will find
STILETTO
Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.
STILETTO
REG. U.S. PAT. OFF.

GRANDSONS OF TILLY ALCARTRA
At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.
We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade of pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornbyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write
J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

a well-behaved Carburetor
You needn't bother much about your carburetor when you use
Red Crown
the Gasoline of Quality
Red Crown atomizes easily. Because of its uniform quality it saves adjustments. It's an all-refinery, unmixed gas.
Standard Oil Company
(California)
San Francisco

"Campbell" Gates

Anderson Flume Gate Company
Diamond Gates
Redlands, Cal. Phone Black 96
"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

PIGS DIE SUDDENLY.

To the Editor: We have been losing a number of young pigs lately from some unknown cause. When they are born they are in a good, healthy condition; at the age of five days or over they scour very bad, and get very thin; they suck the mothers very little; they always lay sideways for about five or six days until they die. The sows' food consists of skim milk, dairy chop food, and rice middlings. We also have some shoats five months of age that get weak in the hind legs; the second joint is more or less swollen; they eat and drink always, but can't stand on the hind legs. They also vomit the food more or less. When standing they continually tramp on their feet. The food consists of skim milk and chopped feed and graze him on the pasture.—Subscriber, Modesto.

[Your pigs became infected with the organism B. Coli communis. Wash the sows' udders with a 2 per cent solution liquor cresolis compositus once a day. Disinfect your premises. Give pigs one tablet Abbott's sulphocarbolates compound once daily. It would also be a good plan to cut down the sows' rations considerably. Your older pigs have inflammatory rheumatism. Provide good, dry sleeping quarters for them, free from draughts. Paint the swollen joints with tincture of iodine once daily. Give them internally one five-grain tablet sodium salicylate twice a day in their feed.]

INFECTIOUS ABORTION.

To the Editor: I rented a small ranch here a short time ago and moved onto it with a herd of purebred Holsteins. Just a few days ago my neighbor informed me that the disease of abortion reigned here four to five years ago and the proprietor had to sell all his cows. Do you think it will infect my cattle in any way?—M. H., Byron.

[There is some danger of your herd becoming infected, as it is not definitely known how long the bacillus abortus will remain alive on premises once infected. You will be safe, however, if you give your barns, feed racks, water troughs, and corrals a thorough disinfection with a 5 per cent liquor cresolis compositus solution. A spray is the best means of applying this. Also give each animal in your herd one ounce methylene blue daily for six days, then wait six days and begin again, giving one ounce every other day for six more doses. You will then be safe if your disinfection has been thorough or your herd does not become infected from outside sources.]

SWELLING ON HORSE'S SHOULDER.

To the Editor: I have a horse that has a bad shoulder and I do not know the cause of it. Over a year ago he turned the buggy over and was rammed with one of the broken shafts between his hind legs. After he recovered from the wound, a swelling grew from the wound up half way on his belly and then went back again. Soon his shoulder began to swell and he was quite stiff in the injured leg. Then a place formed on the swelling which seemed full of pus. I took him to the veterinary hospital and they took out two bones. The swelling still runs a bluish pus, but he walks almost as though there was nothing the matter and eats well and is fat. Could you tell me what the trouble is?—A. J. B., Hanford.

[The shoulder is not broken. This is the result of a so-called cold abscess being given improper drainage, which has resulted in a fistula. There is a pus pocket lower than the external opening. To effect a cure, this pocket must be opened at its lowest point so that no pus can accumulate and drainage be complete. A qualified veterinarian should be able to do this.]

HORSE'S LEG CROOKED.

To the Editor: I have a colt five days old which was born with a crooked foreleg. It cannot place it on the ground, but holds it leaning backwards. I have been rubbing the cords four or five times a day and it places its foot on the ground a little now. Please tell me if it would be a good plan to put splints on it or would the rubbing be enough?—M. J. A., Hayward.

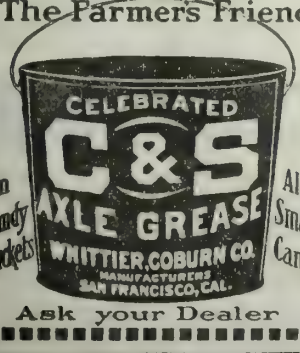
[There is an operation for this trouble which can be done by a qualified veterinarian. It should be done right away to bring the best results. If this fails or can't be done, splints often bring relief. Stretch the limb to its normal position, wrap limb with cotton and bandage with muslin; between each layer of the bandage apply plaster of paris. Put on at least five layers. This bandage should be reinforced with strips of tin bent to fit the leg. Leave bandage on not longer than seven days and reapply if necessary.]

SWOLLEN UDDER.

To the Editor: I have a cow that got a swollen udder one night about a week ago and it turned a bluish color. Now the bluish color has gone, but it has settled in a hard lump on one side of her udder. It does not seem to interfere with the flow of her milk, and the cow seems to be in good health. She had her calf about five months ago and was bred about three months ago. Would you kindly advise me something that would remove the lump in the udder?—K. A. P., Modesto.

[Your cow just escaped losing her udder with gangrenous mammitis. Apply some oleate of mercury once to the hard lump. Give her internally the following: Red iodide of mercury, 90 grains; potassium iodide, 60 grains; and simple syrup enough to make one pint. Give her one tablespoonful of this twice daily.]

"The Farmer's Friend"



In Handy Buckets

Also Small Cans

Ask your Dealer

HORSE OWNERS! USE GOMBAULT'S CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal.

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.

Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hard-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.

Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules, which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.

W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us,

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

Short Horn Bulls

7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,

H. L. MURPHY, PERKINS, CALIF.

Put your ear close to the ground

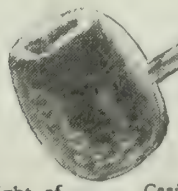
every time you see a man drawing real joy out of a jimmy pipe, for it's better than five-to-one he's smoking Prince Albert tobacco.

You, like a whole lot of men, never will know what pleasure can be dug from a pipe or a makin's cigarette until you smoke Prince Albert! For it *can't* bite your tongue, and it *can't* parch your throat. That's why men *know their business* when they demand

PRINCE ALBERT

the national joy smoke

You should know this brand is made by a patented process that removes bite and parch. You can fire-up P. A. until the cows come home and it just won't make your tongue tingle!



Copyright 1915 by R. J. Reynolds Tobacco Co.

Let the light of jimmypipejoy break into your soul. You'll wonder why you didn't wake up earlier and hear the robins sing in the old cherry tree.

Here is Casimiro Irado, 104 years old, who lives in Watsonville, Cal. Irado has been a smoker all his life, and today seeks no truer friend than his old jimmy pipe. Irado has just been elected a member of the P. A. "old-time jimmy-pipers club."

Prince Albert is sold everywhere in toppy red bags, 5c; tidy red tins, 10c; pound and half-pound tin humidors and in that fine crystal-glass pound humidor.

R. J. REYNOLDS TOBACCO CO.
Winston-Salem, N. C.

The Quadrangle of Eight Pavilions that will House the Universal Poultry Show at the Panama-Pacific International Exposition.

An Opportunity for Western Poultrymen.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Ass'n. of California.]

The opportunity of a lifetime is knocking at the door of the poultry breeders of California. Never before has fortune contrived to so thoroughly handicap a greater part of the possible exhibitors at an International Poultry Show, and at the same time so completely favor those of one particular section, as in the present instance.

The Universal Poultry Show to be held November 18 to 28, 1915—the poultry exhibition in connection with the Panama-Pacific Exposition—should be a mint of fame for those poultry breeders of the Pacific Coast who aim to establish a world-wide reputation and who expect to profit through the sale of either purebred, utility, or fancy fowls.

There are many reasons why the Universal Poultry Show of the Panama-Pacific International Exposition should be one of the best and greatest exhibitions of purebred poultry that has ever been held in this country. It will be so if the Live Stock Department can have the co-operation of at least a reasonable number of the best poultrymen. This show should go down in history as one that reflects great credit upon the intelligence and progressiveness of our poultry breeders and one that will result in inestimable benefits to the industry in general. It should mark an era of advancement and improvement in many varieties and breeds and will be the first big show of the country to be judged by the new 1915 Standard of Perfection. It should open up many fields and make an outlet and create a demand for better stock and eggs in many portions of America, especially on the Pacific Coast and throughout the West.

This show is to be held in the center of the greatest natural field for the poultry industry that is just now ready to make rapid growth and development. This applies to both fancy and utility. Here are the soil and climate most favorable for poultry breeding and the markets that have never been fully supplied by locally grown poultry and eggs. This exhibit will doubtless be visited by more poultry exhibitors and spectators than any previously held, and visitors will have a greater opportunity to get in touch with a large number of poultrymen and women than in any other place or way.

T. E. QUISENBERRY, Superintendent of the Universal Poultry Show, says that he is personally acquainted with a number of Eastern poultry breeders who established their world-wide reputations by their winnings, and laid the foundations of their extensive businesses through the acquaintance formed at the St. Louis World's Fair in 1904. Among them, he mentions Lester Tompkins, whose annual sales of purebred poultry and eggs amount to an enormous sum; E. B. Thompson, who sold last year about $73,000.00; and U. R. Fishel, who has made an independent fortune from poultry breeding, his sales in 1914 amounting close to $75,000.00.

Who are the Pacific Coast candidates for the fame and fortune to be won at the coming poultry show to be held at the Panama-Pacific Exposition?

Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

Some forms of life perpetuate their species by dividing the cells; they practically give up their own life for that purpose. And a practical poultryman knows that sometimes his hens are laying so heavily, that outside of their value for food they have none. There is so little of themselves to put in the egg that the germ dies very often before breaking the shell, and if the chick lives it can never hope to make a record as good as its mother because it did not have the stamina to start with.

I would rather breed from a hen that I knew laid 175 eggs in a year and came out in fit condition for another year, than from a hen that laid 250 and whose vitality was so low that it was a question about her living another year.

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

WANTED.

WANTED Responsible representative in each county. New combination—12 tools in 1. Sells at sight to farmers, teamsters, contractors, etc. Weight 24 pounds. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. Easy work. Big profits. One agent's profit $45.50 in one day. Another, $1,000 in December, 1914. We start you. Write today for Big Color Plate. Quick action secures exclusive sale. Harrah Mfg. Co., Box M, Bloomfield, Ind.

WANTED A MAN to superintend the operation of a cannery during the coming season. Must be capable in every detail. In answering please give age, experience and salary desired. Box 55, Pacific Rural Press.

POSITION WANTED—Foreman or Bossman of large vineyard by Japanese agricultural college graduate. Will contract vineyard work. Box 56, Rural Press.

POSITION WANTED—Young married Swiss dairyman wants position as milker. Address John Hefty, Afton, Glenn Co., Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

WANTED By married man, position on ranch. Can furnish references. C. Maddox, Fontana, Cal.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PRINTED LETTER HEADS—Envelopes, Statements, Cards, Shipping Tags, Hunting, Keep Out and No Trespass Notices. Write for samples and prices. Stookey's Print Shop, Vallejo, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

WANTED—Long term, six per cent loan on Glenn county farm land. No agents. Box 57, Pacific Rural Press.

TREES AND NURSERY STOCK.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety, from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

SUDAN GRASS SEED—U. S. Dept. of Agriculture highly recommends Sudan Grass as a forage crop, especially for dairy purposes. Pure reliable seed is worth $1.00 per pound. I have pure officially inspected seed to put out on shares. Write for particulars. Small or large acreages considered. Box 261, Venice, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SOUDAN GRASS SEED—First-class guaranteed seed, free from Johnson Grass. Now 35c per pound or $25 per hundred f. o. b. Santa Ana. C. E. Lewis, R. 5, Santa Ana, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 110 E. 7th St., Los Angeles, Calif.

A BARGAIN in first-class Navel, Valencias and Lemon Trees. All strong, healthy, vigorous stock. Get my prices before ordering. A. G. Wright, Fullerton, Cal.

BURBANK SPINELESS CACTUS—All the best varieties for forage and fruit. Guaranteed. Send for catalogue and price list. G. D. Cummings, Los Altos, Cal.

TEXAS YAM SWEET POTATO PLANTS for May delivery. $2 per 1000; 25 cents per 100 f. o. b. Lindsay. C. W. Braswell, Lindsay, Cal.

BURBANK SPINELESS CACTUS—$6 per 100; $50 per 1000. Thos. Cathers, R. 24, Morgan Hill, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

FOR THE BEST Orange, Lemon and Grapefruit trees, write us. J. G. Gillian, El Monte, Cal.

LAND FOR SALE.

GOVERNMENT LAND—320 acres. Nothing better in California. Abundance of water. Near railway. Good market. No snow. No frost. No hardpan or alkali. 30 feet rich silt. $1.25 per acre. Your land rights are valuable. Not required to live on the land. Male or female. R. F. Wells, 919 Hearst Bldg., San Francisco.

FOR SALE—107 acres of irrigated and bottom land at $250. Good terms. 8 acres in bearing olives and apricots, 12 in woodlot, the rest in alfalfa. Water, $1 per acre per year. Fine barn for 85 head of cows, house, separator house, house barn. Crossfenced. Address George Thresher, R. F. D., Gridley, Cal.

CALIFORNIA LAND—Money-making little farms. High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—Highly productive small fruit ranch. Well located edge of small city in Sacramento valley. Fine buildings, excellent modern home, good income from property. I want to retire on account old age. For particulars address Box 387, Corning, Cal.

FARMS WANTED—We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property. Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

GOVERNMENT AND STATE LAND—County Sectional maps showing vacant Government Land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and Circular FREE. Write Joseph Clark, Sacramento.

CITRUS LANDS FOR SALE at one-half its value near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or see on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit. Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR SALE—Quarter section stock or fruit ranch, 8 miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

FOR RENT—Land suitable for corn or other hay crops. Irrigation water available. Share crop rent. Address Box 29, Willows, Glenn County, Calif.

WANTED GOOD FARM, or unimproved land from owner. H. L. Downing, 145 Palace Bldg., Minneapolis, Minn.

California Poultry Practice. postpaid. Pacific Rural Press.

Get the Best
for your chicks
Culson's
Special Chick Food
Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

Copro
Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

Makes Hens Lay when Eggs are Worth Money

A natural feed that has not advanced in price like many other food staples

War prices for wheat and mill feeds, and importations of foreign eggs, make close figuring for rations important. Copra, high in protein and fats, will reduce the cost of your rations. Let us tell you how.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B
PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.

True, we want good layers, but the theory that heavy layers produce their like does not work out in practice.

The best layers come from stock that on both sides have been raised from strong, vigorous birds with the type well bred in.

I believe in breeding from good males, but unless the hen has good qualities too, it certainly won't work out in practice. Last year I experimented a little with crossing the white Orpington on the Buff, just a few, to see what they would turn out. Some people, and I notice they are mostly English, are always trying experiments with fowl, so I had to try my hand; well, the results were very unsatisfactory from all points. In the first place the plumage is an aggravation, the size is not up to either variety when bred right, the eggs are smaller and, contrary to my expectations, the pullets lay fewer of them. So that all I gained by the experiment is a confirmation of what I have always found to be true, that crossing two good varieties does not improve either. If you cross an inferior with a superior breed or variety it surely will improve the stock.

Sores on Comb Due to Rich Diet.—I have two yards of White Leghorn hens. One has the run of a eucalyptus grove, the other has a peach orchard; both have alfalfa. They are fed egg food, rolled barley, and gyp corn, have sprouted grain in cultivated ground; have been feeding horse meat or mixing mash with the juice; have also fed a good many gophers chopped up raw. Yard 1 is all right; yard 2 has a disease of the comb and wattles. First it appears like blisters and a dry crust forms. Now they do not appear to be very sick; none have died; there is no cheesy matter in eyes or nostrils. Can you tell me why the cleanest yard with all clean, healthy birds should have it and none of the other yards? Am using carbolated vaseline.—Mrs. W. O. C.

Your birds are suffering from too rich a diet; the comb is not diseased, but is just an outlet. The reason it appears to affect this yard and not the others is that they are strong enough to throw the refuse off through the comb and skin. The others are keeping it inside, and if you do not stop some of the meat and raw gophers you will have liver trouble with the other yards, while this yard will be exempt. In the first place, the egg food is rich enough of itself; then you add probably an equal quantity of nitrogenous food, and the fowls cannot use so much. Too much of a good thing is as bad as too little. Give the hens a good cathartic such as epsom salts, and get some of the humor out of the system. It is similar to spring humor that comes out in people that have been overfed in winter on a too rich die.. The vaseline will heal the sores, but the salts will go to the seat of the trouble and expel the cause.

Eyes Sore and Closed.—Please tell me what I can do for my chickens. Their eyes seem to get sore and close; some have canker in the mouth and will not eat. Please tell me what they have and how to cure it?—Mrs. A. J. S.

Your chickens have roup, and as I see by your letter you ordered a copy of "California Poultry Practice," you probably have them all right by now. Canker in the mouth is caused from many things, and is often quite distinct from roup. I have always found that fussing with mild remedies is little or no good, so I open the mouth, take a hairpin and draw through the place, bringing all the cheesy matter with the hairpin if possible. If I don't get it I go again, even if it makes the mouth bleed, then wash or swab the place with any disinfectant and put all the dry powdered bluestone on that it will hold. Keep the bird in your arms awhile until it has been absorbed, then set it away in a dry, cool pen.

You may have to repeat this once, but it usually effects a cure at two dressings—that is, canker without roup. But when it is accompanied with a roupy smell, it is hardly safe to bother with it, for very few birds amount to much after being so badly affected.

There has come to my knowledge lately several cases of swell head that was not roup at all. In these cases it is, as stated, "swell head" proper, and is easily told from roup. The head gets very hot, the eyes swell and close and the whole head feels soft and hot. This is sometimes from the bird being exposed to a draft of air and other causes. A dose of cooling medicine such as epsom salts or sulphur and a little bryonia and aconite in the water will take it away without any bad results. But if it is neglected, it will develop into roup.

The late cold spring is causing a great deal of trouble among chickens; hens that have been laying heavily are not so able to withstand the changes in climate we have been having, so are easily affected by cold damp weather. For flocks that are running down, a little tonic will help them to hold their ground until the weather changes.

Wood Ashes for Worms.—How much wood ashes would you give to a hundred hens in the mash for worms?—L. B.

A good-sized fire-shovel full of sifted ashes, and if the wood is oak, so much the better. Oak is the best wood for that purpose; some wood ashes have very little value.

Milk for Ducks.—Please let me know if I can raise my ducks on sour milk and have them do as well as if fed beefscraps. Will I have to wait a few days before changing from sour milk to butter milk?—N. L.

It will depend on how the milk affects the bowels. If the ducks do not scour, milk will do as well as beefscrap and make more bone. The chemical difference between sour milk and buttermilk is so little that I would not think it necessary to wait. Just watch your ducks to see if the milk affects the bowels too much, and if it does, keep away a few days or add more middlings and less bran; one of these things is just about as high in price as the other, so it is just as cheap to feed middlings as bran.

Now we are all caught up with our question box; and I hope the printer will hurry these answers, for sick chickens are like people, they need aid quick.

Common Sense Needed.—One of our readers sent me word they had lost some little turks through putting insect powder on them that was too strong. I wrote for fuller information and it turned out she put the insect powder on the floor of the brooder, then shut them up tight to kill the lice. This would never have been done by a person with a good lump of gumption. The insect powder was not to blame; it was the one that put it in the brooder. If you think this is a light matter just put some insect powder on your pillow and try sleeping on it one night. Why, it was cruel, and I wonder they did not all die. Fight the lice, yes, but fight them, not the poults. A little olive oil and a few drops of creolin put on the head and neck without rubbing in, will keep the head lice off chicks and poults, and if the hen is kept dusted once a week all will be well, but if you have any respect for your chicks or poults don't put insect powder, sulphur, or lime in a dry state where chicks have to breathe.

SONOMA EGG LAYERS.

[Written for Pacific Rural Press.]

A pen of fifty White Leghorn pullets averaged twenty-two eggs apiece during the past month for A. C. Alexander of the X-Ray Poultry Ranch in Sonoma county. This stock comes from his English importations.

The appropriation act for the Department of Agriculture for the fiscal year beginning July 1, 1915, sets aside the sum of $2,500,000 as an emergency fund, which the Secretary of Agriculture may use as he considers advisable in combating epidemics among animals, such as the recent outbreak of the foot and mouth disease.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

SOMETHING GOOD for May and June. Bargain prices in Baby Chicks, Hatching Eggs and Breeding Stock. Baby Chicks, $7.50 to $11 per hundred, depending on breed and quantity. Hatching eggs, $4 hundred, $35 thousand. Breeding stock, $10 to $15 dozen. We specialize on White Leghorns and Black Minorcas for the White Egg commercial breeds and Rhode Island Reds and Barred Rocks for meat and Winter laying qualities. The best of their kind. Our stock is well selected and mated, and in chicks and eggs can tackle anything from 25 to 2500. Delivered prices quoted. Circular free. Roofden Poultry Ranch, Campbell, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

BABY CHICKS—Varieties, Pullets and Hatching Eggs from our Santa Clara Valley Farm. Birds, Incubators, Brooders and Poultry Supplies. Globe Hatchery & Feed Co., 1378 Market St., San Francisco, California.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W J. Hicks, R. 2, Petaluma, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

S. C. RHODE ISLAND REDS—Eggs from prize-winning Eastern stock, $1 per 15, $4 per 100. Mammoth Bronze Turkey eggs, 30c apiece. Won first at California State Fair. N. Mullick, Willows, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H Croley Co., Inc. 631-637 Brannan St., San Francisco.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons. Susan Swaysgood, Route 2, Pomona, Calif.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, E. D., Box 71, West Berkeley.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beagle & Cullen, Empire, Cal.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock. $2.00 per setting. Thornton L. Green, San Mateo, Calif.

GOLDEN CAMPINE eggs for hatching. Choice stock Prolific layers, Kennedy strain R. W. Messer, Box 1000, Fresno, California.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

WHITE AND BROWN Leghorn Chicks. Good stock. Also other breeds. Write James D. Yates, Poultry Judge, Modesto, Cal.

TURKEYS, DUCKS AND GEESE.

TURKEY EGGS—From the largest and best flock of Mammoth Bronze Turkeys in the world. Can fill orders from ten to one thousand eggs. Write for special prices. Geo. A. Smith, Corcoran, Cal.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded Toms recently from East. Inquire today, John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL, Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHESANTS.

WHILE THEY LAST—Plymouth Rock Homer Pigeons for $3 per dozen. Very fine. Geo. M. Bosworth, Geyserville, Cal.

PHEASANT EGGS—Golden, Silver, Chinese and Amherst. L. R. McCoy, R. 1, Box 205, Stockton, Cal.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

RIPON RABBITRY—We breed the highest class Rufus Red Belgian Hares. 25% off on youngsters this month. Others for less. Start right. Get the best. Howard C. Jones, Ripon, Cal.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

Can you twist the tugs of your harness like that? Flexible harness is strong harness. Keep it pliable and it will give you good service for years.

EUREKA HARNESS OIL

is your best harness insurance. It keeps tugs, straps, etc., pliable and strong—just as they were when you bought them. Unoiled harness becomes brittle and unsafe. It will pay you to have your harness dealer dip your harness occasionally in Eureka Harness Oil. Or apply it yourself by hand. Dealers everywhere.

Standard Oil Company (California) San Francisco

The Home Circle.

WHY?

Why gather the thorns by the wayside,
When flowers are blooming for you?
Why speak of the faults of your brother,
Instead of the good and the true?

Why think of the angry words spoken
By the friends who are now far away?
But rather remember the smiles which they gave,
As bright spots in your memory today.

Why think of the storms in the future?
When the sun always shines clear and bright,
'Tis simply the clouds which obscure it,
Melting away by love's trust and light.

—Selected.

KEEP YOUR EYE ON THE MAN THAT KICKS A DOG.

Somebody has said that the dog is the only animal that is capable of disinterested affection. He is the only one that regards the human being as his companion, and follows him as his friend; the only one that seems to possess a natural desire to be useful to him, and from a spontaneous impulse attaches himself to man.

He loves us while living, and has been known to pine away on the grave of his human master.

The Rev. Charles Stelzle of New York recently said:

"You want to keep your eye on the man who listens intently to a talk on the blessed spirit of charity and then goes out and kicks a dog. He's a bad listener."

A dog knows when you want to kick him. If he's a particularly quick tempered animal he beats you to it by snapping you first. Sometimes he simply wrinkles up his nose, displays a threatening line of teeth and makes a noise that says just as plainly as anything, "Keep away."

Anger, fear, hatred, discontent, intolerance—all these discords are quite as perceptible to the ears of animals as to the minds of men. You can strike a pose with a man and he'll believe it's real. A dog knows a bluff instanter. If you're afraid, he believes you are guilty and chases you all around the block trying to prove your sham.

Mrs. C. L. Watkins, in Dumb Animals, says that dogs are very good judges of the feelings we entertain for them. I saw a dog prove his ability to choose a friend from a group of people not long since.

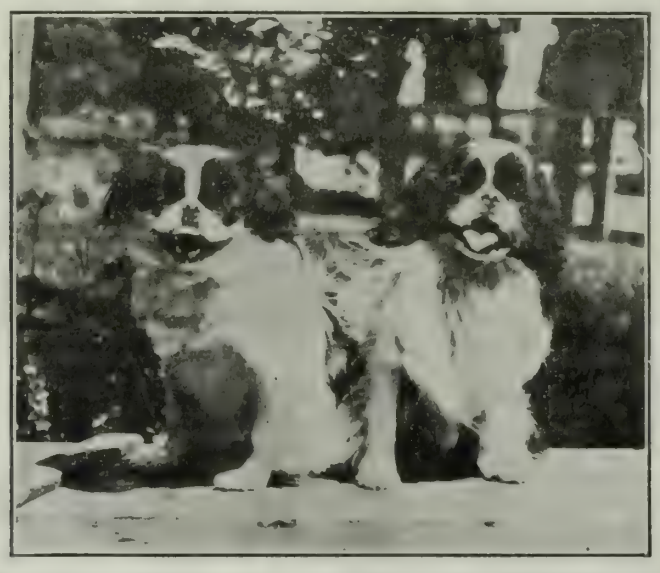
He came limping by a park where a number of men and boys were seated. He passed on until he came to one whom his instinct told him loved and understood dogs. He was limping badly. He quickly walked up and lifted the wounded foot up to this man as much as to say, "Please help me." The man, a perfect stranger to the dog, took the foot and examined it. He found a large splinter which he pulled out, and then petted the dog a moment. The animal was exceedingly grateful for the assistance and showed it in every way a dog can. He then went on his way rejoicing.

An army officer who is fond of dogs, in a late magazine article said:

"Now this is the point of it—for the dog. We are all over-ready to tell what we think of him. Do we ever stop to consider what he thinks of us?

"It is just as essential that you should live up to his ideas of your being his master as it is that he should live up to your ideas of his being your dog."

I have given the foregoing quotations for the purpose of influencing my boy and girl readers of the young folks' department to treat dogs kindly, for I know that if they form a habit of doing that they will get in the way of being kind to other animals and to human beings, also.
—R. A. Dague.



THE CRAVINGS OF CHILDREN

Every one of the cravings which we not infrequently see in the average child, for sugar or green apples or butter or cake—yes, even for dirt and shoe leather—are simply due to his having been starved of some element in the unbalanced and inadequate ration on which we have compelled him to live, whether he liked it or not.

When the child is allowed to grow up, as a few children, thank heaven, are now beginning to be allowed to grow up, with freedom to indulge his own natural instincts upon a wide variety of good, sound, wholesome, nutritious food, it is promptly found that the things which the child really likes to eat are meat and milk and butter and sugar and fruit and ice-cream and the clean crusts of bread and hard crackers; in other words, exactly the things that he most needs and must have in his daily business of growing up.

The Marvelous Zone

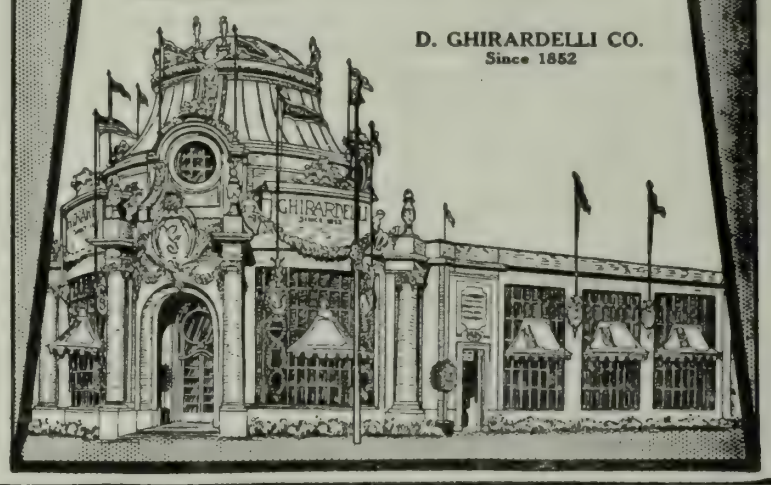
Of the Panama-Pacific International Exposition

At the very start of this wonderous thoroughfare stands the exhibit of

Ghirardelli's Chocolate

Here you can see made this best of all food products—note its absolute purity and careful manufacture.

D. GHIRARDELLI CO.
Since 1852



CUT RATES on GROCERIES

Quality Goods at Lowest Prices

Sugar 2c a lb.

CALL FOR COMBINATION ORDER NO. 1915.

Send for This Order NOW.

20 lbs Sugar (fine, dry granulated).....40c
2 cans of oysters or 2 lbs. of Prunes....25c
1 sack of Rice or 3 cans Carnation Milk..25c
3 cans Corn, Tomato Puree or 6 bars best Laundry Soap 30c
3½ lbs. small white or 3 lbs. Lima Beans.25c
2 lbs. Tea, any flavor, or 3 lbs. fancy Coffee $1.00
1 large bottle Flavoring Extract or 2 lbs best Coffee 75c
2 Seeded Raisins or 1 bottle Tomato Catsup 25c
1 lb. Mixed Nuts or 2 cans Maine Corn..25c
3 lbs. Macaroni, Tapioca or Rice.....25c
3 pkgs. Washing Powder or 3 cans Cleanser 15c
1 2-lb. square best Butter, or 1 No. 5 pail Pure Lard 65c
1 lb. Prunes or 1 pkg. Liza Pancake Flour 15c
1 bottle Vanilla or Lemon 10c
Total for all unchanged. $5.00

CAN GOODS SALE--All New Pack

Tomatoes Oro brand, 2 cans 15c; dozen..$ .90
Tomatoes, Palace brand Solid Pack, each, 10c; dozen 1.10
Asparagus Tips, per can, 10c; dozen.. 1.10
Corn—Fancy Sugar Corn—try it; per dozen .95
Asparagus Tips, S. & W. brand, per can, 15c; dozen 1.65
Asparagus, Large White, tall cans; per can, 20c; dozen 2.25
Corn, Fancy Maine, 2 cans for 25c; per dozen 1.40
Peas, Fancy Sugar, fine goods; 2 cans for 25c; per dozen 1.40
Peas, Eastern, per can, 10c; dozen 1.10
String Beans, cut and stringless, 2 cans for 25c; dozen 1.40
String Beans, Eastern, per can, 10c; dozen 1.00
Baked Beans, Campbell's, large cans, 3 cans, 25c; dozen 1.00
Tomato Hot Sauce, Del Monte brand, 6 for ..... .25
Tomato with Chile Peppers, each 10c; dozen 1.20
Fancy Table Peaches in heavy syrup, 2 cans for ..... .25
Fancy Table Apricots in heavy syrup, 2 can for ..... .25
Fancy Table Pears in heavy syrup, per can .15
Cove Oysters, good grade, 2 cans 15c; dozen ..... .90
Silver Thistle Oysters, extra select, 2 cans 25c; dozen 1.40
Creole Dinner, try it; per can ..... .10
Chicken Tamale, not boneless, 3 cans, 25c; dozen 1.00
Chicken Giblet Tamales, each 5c; dozen .55

Satisfaction Guaranteed on Every Article We Sell.

Carnation Milk, 2 cans 15c; dozen 90c
Best Creamery Butter, 2 lbs. 55c
Rice, Good Clean Table Rice; 21 lbs.....$1.00
Flour, Fancy Oregon; 49-lb. sack $1.85

WE PAY THE FREIGHT ON SHIPMENTS WITHIN 100 MILES

FREESE & COMPANY

S. E. CORNER DIVISADERO & ELLIS STS., SAN FRANCISCO
SEND FOR OUR CATALOG

It's SAFE SWIFT SURE To Travel On The

OAKLAND, ANTIOCH & EASTERN RAILWAY

Electric Service To and From Water Gate of

Exposition Grounds and Sacramento

CHICO, OROVILLE, MARYSVILLE, WOODLAND, DIXON, And Other Sacramento Valley Points.

Reduced Round Trip Rates — From All Points — Every Day During the Exposition

TICKET OFFICES:

Key Route Ferry in San Francisco. Phone Kearny 2339.
Fortieth & Shafter Ave. in Oakland. Phone Piedmont 870.

When he has been fed and "indulged" like this, the child can be trusted with a candy-box on the table all day long and an unlocked pantry. Starches and cereals are all very well to grow guinea-pigs and horned cattle, but they are not at all the things needed to raise human beings on.

If your child has developed an abnormal craving for anything, or even a marked tendency to gorge himself to his injury upon any particular food, it is because you have starved him, and you ought to be ashamed of yourself instead of scolding him. —Dr. Woods Hutchinson, in the American Magazine.

ILLUSTRIOUS EXAMPLE.

Conventions which it would be foolish not to observe may yet be recognized as conventions; that is, as things that have been agreed upon as proper rather than as things that are right or wrong in themselves. In these days it is the custom not to carry food to the mouth with one's knife; but the rule was not in force, even in the White House, seventy-five years ago.

A writer in the Washington Post says that an old lady used to tell, with delight, of an occasion on which she went with a kinswoman to dine wtih Mr. and Mrs. John Quincy Adams. The table was beautifully set in the fashion of the times, and at Mr. Adam's place lay a four-tined silver fork. The other persons at table had merely the two-pronged forks then in use.

Mrs. Adams apologized for her husband's little eccentricity, saying that in his sojourn in France he had acquired the habit of eating with his fork—a habit of which he had been unable to break himself.

"And, my dear," the old lady used to say, with a twinkle in her eye, "the elegant Mrs. Adams and the rest of us ate with a knife."

CORRECTLY.

"And now, Mrs. Sullivan," said Lawyer Thompson, "will you be kind enough to tell the jury whether your husband was in the habit of striking you with impunity?"

"Wid what, sir?"

"With impunity."

"He wuz, sir, now and thin; but he struck me oftener wid his fist." —National Monthly.

The Ant Nuisance.

No Need to Suffer Longer From This Annoyance

Many a woman suffering from a house overrun with ants will learn with intense relief that a remedy has been discovered that will not only rid a house but do it almost instantaneously.

This remedy was originated by a baker in Los Angeles who was almost driven out of business by ants overrunning his establishment. After long experimenting he devised a paste which appears to have almost supernatural powers as far as ants are concerned. It required only one day for him to rid his shop completely of the pest.

So efficacious did it prove that it has been put up for general use under the name of Kellogg's Ant Paste, and placed on sale at all good druggists. Failure is impossible with this remedy.

Try a package today and your ant troubles will be a thing of the past; but be sure it's Kellogg's.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO; Blake, Moffitt & Towne, Los Angeles; Blake, McFall & Co., Portland, Oregon

1915

Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.

LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco. — 1st & St. James Sts., San Jose.

THE MOST VALUABLE BUILDING MATERIAL CATALOG EVER PUBLISHED

Sent FREE Upon Request — Send Coupon Below

MOST VALUABLE

because it has just been published. Contains the latest improvements and articles in the building material line. Most valuable because you will save 25% to 40% on everything in lumber, sash and door, plumbing, hardware, paints and oils. Most valuable because it tells you all about the quickest and easiest way to buy "direct from factory to consumer." You'll be delighted with our methods. Thousands have benefited by our mail order department. You can be one of them by just merely sending coupon below for our latest 1915 catalog. Just look at a few of these prices. Everything in our catalog is priced at a like reduction, and a liberal money-back guarantee goes with every purchase made from us.

GALVANIZED CORRUGATED IRON $4

—Corrugated Galvanized Iron, 2-in. corrugations, 6 to 10 ft. lengths. Brand new and in perfect condition. Per 100 square feet $4. —This is another illustration of how we can save you money. Remember we ship direct to you and save all unnecessary costs.

PAINTS $1.50 GAL.

—You can buy paints cheaper from us than any other dealer in the West. We buy in large quantities and sell for the lowest prices. —Standard House and Floor Points, $1.50 per gal.

—Standard makes of varnishes at 25% off regular prices.

Black Graphite Roof —per gal..... 50c

Standard Roof Points—red, green, gray— per gal..... 85c

Shingle Stain, made from pure ground colors —per gal..... 50c

Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.

Dutch Kalsomine 4½c per lb.

$30 WALL BOARD $19

—The finest grade of wall board to be had. Compare this price with what most dealers ask. Made of three layers of moisture proof fibre with asphaltum between, or you may choose the cream white fibre board.

—Easy to lay and costs but $19 per 1000 sq. ft.

Every Thing in BUILDING MATERIAL at a 40% Saving

BARBED WIRE $1.85

Galvanized American Special Light Barbed Wire, in 80-rod reels, at $1.85 per reel.

Heavy Galvanized Waukegan Barbed Wire at $2.40 per 80-rod reels. Compare these prices with your local dealers. Remember we ship direct and guarantee satisfaction or your money back.

WIRE FENCING at Half Price— Per rod..... 35c

Extra heavy Field Wire, 6-inch galvanized mesh. Perfect condition; 55 inches high, 20 rods to the roll. This is just about **half price.** Don't pass up this big opportunity. Send us your order, your money back if you are not satisfied.

GALVANIZED POULTRY NETTING 42½c

2-inch mesh, all heights—150 lineal feet in a roll per hundred sq. feet— full rolls..... 42½c

1½-inch mesh, in full rolls — per hundred sq. ft..... 55c

1-inch mesh, in full rolls—per hundred sq. ft..... $1.00

Any of this netting may be had 12, 18, 24, 30, 36, 48, 60 or 72 inches high.

"STANDARD" ROOFING PAPER

—A Splendid quality of roofing paper that most firms would sell 20 to 40 per cent higher. Each roll complete with necessary cement, nails, etc., ready to lay.

1-ply, double-sanded, per roll of 108 square feet $1.15

2-ply, double-sanded, per roll of 108 square feet $1.40

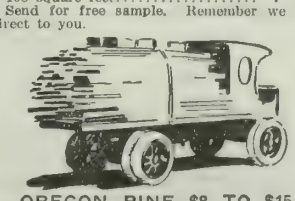
3-ply, double-sanded, per roll of 108 square feet $1.65

1-ply, "King" smooth, per roll of 108 square feet..... $1.25

2-ply, "King" smooth, per roll of 108 square feet..... $1.50

3-ply, "King" smooth, per roll of 108 square feet..... $1.75

Send for free sample. Remember we ship direct to you.



OREGON PINE $8 TO $15

Good new rough Oregon Pine lumber, all sizes, at $8 to $15 per thousand.

Oregon Pine lath, 4 ft., new, $2 per thousand.

Best grade Slashed Grain Oregon Pine, sanded finish, $37.50 per thousand. This make a beautiful interior finish.

These prices will give you an idea of how our lumber department can save you money. Send in your lists and let us give you our price **delivered.**

SASH AND DOORS

—1-light sash, 40c and up.

Casement windows in pairs with 2 lights, $1.25 up.

Screen doors, $1.25 and up; strongly made of best sugar pine.

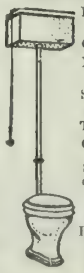
A lot of 7-ft. Colonial doors, made of best sugar pine, at $1.50 and higher.

Prices on other material in this line are similarly low.

THIS SPECIAL STEEL ENAMELED BATH TUB $8

One of the greatest bargains we ever offered! Made of best galvanized 24 gauge steel. Outside is finished in a rich sky blue enamel with bronze trimmings and hardwood edge. Priced only $8.

Other larger sizes at $8.50, $9 and $10.



Low Down Enamel Steel Toilet Combination.... $11.50

Complete to floor—wonderful value.

Low Down Vitreous China Closet Combination.... $15.50

Special value—worth $22.50.

Big value in High Tank Toilet Combinations .. $10.00

Complete to floor—a bargain.

Special Bankrupt Stock of Kitchen Sinks.

All sizes— up from..... $1.00

Best Quality Porcelain Lavatories; every one guaranteed $10 down to. $3.75

Be sure and send this coupon for our

Free Catalog

of Building Material just published. Save money on everything building. Our methods for you need for filing mail orders will satisfy you.

SEND COUPON TODAY.

Whiting-Mead Company, 9th & Maple, Los Angeles, Calif. Please send me your 1915 Catalogue of Building Material. PRP

Name ...

City ...

Whiting Mead Co.

9th and Maple Avenue

Los Angeles, - California

Dried and Canned Fruit Market Conditions

[Written for Pacific Rural Press.]

California growers of dried and canned fruits must be thankful if they make the cost of production this season, is the consensus of opinion of a large number of canners, packers, and brokers; some of them working purely for themselves and some of them working for the growers' organizations. The European war is the predominating cause of this gloomy forecast, aided by those dried fruit packers who are said to have bid against each other for sale of the 1915 crop to Eastern and English speculators until they have sold an enormous quantity to be delivered next fall. These sales are said to have been made without consulting the growers and without buying the fruit, but simply in the hope of getting it from the growers at a price which will enable them to fill their low-priced orders and yet yield the customary profit per pound.

Some authorities deny the selling of any more futures thus "short" than usual. Of course, the ones who are thought to have done this do not want the growers to know it, because if the crop were covered by an organization and the growers would stick together, they could hold their peaches for at least the cost of production and other fruit for a profit.

Such a happy combination of the growers is yet far in the future, and as one growers' representative put it, "Prunes (and other dried fruits) are made to sell. Any hold-over from one season to another is that much competition against the coming crop and it injures the farmers' pocketbooks more, considering the storage charges, interest on investment, etc., than if the fruit were sold about the time of harvesting."

The situation in Europe is responsible for these low prices and, according to another authority, there would be no material change even should the war close. There would be a great jump in the price for perhaps a month and then they would be likely to go back to their low level because, as he has observed on a recent trip throughout the warring countries, their buying power at the end of the war will be very small. Even the victors will have to impose such heavy taxes that the people will consider dried fruits as luxuries. But his observation goes to show that in this war to the finish, neither England nor Germany is beginning to be exhausted. Even now, England is the only country which can buy dried fruits on the usual business arrangements. Packers do not sell much to the other countries, except where the other countries pay American money down in San Francisco before shipment; on account of the great likelihood of loss, either by the casualties of war or by increased transportation and insurance rates. For instance, where the freight rate to Copenhagen was 60 shillings before the war, it is now 130 shillings, and there is no limit to what it may become.

An English broker recently wrote to a San Francisco dried fruit man in somewhat these words: "Prunes are in active demand; peaches we do not care for much; and apricots we can get when the new crop comes cheaper than the price they are held at now. England and Germany having been the chief users of California dried apricots, and the Americans not eating very many, we think the prices will come down later."

There are very few dried apricots of the 1914 crop remaining and most of these are the poor grades. Estimates of the prune hold-over vary from 1,000 tons to 15,000; of the peach hold-over, between 5,000 and 10,000 tons. The crop of dried peaches last year was about 32,000 tons. This year the prospects are for 30,000 with nobody eating them much. The prune hold-over is expected by some to be cleaned up before the new crop comes; others think there will be several thousand tons left over. Dealings in the 1915 crop are now on the basis of 3½ cents for prunes, with no prospects for any rise. One man states that the prune crop last year was 125,000,000 pounds; that the United States has never eaten more than 110,000,000 pounds; that this year's crop will be in the neighborhood of 160,000,000 pounds, none of which can go to Germany, which has been the largest consumer heretofore. Who is going to eat the extra millions of pounds?

One packer holds out the hope that the low prices prevailing for the 1915 crop will so stimulate consumption in the United States and Canada that practically all of the crop will be consumed at home. Moreover, it will get people into the notion of eating our dried fruits again so that they will continue when prices rise in succeeding years. None can be sold to Europe except to England, because no one knows whether the neutral countries will be in the war by the time the crop is harvested; and in any event, there is the greatest difficulty in making the monetary exchange. Ships to haul, even to England, are very scarce and freight rates correspondingly high.

Canned fruit operators will not be ready to give out any price to the growers for green fruit for a week yet. They are pretty well loaded up with last season's crop and their markets are curtailed, much as the dried fruit markets are. One canner says that the prices will be adjusted so that the canners will not be offered too much fruit, and yet will be able to get all they need.

The following paragraphs from Vernon Campbell of the Tulare County Growers' Ass'n summarizes the expressions of a number of canners whose headquarters are in San Francisco:

"No offers have yet been made on canning and drying fruit. I understand one firm has been offering to buy new crop prunes on 3½c base. Growers do not seem inclined to sell at this figure. One Fresno packing concern is offering to sell new crop dried peaches at 3, 3¼ and 3½c bulk basis for Standard, Choice and Extra Choice, price f. o. b. steamer.

"The market condition on California canned fruit is peculiar. California packers are making very low prices on both spots and futures; in fact many packers are selling certain items below cost of production.

"The eastern jobbers, however, are indifferent, buying only such goods as are absolutely necessary to fill their present requirements. Few futures have been sold up to this time, the buyers seeming to feel that prices may yet go lower.

"On account of the war and general financial stringency the movement of canned goods from California has been slow all fall and winter. This spring the demand has picked up and many varieties are being cleaned up, but there will be some carry over.

"On account of the present low prices on spots and futures many packers will curtail their output, packing only to fill orders. I look for a smaller pack this year and a stiffening of prices as the season advances."

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, May 5, 1915.

WHEAT.

A good deal of northern wheat is coming this way at present, but local requirements are not sufficient to take up the remaining surplus, and values continue to sag, practically all lines being lower this week on the local market.

Cal. Club, ctl.	$2.30	@2.32½
Forty-fold	2.35	@2.40
Northern Bluestem	2.35	@2.40
Northern Club	2.30	@2.32½
Northern Red	2.25	@2.40

BARLEY.

Current arivals are light, but the market is extremely dull, with no demand except for current feed requirements. Values are still rather easy, and slightly lower than last week.

Choice Feed, per ctl ...$1.25@1.30

OATS.

A lively export demand in the north has tended to stiffen the market a little, and while there is very little movement locally, values are steadily maintained.

Red Feed	$1.55@1.60
White	1.85@1.90

CORN.

Prices stand about as before, though there is little firmness, with liberal offerings of several varieties, some of which are of inferior quality.

California Yellow	$1.75@1.80
Eastern Yellow	1.80@1.85
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80
Manchurian	1.40@1.60

BEANS.

The local bean market still shows a tendency to react from the high prices that have prevailed, and declines are noted this week in bayos, cranberry beans, large and small whites, pinks and limas. While local stocks are moderate, there still appears to be a good deal held in the country, and the demand for some time past has been very light, causing some anxiety to clean up. Planting is just starting, with a large acreage in prospect, and soil conditions favor a large crop.

(On Wharf.)

Bayos, Cal., per ctl.	$4.75@4.90
Blackeyes	5.50@5.65
Cranberry Beans	4.25@4.50
Horse Beans	3.50@4.00
Small Whites	4.65@4.75
Large Whites	4.50@4.65
Pink	3.50@3.75
Limas	4.85@5.00
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

Alfalfa is almost entirely nominal, as there is no longer any demand, and it is doubtful if large sales could be made at the prices quoted. Other lines are moving slowly at the old figures.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Current arrivals in the local market are rather heavy, but are taken care of at about the same figures as before, and the demand seems to be a little larger than it has been. There is a strong demand for strictly fancy hay, which would bring a premium. The most favorable development is the movement of quite a large tonnage of hay for export, which promises some relief to the congested condition of the California market. Some good sized purchases have also been made in the country lately for local account, but there will doubtless be a large amount carried into the new season. The late rain is expected to benefit the crop in many sections, but quite a bit of cut hay will be badly damaged, if not lost.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50@11.00
do No 2	7.00@ 9.00
Barley	5.00@ 8.00
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.30@ .45

FEEDSTUFFS.

Prices are still maintained as for several weeks past, some lines being rather easy, with a light demand.

(Wholesale prices per ton, carload lots, San Francisco)

Alfalfa Meal, ton	$16.00@17.00
Alfalfa Molasses meal per ton	19.00@20.00
Bran, per ton	27.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@33.00
Rolled Barley	27.00@28.00
Rolled Oats	33.00@34.00

VEGETABLES.

The recent rains have disturbed the market somewhat, tending to curtail arrivals temporarily, and some lines are accordingly higher. The heavy season for asparagus is over, and prices have stiffened up considerably in the last few days, though the market is still well supplied. Peas have also advanced a little, but are likely to be lower; and string beans show a slight drop. The bell peppers are still mostly from distant points and command high prices, and the same is true of eggplant. A few Imperial tomatoes are offered, but prices are still high. Cucumbers and summer squash are easier, while lettuce is firm, with few attractive lots offered.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 c
No. 2	25 @35 c
Asparagus, box	$1.50@2.50
Peas, lb.	3 @ 6 c
String Beans, lb.	4 @ 6 c
Peppers, bell, Mex. lb	20 @25 c
Tomatoes, Imperial, crate	1.50
Celery, crate	1.50@1.75
Lettuce, crate	75c@1.10
Rhubarb, box	40@85c
Cucumbers, Southern, bx	75c@1.10
Eggplant, lb	15 @20 c
Summer Squash, crate	65 @75 c

POTATOES AND ONIONS.

Potatoes remain rather scarce and firm, with limited offerings coming in from widely scattered districts. Onions are weak, at about the old figures, with a good deal of Delta stock left, and Imperial Bermudas are now appearing.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75@2.25
Lompoc	2.35@2.50
River Burbanks, ctl.	1.60@2.00
New Potatoes, lb	2 @ 4 c
Sweet Potatoes, ctl.	1.75@1.90
Onions, yellow, sack	65 @75 c
Australian, ctl	3.75@4.00
Bermudas, crate	1.25@1.50
Garlic, per lb	17 @25 c

POULTRY.

Little eastern stock has come in this week, and the market in general is quite firm, with prices about the same as before. Offerings of broilers were rather large at the first of the week, but are cleaning up well.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @18 c
Broilers, small	25 @30 c
Fryers	25 @26 c
Hens, extra, per lb.	17 @18 c
Small Hens, per lb.	16 @17 c
Smooth Young Roosters, per lb.	22 @25 c
Squabs, per doz	$2.50@4.00
Geese, per pair	2.50@3.00
Ducks, young, lb.	18 @20 c
Old	15 @17 c
Belgian Hares	8 @ 9 c

BUTTER.

Prices on the local Exchange show no change whatever from a week ago. Offerings are quite heavy, with little shipping demand in any quarter, and prices would be still lower were it not for a large movement into storage both here and in the north.

(S. F. Dairy Exchange prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	23	23	23	23
Prime	22½	22½	22½	22½	22½	22½
Firsts	22	22	22	22	22	22

EGGS.

Extras showed a little more firmness a few days ago, with some lighter offerings, but have since dropped back to the old level. Firsts remain about the same, while pullets are easier.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22½	22½	22½	22	22	22
Firsts	19½	19½	19½	20	20	20
Sel. Pul.	20	20	18½	18½	18½	18½

CHEESE.

The general range of values shows little change. Flats and Monterey cheese are a little firmer, but still quite low, and Y. A.'s are ½c lower.

(S. F. Dairy Exchange prices on flats and Y. A.'s)

Y. A.'s, fancy	12½c
Fancy Calif. flats, per lb	11½c
Monterey Cheese	9 @11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	22	22	22	22	23	23
Eggs	22	22	22	22	22	22
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

The only new article on the market this week is raspberries, the first offerings of which command high prices. The rain has interfered with strawberry shipments, and with a growing demand prices are well maintained, though the quality has been poor. Cherries are much cheaper, being fairly plentiful and of rather unattractive quality. Good lots of Newtown apples find more demand, and are firmly held. A good many storage apples are being dried.

(Wholesale prices, San Francisco.)

Strawberries:	
Fresno, crate	$1.00@1.25
Longworth	8.00@10.00
Banner, chest	4.00@7.00
Raspberries, crate	3.00
Cherries, 10-lb. box	90c@1.15
Apples, Newtown	75c@1.00
do, fancy	1.15@1.30
Other varieties	30@75 c

DRIED FRUITS.

The past week's storm has caused some uncertainty in the dried fruit outlook, as the results cannot be told at once. In some quarters the rain seems to have done considerable good, and while a lot of fruit has been blown off, many regard this as merely a healthy thinning. The uncertainty, however, tends to interrupt speculative operations. Packers are now taking a firmer attitude in regard to future prunes, however, and some have been out with offers of a 3½ to 3¾c basis for new crop. There also seems to be a little more interest in spot prunes, and there are rumors of additional export buying. In other lines prices are little more than nominal, as holdings are for the most part small and scattered, and there is not much demand. As to raisins, the eastern trade is conservative, and strenuous efforts are being made to break the grip of the leading interest on the market. The New York Journal of Commerce says:

The demand for future prunes from New York and tributary markets continues slow. No important sales are being made, but the future market is steady on the basis of 3½c for the four-sizes in 40s to 60s. Spot California prunes are rather easy, as holders are disposed to clear up their stocks rather than put them into cold storage. Demand for spot goods is light.

There is little or no demand from the local and tributary trade for peaches or apricots and the market on spot goods has an easy tone, while futures are nominal on the basis of previously quoted prices. In Muir peaches offerings are made on the basis of 3¾c for choice, in 50-pound boxes, f. o. b. common shipping point, but less might be accepted by some sellers on a firm bid for early shipment from the Coast. The local distributors of raisins are buying a little more stock because of the natural increase in consuming demand at this time of the year, but are placing no important orders. Developments on the Coast which are thought to indicate a gradual disintegration of the present controlling interest are being watched here.

Evap. Apples, 1914	5 @5½c
Apricots, 1914	6 @8½c
Figs: White, 1914	3 @3½c
Black	2½ @2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	4 @5½c
Peaches	3 @3¼c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

CITRUS FRUITS.

The eastern auction prices still show firmness and a tendency to advance. On the citrus auction at New York, Monday, May 3d, navel oranges averaged from $1.90 up to $3.25 per box; navelencias averaged $2.80 to $3.15, bloods $2.65 to $3.05; seedlings $2.45 to $2.75; sweets $1.80 to $2.75; St. Michaels $2.40 to $2.75; lemons $2.40 to $3.00 per box. The other eastern points showed prices about the same as New York. At Philadelphia the price paid for lemons averaged as high as $3.30 per box.

Owing to the recent rains in southern California the number of cars shipped lately has been less than for some weeks previous.

Sales on San Francisco market of citrus goods have been a little slow for the last few days, but prices are steadily maintained. The better offerings of lemons are firmly held, and fancy grapefruit is higher.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.65@2.50
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx	1.25@1.75
Fancy	2.50@3.00
Lemons, box	1.50@2.50

NUTS.

Values are largely nominal and irregular, as offerings for the most part are small and scattered, and the demand is light and desultory.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:	
IXL	10 @13 c
Ne Plus Ultra	10 @13 c
Drakes	8 @10 c
Texas Prolific	8 @10 c
Walnuts, new crop:	
Jumbo, lb.	19 c
No. 1 Softshell	16½c
Budded	18 c
Ungraded	8 @10 c
Manchurian	6 @11 c

HONEY.

(Prices on cars, San Francisco.)

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	5 @ 6 c
Light Amber	3½@4 c
Dark	2 @ 3 c

LIVE STOCK.

Beef stock shows no further decline, though the market is well supplied. Offerings of hogs have been running a little short of late, and prices for both live and dressed stock have been marked up a little. Suckling lambs are again a little easier.

(Prices at Butchertown, S. F.)

Steers, No. 1	6½@ 6¾c
No. 2	6 @ 6¼c
Cows and Heifers, No. 1	5¾@ 6 c
No. 2	5½@ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
225 to 300 lbs.	8 c
100 to 225 lbs.	8¼c
Prime Wethers	6½@ 7 c
Ewes	6 @ 6½c
Shorn sheep, less by	¾@ 1 c
Suckling lambs	7¾@ 8 c

DRESSED MEATS.

Steers	10¾@11½c
Veal, large	13½@14 c
Small	15 @15½c
Prime Wethers	13 @14 c
Ewes	11½@12 c
Suckling Lambs	14 @14½c
Hogs	13 c

WOOL.

The wool market remains rather unsettled, with conflicting reports from various quarters. There appears to be a demand in the east, but local buyers are still holding off, claiming that the situation does not warrant high prices. Quite a lot has lately been sold to eastern interests in the Red Bluff district at prices ranging from 18 to 23c.; while sales are reported in eastern Oregon at 25 to 26c.

Wool, Sacramento Valley, lb 18@23c

HORSES.

A good many medium to heavy chunks and drafters are coming in from Nevada for auction this week. Local buyers are still rather conservative, but well broke stock of desirable weight and type is disposed of without much difficulty, and usually at prices within the range quoted.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks, 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green Mountain range horses, 950 to 1200 lbs	50@ 90
Farm workers	60@ 75

MULES.

1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

HIDES.

The hide market remains without animation, prices being fairly steady at the former level, while tanners are buying only for actual needs.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @15½c
Medium	15 @15½c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lb.	15 @15½c
Light Cows, 30 to 50 lb.	14½@15 c
Kip	15½@16 c
Veal	16 c
Calf	16 c
Dry Hides	25½@26½c
Dry Kip, 10 to 15	24½@25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

ALMOND GROWERS

Percentage of European shelled almonds used in the United States, 97%.

Percentage of California shelled almonds used in the United States, 3%.

Can you, without co-operation, and selling individually, obtain your share of the demand for shelled almonds?

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

Publisher's Dep't.

In this office we have often discussed the question of advertising—its usefulness and its vagaries. The peculiar thing about advertising is that it is something like lightning, in that it strikes in unexpected places. It produces certain results at one time and at another time no result. Why this is so no one has been able to successfully answer. Of course there are seasonable times to advertise certain articles, but some things may be advertised the year around as they are always in demand. The successful merchant is the one who advertises the entire year, changing his announcements regularly and placing in the foreground those items which are most seasonable. The class that has done less advertising than any other is the farmer, and in many ways he should do the most. He is a producer and he should learn how to sell. Instead of letting the buyer fix the price on his products, he should inform himself as to its value and set the price—then he should advertise. Advertising may be done in many ways, such as writing letters, calling upon the buyer in person or advertising in journals to the trade he must secure to effect a sale. The farmer can afford to spend more money to announce his product than can manufacturers or merchants. His overhead charges, his rents, storage, etc., cost less than the city man's. To start with—that the selling game may be learned—the farmer, every year, has eggs, poultry, some purebred calves, a good horse or other product that he can secure more than the ordinary market price for if he will let that fact be known outside of his immediate community. As he works up customers in one line other articles may be added and it will not be long before all of his products would find a market at prices averaging higher than he at present obtains.

Send us your order for "California Poultry Practice"—you need this book. Postpaid $1 per copy.

At the Exposition

When you visit the Panama-Pacific Exposition, look for the Exhibit of New Perfection Oil Stoves and Heaters in the Palace of Manufactures. Let the Demonstrator show you how efficient a good oil stove really is.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

It has abundant heat—always ready—like gas. It bakes, broils, roasts and toasts like a regular wood or coal range—but without dirt or ashes. No odor. Does not taint the food. Does not overheat the kitchen. Especially good for hot summer cooking. Made in several styles and sizes. Ask your dealer.

STANDARD OIL COMPANY
(California)
San Francisco

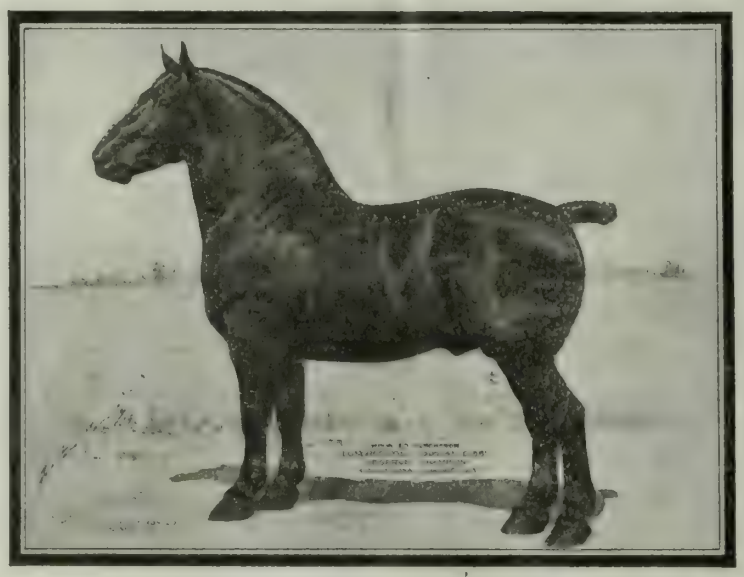
AUCTION!

First Annual

SALE

—OF—

Live Stock



To Be Held by the

WHITEHALL ESTATE, Inc.

at their Ranch
Four Miles North of

Tracy, Cal.

CONSISTING OF

30 Head of Heavy Draft Mares WEIGHING FROM 1400 TO 1800 LBS. (Some with Colts at their sides.)

13 Two-Year-Old Draft Fillies

17 One-Year-Old Draft Fillies

26 One-Year-Old Draft Geldings

8 Registered Short-Horn Yearling Bulls

300 Young Sows and Gilts old enough to breed

3 Poland China Boars

ALL STOCK SOLD WITHOUT RESERVE OR LIMIT

Terms Cash to Amounts of $100.00. Approved Notes at 8 Per Cent. for Larger Sums

Sale Takes Place at Ranch

Saturday, May 15th, at 11 a. m.

LUNCH SERVED AT NOON

Automobiles Will Meet All Trains at Tracy on Day of Sale

WM. HIGGINBOTTOM, - Auctioneer

THE WHITEHALL ESTATES, Inc.

Ranch at Tracy consists of 18,000 acres and maintains large herds of Cattle, Sheep, Hogs and Horses. Stock for sale at all times. Special herds of Pure Blood Registered Shorthorn and Hereford Cattle, Percheron Horses and Berkshire Hogs.

Vol. LXXXIX—No. 20 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, May 15, 1915 LOS ANGELES

State Library 7-1-16

Exhibiting the Most Profitable Steer.

[Written for Pacific Rural Press.]

Economy of beef production is a matter which is all the time assuming more importance on the western range as well as on the lower lands, where it is ultimately hoped to turn off beef at a profit.

Past efforts along this line have met the hearty support of leading packers on the coast; and to still further encourage the raising of those classes of animals which are most in demand by the consuming public, the coast packers have established an exhibit at the livestock department of the Panama-Pacific Exposition, which is highly instructive to stockmen who wish to make the most money from the available feed.

The exhibit is made of five pens of two animals each, one containing two-year-old Angus steers; another, two-year-old Shorthorn steers; another, three-year-old Hereford steers; another four-year-old "native" steers and another eight-year-old Mexicans. It is not the intention to make the exhibit a comparison of breeds, but rather to show the value of a well-bred steer as compared with the "native" and Mexican, also to show why it is more profitable to sell a well-bred two-year-old than it is to hold him for a year, even though he attains a greater weight.

The pen on Angus weigh 1088 pounds each; and at valuation of 7 1-3 cents a pound are worth $79.75 each. At this rate they would return the grower $39.82½ a year per head.

The Shorthorns weigh 1112 pounds each and at a butcher's valuation of 7¼ cents per pound are worth $80.00 per head or an annual return to the grower of $40 a year. It will be noticed that while there is a difference of 24 pounds per animal between the Angus and the Shorthorn the difference in price of the two animals is only $.25 per head in this particular case, owing to the superior quality of the Angus, for which the butcher is willing to pay a higher price. The three-year-old Herefords, as would naturally be expected, outdistance the two before mentioned pens for weight, each one weighing 1325 pounds, which, at a butcher's valuation of 7 cents a pound, would make them worth $92.75 each, or $13 more than the Angus and $12.75 more than the Shorthorns. Figuring their annual revenue to the farmer, however, they are only worth $30.91 each per year, or $8.91 less per year than the pen of Angus and $9.09 less per year than the pen of Shorthorns.

The well-bred 2-year steer (top and bottom) return to the grower 2½ times as much per year per head as the native mongrel bred steers. Three-year Herefords in the exhibit show less net returns per year than two-year stock.

The pen of "natives," with a small infusion of Shorthorn blood, weigh 1056 pounds each as four-year-olds and when sold at the butcher's valuation of 6¼ cents a pound would be worth $66 per head. It will be seen at once that the profit to the grower with this class of animals is much less than with the three before mentioned pens, the annual revenue to the farmer in this case being $16.50 a year, or $23.50 less than the Shorthorns, $23.32 less than the Angus, and $14.41 less per year than the Hereford three-year-olds.

The pen of Mexicans shows the most marked difference in breeding as well as annual revenue to the grower, in this case the eight-year-old steers weighing but 750 pounds each, have a valuation of 3¾ cents per pound or a total valuation of $43.10 per head. This price gives the farmer an annual revenue per steer of $5.42½ or $34.57½ less than the Angus pen, $34.40 less than the Shorthorns, $25.48½ less than the pen of Herefords and $11.07½ less than the "natives."

Not only do these exhibits demonstrate the worth of the better bred animal from a weight standpoint but also from a price per pound standpoint, as will have been seen in the variance of prices made by the packers.

This variance ranges from 7 1-3 cents per pound with the properly finished two-year-old Angus to 3¾ cents per pound for the Mexicans, and this too in face of the fact that from the general appearance of the Mexicans they have for some time been well fed and cared for.

As a utility exhibit these steers are worth a good deal to the stock man who has not as yet become thoroughly convinced of the profits to be secured in raising and selling the well-bred two-year-old steer, and all visiting stock men should make it a point to visit these pens, which are located adjacent to the Hall of Congresses close to the western end of the grounds.

While not as yet completely worked out, it is the plan of the packing companies to maintain pens of sheep and hogs as well as cattle, with the intention of showing the kind of mutton and pork which is most profitable for the farmer to raise.

Two pens of sheep are already on the ground, one showing the resultant type of sheep when a Shropshire cross is used and the other type produced when Merino bucks are used. Here, too, is found a marked difference in values, the Shropshires showing not only an excess of weight, but also a higher valuation per pound by the packer for mutton.

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., May 11, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.55	41.44	34.97	66°	50°
Red Bluff...	.70	33.58	32.89	74	50
Sacramento.	1.71	16.25	19.34	66	48
S. Francisco	1.72	26.70	28.96	68	50
Fresno.....	.71	21.92	19.12	72	48
San Jose...	.09	10.21	10.81	80	48
S. L. Obispo.	.00	3.47	11.96	82	..
Ind'p'nd'nce.	.13	27.59	30.94	78	44
Los Angeles.	.10	17.01	23.55	74	48
San Diego..	.17	14.35	9.83	66	52

The Week.

We did not apprehend that we should have so soon to put into practice the policy suggested by the Eastern lady, as cited in this place last week, to stop trying to defend the California weather. Though we shall probably soon drift back to exaltation of the California climates as the best ever, we surely feel like letting them shift for themselves in public opinion this week, and do the best they can with the burden of abuse which they are laying claim to. For never have we seen so dark and disagreeable a May as the first half of it has shown forth. Of course, it all makes for more rainfall vegetation—more grass for pasturage, more growth for hay and for grain also, more growth on newly planted fruit trees and perhaps more and larger fruit also—on the whole, though we are getting more specimens of "brown rot" in young fruit than we ever saw before in a single year, and much more indication than usual of curl leaf and mildew in places not accustomed to it. It is, perhaps, irresistible that May damp and darkness, displacing normal warmth and sunshine, may depress us unduly, but when one tries to see the glories of one hundred and fifty thousand dollars worth of gold nuggets at the Exposition on "California Day," and has to catch the gleam thereof though a film of fog or rain-cloud which storms the enclosure, without depositing either coin or permit at the turnstiles, it is almost irresistible to be peevish. The early bird at the Exposition surely gets the worm, for that organism has to crawl out to air his bedding instead of tunneling deep for subterranean moisture, as the California worm expects to do in May. But even in this there is prospective compensation, for the lawns and plants will be all the more beautiful later on, when the great throng comes to see them. Of this we haste to take testimony from an expert, even one none less than A. Cheshire Mitchell, president of the Washington State Hotel Association, who declares that "the real rush of tourist travel to the West will not begin until the first of June, when all of the hotels along the Coast will be more than rewarded for the trouble of preparation for the coming tourists." If a hotel man can talk happily, why should the rest of us worry?

California Is an Apex.

While it continues so moist underfoot it is some consolation to be on top of something. California has been called an acme of this and that, but never before, so far as our memory goes, have we figurd as an apex. It is particularly appropriate, for an apex is a thing which gets above the clouds—and we surely wish to. "The apex of travel in the United States and the ultimate destination of most of the foreign travel," is the way President E. P. Ripley of the Santa Fe sums up what the railroad world expects California to be during the year, according to an interview in one of our daily papers. "With the Exposition and the untold opportunities that California offers, all the travel this year will be westward, and most of it is coming to California. All the different systems have made elaborate preparations to handle the heavy traffic this summer. It may not be generally known, but a large number of people have already made reservations for the summer months and in many cases there are no return coupons attached to their tickets. There are lots of people bound for California who intend to see the Expositions and then look for a home and remain here."

An Apical Californian.

We do not always agree with Edward Berwick of Pacific Grove, but we are hunting for an apex now, and he surely is the Californian who has stood most persistently for certain things which many people were hopeless of attaining, and has seen them come through. It did not matter to him that people were listless and weary—he climbed just the same. We doubt if any Californian has chased apexes so successfully as he, and mounted them so securely—Isthmian Canal, parcels post, postal savings banks—these are three peaks which belong to Mr. Berwick by right of early sight and attainment. He is no Dr. Cook in his apexity; he really makes the point. And now Mr. Berwick is after the highest apex he ever scaled, and he is talking in the high schools about it. On a recent occasion he said: "The best prayer for peace would be to work for the extension of the American system—the Monroe Doctrine, as put in operation by Monroe himself on our northern frontier. He virtually said keep away from this continent your accursed European system of militarism. After the war of 1812 to 1814, there were two courses open to Monroe. He could have followed the European system, crowded the great lakes with vessels of war, and caused the rest of the Canadian line to bristle with forts and resound with the roar of great guns. There were not wanting men who desired this done. Manfully he resisted and inaugurated the American system, with its motto, "If you want peace prepare for peace." Broadly speaking, he agreed to have no warships whatever on the great lakes (only four small revenue cutters or patrol vessels) and, by a further tacit understanding, no forts, or garrisons installed on the frontier. For near 100 years this American system has proved a grand success. What two nations can do two dozen nations can do; and it is for those who pray for peace to work for peace by using our standing by our successful American system; and to resist the adoption of that European system which, by its recrudescence of barbarism, is making chaos of that unhappy continent."

Who said the Monroe doctrine was getting old and shop-worn? It is at this moment the highest apex in the world, and Mr. Berwick will get there!

'Ere's to the 'En!

If, in the dry town in which we live, we could find an old cork which has not lost its savor, we would steep it out, make an egg-nog, and drink 'earty to the 'elpful 'en, for she, too, has surely flown to an apex in California! Thanks to the careful and sustained effort made by believers in the importance of the poultry industry to the people of the State, the Legislature provided for the creation of a commission whose special duty shall be to work for the promotion, the profitability and the protection of our poultry products in practical, scientific and economic ways. Our poultry readers already know much about the purposes of this legislation, and if there is anything more they need to know they will also know where to find it as soon as it is available, viz.: in the Poultry Department of the Pacific Rural Press. President Geo. H. Croley of the Federated Poultry Association, and his associates in poultry promotion, have kept up such a crowing, clucking and scratching in our journalistic backyard during the last few months that we have given up all hopes of cozy morning naps and have even feared for the safety of our fruits and flowers. But we are reconciled to the condition by thoughts of the greatness, the usefulness, and the ready-money quality of the poultry industry. We know of nothing which can compare with it as a starter toward independence in farming, if one does it intelligently and devotedly, and nothing which pays better for the capital and labor required, if one pursues it aright on a commercial scale. And when this is said, it is clear that the Legislature did wisely in extending help and encouragement to the great industry of little things, as the poultry business might be truly called. The new law has gone to the Governor in good shape, apparently, and will receive just as careful and conscientious attention as he can practically give to the many subjects which are placed before him for approval. It is very important that he should know just how important the poultry and egg producers of the State think this legislation is, and no doubt he would like to hear from all who desire to see the poultry interest advanced in importance and prosperity. Therefore, write to the Governor about it this week, and be sure that he will find time to know the contents of every letter that is written to him on such an important subject.

On the Way to Rural Credit.

The California Legislature, which adjourned at the close of last week, did not give us a system of rural credit, but it put us on the way to it. The reason it did not at once actuate the provision of funds for farming advancement and improvement in the hands of private

owners is found in the fact that to use State credit to put such agricultural promotion in operation it is necessary that authorization should be had by amendment of the State Constitution. The Legislature passed such an amendment and referred it to popular vote at the next proper election. The Legislature of Missouri recently did the same thing and Anderson Craig, chairman of the Senate Appropriation Committee of that State, and a farmer of forty years' experience, says this: "If the amendment making this law constitutional is adopted by the people, I think it will be the greatest legislative achievement in the history of the State. It will bring in an abundance of foreign capital. It will put the farmer on his feet, and enable him to meet all competition. It will start the wheels of commerce in every village and city. It will encourage the small farmer and tend to reduce the tenant system. It means the solution of one of our greatest problems." This is the way rural credit legislation gets on its way in Missouri. A brief sketch of the proposed method of operation is this: "If the people of Missouri amend its constitution to permit, the State itself will run a farm loan bank with $1,000,000 of cash. It will lend on first mortgages up to half the farms' value on long terms amortized. After $500,000 has been so loaned, non-taxable 5 per cent bonds will be sold against such mortgages to get more money to lend until $40,000,000 of bonds are outstanding. Each $1000 will be paid off in twenty-five years, provided the borrower pays $65 thereon each year, including 4.3 per cent or $43 as interest, 1.7 per cent or $17 to reduce the principal (amortization), and one-half of 1 per cent or $5 for administrative expenses—if the bonds can be sold to net par.

This undertakes to do more than California has thus far agreed to, but California proposes to keep at it, for the Legislature authorized the appointment by the Governor of a commission to study the subject of land colonization and rural credits. The commission is to consist of five persons, who are to serve without salary, but are to be paid their expenses, the sum of $5,000 being appropriated for the purpose. The commission is to make a report to the Governor before October 1, 1916, together with recommendations as to suitable legislation. Thus the subject will be kept alive until the next general election, and everyone should have his mind made up by that time.

The Sheet-Anchor of the Stock Industry.

With all the glorious grass which will be uncropped this spring, and with all the water running wild which ought to be reservoired and turned into corn and alfalfa, one can but be glad of the assurance that the other end of the live-stock industry, viz., the packing end, is to be more adequately developed. San Francisco people are glad of the new greatness which will come to the metropolis by the continuation of deep-water frontage several miles down the peninsula, and they are justified in their expectations from it. But we naturally look at the extensions of the packing industry and traffic which are being talked about rather more in their relations to the utilization of greater areas of our available coast valley and mountain lands in grazing and feeding enterprises. There have been growth and development in California packing activities for years, but not at all as rapidly and extensively as the opportunities warrant. We should be fully free from the packing east of the Missouri river. We should produce on this slope all the meats which are needed for local consumption, and for the manufacture by local packing establishments for the Pacific trade, and for Europe, via the canal. In this matter the canal puts us nearer to Europe, perhaps, than are the packing points in the Middle West—at least, we shall no longer be handicapped in the race with them for distant trade. And this gives particular interest to the statements made by reporters of the city dailies to the effect that B. W. Seymour, expert engineer representing the packing interests of Chicago, has been recalled from Brisbane, Australia, where for the last three years he has been engaged in constructive development work for the Chicago packers, and placed in charge of the work of making South San Francisco a deep-water terminal, with the ultimate object of making it a great industrial center. Mr. Seymour declares that San Francisco undoubtedly will become the New York of the West, and that his people, in planning for the development of South City as an industrial center, are but seizing an opportunity apparent to many moneyed men of the East.

Of course, we know that Chicago packers who have been exploiting California land and water for years, seem to be just as keen to pack coin in their pockets from real estate deals as they are to pack meats and lard in tins and barrels, so that present activity on their part does not lead us to expect too much from this new outcropping of energy on their part. And yet, the greater development of San Francisco Bay resources will probably bring greater meat-packing, and thereby greater safety to extension of our growing enterprises, than if the flats should remain the tango-floors for gulls and mudhens. We are not deceived, but are still hopeful.

Great Lights on the Produce Horizon.

And while we do not credit the great Chicago packers with activity "all for the sake of California," we must be fair and doubt also whether all the great lights which the Napoleons of the fruit trade are making on our horizon are to light the way of the producer to the fullest reward for his labor. The producer has no right to expect that Napoleonic movements in trade should be wholly in his interest unless he makes them himself. Nor has he any right to blame the getting-together of others while he and his fellows stay apart. Very important suggestions concerning the getting-together of producers for the distribution and sale of their products are continually being made in our columns by those who have given the subject careful thought and wide observation, and they will continue until something more is accomplished, if it takes a century. It is bound to come: it is, in a way, another apex—like those previously mentioned. But the trade has its own ideas about apexes also, and a trial was apparently started toward one in Sacramento last week in the formation of a non-profit fruit-handling organization, to be known as the General Sales Agency, which will maintain offices in every carlot market of the United States and Canada. The purpose of this new organization is to obtain the widest possible distribution of farm products. The officers of the Agency are Thomas O'Neill of Los Angeles, president; A. R. Rule of New York, first vice-president; Charles E. Virden of Sacramento, second vice-president; Arthur Gregory of Redlands, secretary and treasurer; George A. Charters of New York, managing director; Walter Farley of Chicago, general manager; and additional directors are S. Di Giorgio of New York and J. S. Crutchfield of Philadelphia. All these gentlemen are prominent in trade for its own sake, and they have probably no particular interest in trade for the producers' sake except in their individual capacities, to the extent that they may be producers as well as traders. They can, however, do a good many good things for California products in their own way.

Queries and Replies.

Querists must give name and address.

Getting Rid of Suckers.

To the Editor: Please inform me how to get rid of the spreading growth from the common willow; also of the blackberry vine?—J. M. H., Modesto.

Some plants can be prevented from shooting from below by removing buds from the parts of the cuttings, which are placed underground, when such plants are started from cuttings. This applies to currants, gooseberries, etc., and perhaps to willows. After such a plant is started, there is nothing to do but to uncover carefully and smoothly cut away the bark around the points from which suckers are starting. This surrounding bark contains the latent buds from which suckers start. It avails nothing to cut off a sucker, except in this way, because that causes more buds to start from below. In the case of bush blackberries and raspberries, these suckers are desirable because they furnish the new bearing wood for a following year, and because new plants are made by taking up these suckers. The trailing berries, which root from tips, do not usually make shoots from below except from the old stump or crown, and they are needed for subsequent fruiting. Roots from suckering or running-root varieties, which run out too far—beyond the new canes which it is necessary to keep for fruiting—can usually be easily pulled out when the ground is moist and soft, or may be dug out. No plant-killing chemicals can be used without danger of killing the whole plant as well as the running roots.

Bermuda Grass and Ground-Freezing.

To the Editor: Will Bermuda grass grow in Nevada, or will it grow where there are real cold winters?—C. S. D., Fernley, Nev.

Bermuda grass is of very little value in the United States north of Maryland. Even in places northward, where ground freezing may not be hard enough to kill the roots, it is still so late to start and so frequently cut back by frosts that it is of little account. The same rules would apply to the Pacific Coast: viz., where there is hard ground-freezing or liability to frost late in the spring and early in the fall Bermuda is practically useless. In the south of Nevada there are probably places where it would grow well on moist or irrigated land, and it would endure more alkali than other grasses. There may be elsewhere in the State thermal conditions which would suit it, but one should have a local demonstration of its growth before he planted it, except experimentally.

Strong Fruit Buds Through the Tree.

[Written for Pacific Rural Press.]

Peach terminal shoots grow faster than the laterals under ordinary conditions. If allowed to grow all through the season, the terminal shoots kill the lower laterals by shading them. This gives much less chance for fruit to set except at the ends of the limbs. This fruit so far from the body of the tree exerts extra leverage, bends the branches outward and downward, opens the bare inside limbs to sunburn, and breaks them. If the main limbs are strong enough so that they hold the fruit up and save themselves from sunburn and breaking, the fruit is soon high up out of the way of the pickers. And regardless of the fruit, it makes necessary a great deal of extra work in winter spraying and in pruning. Similar principles apply to all fruits, with variations in details of growing habit.

Second Year Wood Cut.— Peach trees of early varieties were pruned in June right after the crop was off by C. A. Keffer of the Tennessee Experiment Station, and others in similar conditions were left unpruned, while others were summer pruned in August. The new growth was left, where it had grown out of the old wood, but all the wood of the previous year's growth, whether it had borne fruit or not, was cut back if located on the inner part of the tree. The outside of the tree gets enough light anyway probably so that those spurs were not cut back so much. The object was to thin out the foliage and induce the plump development of fruit spurs on the main frame of the body.

Ropes of Bloom.—Part of the second year wood was cut back to an inch from its junction. The rest of it was pruned to varying lengths up to eight inches. The best results in fruit buds came from the stubs which had been cut shortest. On some of these, the new fruit wood came from buds at the base of the stubs; and strong fruit wood developed during the same season all along the main branches. The next spring these branches were ropes of bloom all the way down to the crotches.

June Pruning Best.—Unpruned and late pruned peaches were relatively poor, especially on the lower parts of the branches; and many of the late pruned stubs had died. The late pruning was injurious because the terminal growth had been allowed to take strength from the lower buds, leaving them so weakened that when all the terminal growth was cut off, no buds were left which would produce vigorous bloom next season.

Another reason for injury by the late pruning is pointed out by Horticultural Commissioner A. L. Rutherford of Stanislaus county.

"What is the function of leaves?" says he.

"To change the sap sent to them by the roots into forms which can be used by the tree in building tissues and buds," was the answer.

"Then if you cut them off, what happens?"

"If you take all the leaves off the tree in the summer time, it is badly hurt and probably killed."

"This is what Mr. McHenry did here. He killed one-third of his peaches by severe pruning in August or September. After such pruning, there isn't likely to be much more new wood that season, but if the work is done in early July, there will be a multitude of new laterals which will grow six or eight inches before winter."

Not Too Severe.—Then the question is: Do we want these laterals? They develop wood with fruit buds for the next year all along the main limbs. Isn't this desirable? To be sure, leaves which are the breathing organs of the tree have been removed at the same time that the reserve of the tree is drawn to produce new young leaves and buds, but this is not so serious a loss, if judgment is used not to remove too large a proportion of the older leaves. The current year's growth from the older wood may be left; and this will be more numerous as the years of summer pruning continue.

In cutting back, only enough branches of the old wood ought to be cut so that new laterals will be developed numerous enough to set a full crop. Part of the wood may be pruned long enough so as not to waste the old leaves; but remove young leaves, which are drawing reserve food material from the tree, anyway, in locations where fruit would not be desirable.

Relation to Winter Pruning.—While there is very little summer pruning in Stanislaus county, according to Mr. Rutherford, on account of the heavy thinning and winter pruning the trees to goblet shape, Deputy Horticultural Commissioner F. C. Brosius of Sacramento county has noticed that in El Dorado county the growers remove most of the new wood from Elbertas about July 1. In Stanislaus county, after the heavy winter-thinning, a summer pruning such as Mr. Keffer performed might leave the inside of the tree so open it would sunburn. Mr. Rutherford's ideal size of the hollow left inside the tree is such that the new growth when it has come to full size will reach across the inside and fill it "tolerably full." Later this foliage will be thinner because the leaves shrink when the wood growth begins to harden for winter. These trees would not sunburn if they had been summer pruned so that enough sunshine could penetrate the inside of the tree to develop fruit wood low down, such as Mr. Keffer developed on his trees.

Early Summer Pruning of Late Varieties.—Experiments by Mr. Keffer on late ripening varieties of peaches showed the same results as those on the early varieties, confirming Mr. Rutherford's fear of late summer pruning. For this reason, Mr. Keffer recommends June pruning even for the late varieties. This will necessitate a slight loss of crop, but not so much as might be expected. If started when the tree is coming into bearing, half of the two-year wood can be cut back and the other half left to bear the crop. Then, next year the crop will be on this season's new growth from the stubs. On older trees, very little of the crop need be sacrificed in early summer pruning of late varieties because a certain percentage of the wood is always sterile. Considerable of the rest is too crowded to mature good fruit anyway and this would be another means of thinning the fruit. At any rate, it is worth while to sacrifice whatever is necessary, especially toward the end of the limbs, in order to open up the tree in summer enough to induce the maturing of strong buds low inside, for the next year's crop.

The Value of STILETTO

The banker's endorsement on a certified check is an absolute assurance to you of its value—the name STILETTO on any piece of hardware—any tool—any farm or garden implement or can of paint is equally as great an assurance of value. STILETTO stands for the highest quality attainable in the article which bears its name—it is a positive guarantee of worth—see to it therefore when buying anything for the house, garden, factory, farm, bench or shop—that STILETTO is stamped upon it. It warrants your confidence.

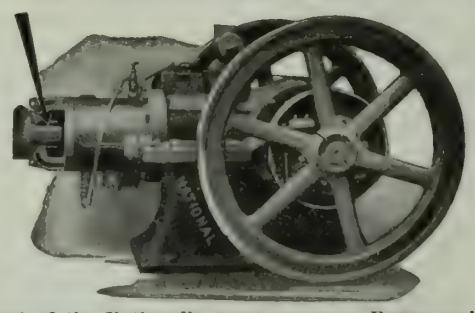
Wherever good goods are sold you can get STILETTO brand.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

THE NATIONAL OIL ENGINE

Runs On 2½c Fuel



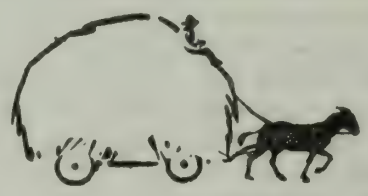
Requires No Batteries Magnetos or Spark Plugs

The secret of the National's great economy, Power and efficiency is in the Internal Igniter (see cut). This is a distinctive feature in the National. It is far superior to the usual type of External Hot Ball.

We guarantee the saving in fuel expense and purchaser's own judgment will tell him that in doing away with 90 per cent of the small, delicate and complicated parts springs, gears, etc., that he is getting away from engine trouble when he invests in a National. 1915 catalog now ready.

Reduce the expense and increase the efficiency of your Power plant by installing a National.

National Steam Pump Company
Upper Sandusky, Ohio.
Address California Distributor, J. C. WIGHT,
4927 Budlong Ave., Los Angeles, Cal.



No matter how heavy the load or how long the haul

MICA AXLE GREASE

stays on the spindle and prevents hot boxes and scored spindles. It's the ground mica that does it. The mica resists heat and wear—makes the grease last longer—makes better lubrication. Dealers everywhere.

Standard Oil Company (California) San Francisco

Orange Growers May Regulate Retailers.

[Written for Pacific Rural Press by J. G. Berneike, M.D., Santa Ana.]

If we can agree that the trouble of the orange grower does not arise from over-production, from tariff changes, or from the war, we have still to consider the marketing system. Our co-operative efforts have remedied the troubles which existed at our own end of the line. Here we have ruled out individualism; but at the other end, it is still as rank as ever. The feeling is almost universal that there are too many middlemen between the producer and the consumer. And that it is in consequence of this condition that the producer is squeezed as well as the consumer. The obvious remedy is to eliminate the unnecessary middleman. The grower has been driven to a strait where he finds himself compelled to make war on this time-honored institution. A go-between is necessary in order that the producer may reach the consumer, but he must be under control of the producer. He must perform the necessary work in the most systematic and economic way.

It is believed that this can be accomplished by the establishment of district warehouses throughout the country. Two prominent orange-growers of Orange county suggest through the press that these districts be several hundred miles in extent, that the warehouses receive and place in cold storage the fruit as it arrives, that the manager distribute the fruit direct to retailers who are not to be eliminated. These gentlemen, Messrs. Bayer and Zaiser, claim that they know both ends of the game, combining both the experience of growers and wholesalers.

It seems as if such a plan were practicable, and while it could not be carried out at once in full, yet a beginning might be made somewhere. It would be well to pick out a center of dense population where California oranges have already become well known, where competition from Florida and Spain is somewhat hampered, where it will be easiest to overcome the opposition that will surely arise from the middlemen who would organize to save their bread and butter. The capital required to start in one place would not to be so difficult to find, whereas it might prove too large a task to cover the entire country at once.

In such a move the sympathy and co-operation of other large California co-operative enterprises could be enlisted. There is no good reason why the walnut, raisin, almond, dried-fruit growers and others could not be drawn into this movement for the good of all. If such a movement as proposed is carried out, it would be easy to advertise our California products at a low cost, the price to retailers would be uniform and low, and the price charged by the retailer to the consumer could be controlled, even absolutely fixed, by the Exchange, so that the price should be no longer prohibitive to the consumer, as is too often the case now.

And here is the answer to the question, "Why is there underconsumption?" It is because the price is prohibitive to a large part of the people.

The warehouse districts might be made to coincide with the first and second postal zones, and the district warehouse could be a center for parcel post distribution.

It is no doubt true, as the jobbers and wholesalers pointed out, that the retailer takes the largest share (33%) of the consumer's money. That furnishes invincible proof of how wasteful our present system of distribution is, and yet, under this system and with an apparently immense profit many a retailer finds himself barely able to make a living. So he shifts the blame to other shoulders. If the mail were distributed under a system as wasteful as that under which groceries are distributed, it would cost us nearer 25 cents than 2 cents to send a letter. Each little village would have two or three postoffices, each small or large city as many as it has grocery stores, and there would be mail jobbers and wholesalers. Does this idea seem ridiculous? Well, it is. And so is our present system of food distribution. But it has become so venerable by age, it is really a mental effort to think that it might be changed and systematized like the delivery of mail.

I never had a motorcycle or auto order man call on me to find out how many stamps or envelopes I wanted today. I have given many a 10-cent or 25-cent order to the grocer's order clerk. What a foolish waste! But we like it, and as long as we like it, it is just the thing we like.

The California Fruit Growers' Exchange is strong enough to handle the situation and to introduce a change. The call from the citrus-growers will soon be so imperative that it will have to be heeded, even if old business methods have to be thrown overboard.

HOW CALIFORNIA SELLS ORANGES.

"There is one task ahead of us that soon or late will have to be tackled in something like the aggressive, thoroughgoing way in which the orange growers of California some years ago set about the marketing of their steadily increasing crops," said a Hood River apple-grower at the office of the Northwestern Fruit Exchange recently. "We've got to do in a large way what hundreds of family physicians the country over have for many years been doing in a small way—urge the people into a condition of health by insisting on greater consumption of the best all-around fruit that grows out of doors—apples.

"The orange-growers of California have for years been spending money in an almost absurdly liberal way in the exploitation of their fruit, tempting the fruit consumer in every imaginable way, and they have had their reward. Now they are marketing something like 40,000 cars of oranges a year, and at generally good prices, whereas 10 years ago 15,000 cars was about their limit.

"They have actually placed oranges within the reach of everybody in the country, with the result that oranges, once a luxury, now are a more or less staple commodity. By their action they have undoubtedly reduced materially the consumption of apples the country over, for they have everywhere put their golden-hued fruit in competition with the slightly less attractive but far more valuable commodity."

[Perhaps California also has something to learn about the way to sell apples.—Editor.]

WHERE THE ORANGE MONEY GOES.

General Manager Powell, of the California Fruit Growers' Exchange, has conducted some investigations into the question of where the money goes that consumers pay for oranges, and finds that the buyer's dollar is divided among the various factors concerned with the oranges up to the time they reach the consumer, as follows:

Fruit on the tree	26.7c
Picking and hauling of fruit to packing houses	2.4c
Packing house, including package, labor, etc.	7.4c
Freight and refrigeration	20.5c
Grower's selling cost	1.5c
Jobber's selling cost and profit	8.2c
Retailer's selling cost and profit	33.3c

Rome extended the supple, handsome fingers of her marvelous roads and caressed into civilization regions where barbarians still drank from the skulls of their enemies.

Krogh Manufacturing Co.

147-159 BEALE ST., SAN FRANCISCO, CAL.

Branch Sales Office, 206 No. Los Angeles St., L. A.

Krogh Deep Well Turbines

For bored or drilled wells from 10-inch inside diameter and up: and for capacities from 250 gallons per minute and up.

Built for Pumping from depths down to and including 250 feet.

Krogh Turbine Pumps

are absolutely water-balanced and are self-aligning.

Built-in, Belt-Driven, or Direct Motor Driven Types.

See Cut, which shows just how well built these pumps are.

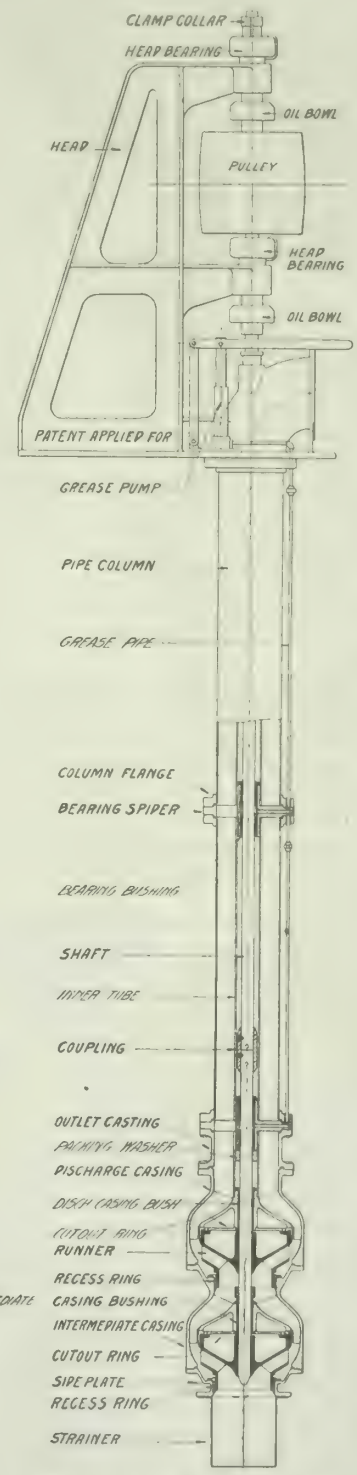
All the details are carefully brought out to give the most painstaking buyers the best opportunity possible to satisfy themselves as to the merits.

See our Exhibit at the "World's Fair," situate at the south end of the Machinery Hall.

Note how shaft is protected from gritty material contained in many wells.

We Ask Your Careful Consideration.

Write for Our Bulletin No. 85P.



KROGH PUMPS

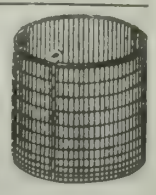
Water Balanced—Automatically and Hydraulically.

REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers. Steel and Wood. Prices the lowest.

BROWN & DYSON,

640 So. Center St., STOCKTON, CAL.



Mold Forgets Carefully Handled Berries.

[Written for Pacific Rural Press.]

California canned berries sell at 25 to 50 cents per case less than Oregon and Washington berries, though the California fresh berries sell at 25 to 50 cents per crate more than those from Oregon and Washington, according to Manager I. N. Cable of the Sebastopol Berry Growers.

The reason ascribed for the reduced price of canned berries is the careless methods now in vogue in picking and handling fruit before it is delivered to the cannery. Up north, they can all the berries on the same day they are picked; at Sebastopol, berries are hauled to town during the day and shipped to Santa Rosa during the night to be canned the next day. Where they are roughly handled, there is an extra amount of spoilage on account of the delay. Up north, they pick for the cannery as carefully as for shipping, according to Mr. Cable. But the prices mentioned by him would seem to indicate that while the Sebastopol people had learned careful picking for shipment, they are still careless about handling the berries for the canneries.

This condition may be due to the investigation started by several government men in 1912 to devise better means of picking, crating, handling the crates in the field, keeping the berries out of the sun after picking, hauling without bruising, and getting the berries into cool cars quickly.

The object of this investigation was to provide the best conditions for shipment East, and Mr. Mann, who had charge of the investigation, reported at the end of the season that much improvement had been wrought, especially among the small growers, who do much of their own picking. Special pickers were employed by the government men to go into representative patches, large and small, throughout the district and test out the suggested ideas for improvement.

Pick with Three Fingers.—The common way of picking blackberries and loganberries is to pull them off with the thumb and one finger, very often bruising the fruit more or less. Tests were made in keeping fruit, picked this way, with fruit picked by using the thumb and three fingers to distribute the pressure evenly about the berry and bend the berry sidewise just enough to start it breaking off at the cap before pulling it.

Fruit picked by the special pickers was kept in iced refrigerator cars at the same temperature as would be provided in transit East, beside equal quantities of berries picked as usual from all parts of the district and all sizes of patches. At the end of four days, one-third of the fruit was withdrawn and half of that third was inspected at once by everyone interested. The other half was held over night and inspected the next day to see how it held up after removal from refrigeration. Another third was removed at the end of six days and another at the end of eight.

Decay Related to Handling.—It was found that decay bears a close relation to the handling. Nature provides a resistant cover for the berries, which the spores of decay fungi cannot penetrate until they are broken. Unless the berries are bruised, they will live on, performing their life processes for many days after they are picked. In time, of course, they would die and break down anyway, but rough handling is what spoils practically all berries.

Tests Favor Careful Handling.—The commercially picked berries varied greatly in their keeping qualities, presumably in proportion to care used in handling. Some were not salable after four days of refrigeration. They were spotted, bruised, had settled, and showed a great deal of mold. A very few were salable at the end of six days. Most of the carefully picked berries were in good, merchantable condition six to eight days after being put into the car, having practically no mold and being in uniform, ripe, prime condition.

Growers Improve Methods.—The ideas developed from these experiments and inspection of berries as they were taken out of the car, led a large number of growers to insist that their pickers bend the berries with the thumb and three fingers to start them to break off at the cap, and many of them even increased the picking price from 24 to 30 cents per crate in order to get better work. A great many growers also provided shade in which to pack the berries, took more care about getting them into the shade shortly after picking, installed more careful methods of nailing the lids on, and handling the berries all the way through.

Perhaps this is why Sebastopol fresh berries on the central western markets sell so much better than the northern grown berries, and perhaps the growers have been careless about these things with their cannery berries because they were not to be shipped so far. At any rate, the Oregon way of handling cannery berries as carefully as shipping berries would seem to be well worth trying in California.

WRP
?

WALNUT SUCKERS VS. SUNBURN.

[Written for Pacific Rural Press.]

"I don't believe so much in whitewashing for sunburn on grafted walnut trees as you folks do," says Frank Straight of Concord, Contra Costa county. "I've grafted English walnuts for a number of years onto black walnut stock in the field; and instead of whitewashing the trees, I leave suckers to shade them. Along in May I clean off all suckers close around the grafts and those close to the ground, leaving the rest, especially those on the south and west sides, and pinching them back as soon as convenient after they are five or six inches long late in May or early June. Late in the summer some of the suckers will be larger than others and there may be more than are necessary to shade the trees. In this case I thin out the largest of them so the wounds won't be too big, and pinch back the small ones to five or six inches length. At the end of the first season, if the grafts have grown well, I take off all the suckers and the new top will shade the tree sufficiently. Varnish, paint, or wax will be applied to all large wounds. Paint is dangerous if its oil runs down on the healthy bark."

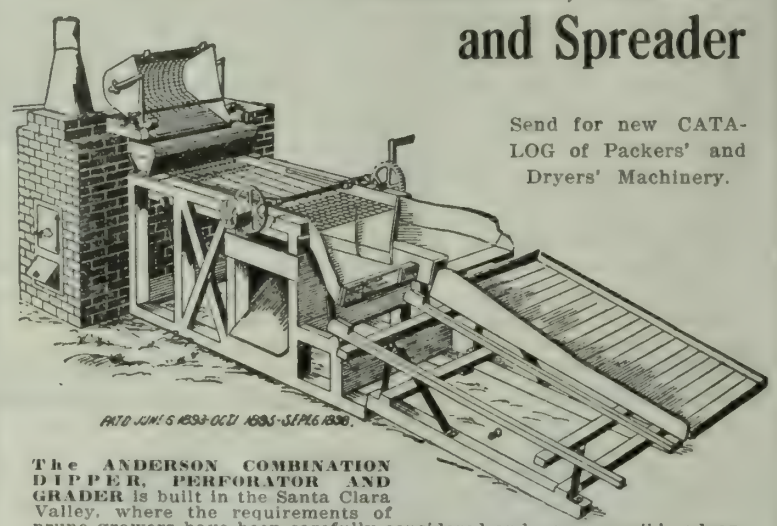
EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.

THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

Anderson Combination Dipper, Perforator, Grader and Spreader

Send for new CATALOG of Packers' and Dryers' Machinery.



The ANDERSON COMBINATION DIPPER, PERFORATOR AND GRADER is built in the Santa Clara Valley, where the requirements of prune growers have been carefully considered and every possible advantage incorporated into the machine. Can be furnished with or without rinse tank. Made in various sizes for hand or power.

SEND FOR 1915 CATALOG.

It illustrates and describes the entire Anderson-Barngrover line of Fruit Packers and Dryers' Machinery. A copy will be sent free to all who are interested. A postcard will bring it.

See our Exhibit in the Palace of Horticulture at the Panama-Pacific Exposition adjoining the Cuban Gardens, which are under the Big Glass Dome.

Anderson-Barngrover Manufacturing Co. 20 West Julian St San Jose, Cal.

New Type "AB" AMERICAN PUMP
and CHECK VALVE COMBINED
No Leak Through Stuffing Box.

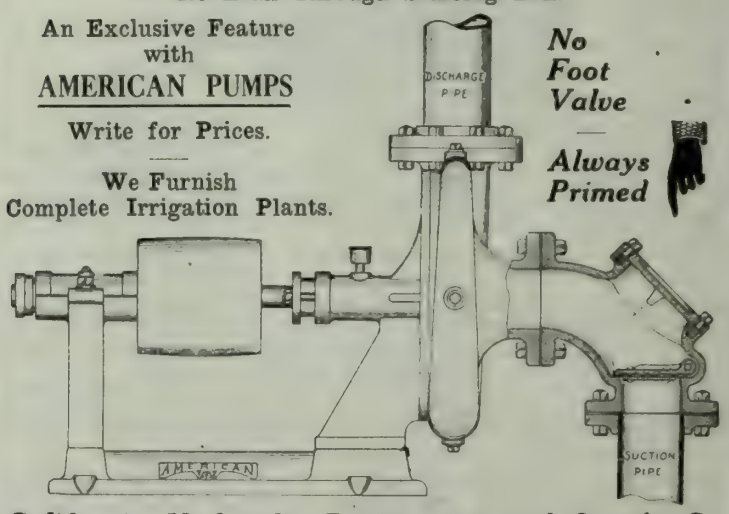
An Exclusive Feature with AMERICAN PUMPS

Write for Prices.

We Furnish Complete Irrigation Plants.

No Foot Valve

Always Primed



California Hydraulic Engineering and Supply Co.
68 Fremont St., S. F., & 129 No. L. A. St., L. A.

PHOSPHORUS Makes FRUIT

Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn out soils and Maintains and Increases the Fertility of good soils.

Write for Our Literature.

United States Phosphate Co.

405 Marsh-Strong Bldg., Los Angeles, Cal.
Our Mines are Located in Utah, Idaho and Wyoming.

Handling Bees Among Almonds

To the Editor: How can I hive bees when they swarm?—Subscriber, Escalon.

About a dozen hives of bees are used by Eugene Anderson of Contra Costa county to pollinate his almonds. He is the only man on the place who dares to handle them, though he says they do not bother him or his horses. When they swarm, being near the trees they will shortly settle in a bunch on the limbs, and Mr. Anderson claims they send out scouts to find a favorable location for their future home. If these scouts get back before the swarm is hived, they will lead a large proportion of the bees away; so the hiving must be done as soon as possible after they are settled.

Very often they are on a limb which is low enough to reach from a step ladder. If the limb is not too valuable, it is sawed off carefully and the bunch of bees carried down and shaken off onto a canvas cloth laid on the ground in front of the brooding chamber of a hive which is prepared for their reception. The cloth is fastened close under the lighting board so that none will crawl away under the hive. It may be well to puff a very little smoke onto the bunch. A slight tapping shakes the bees onto the cloth, and they will ordinarily proceed into the hive without much delay. If they do not, some slight puffs of smoke behind them will help them along.

Sometimes the limb is too high to reach from a step ladder and many times Mr. Anderson climbs the tree, cuts off the limb, and carries it down in one hand. He says that if he should let it down with a rope, the chances are that a great many of the bees would be shaken off and lost. If it is not convenient to carry the bees on the branch to the apiary, the hive may be brought close to their settling place, picked up after they have entered it, and carried thither without danger. The newly hived swarm must be moved at once to the apiary, at least 50 feet away, so the returning scouts cannot find and lead them away.

If the branch cannot be cut, the hive is brought as close under it as possible on a step ladder, and held there while the branch is tapped until they fall into it. Such indispensable limbs are not likely to be found so high in the tree that a step ladder cannot be used.

No Bitter Honey.—Mr. Anderson's bees were originally pure Italians, but inasmuch as he has not imported purebred queens at least biennially, they have all reverted to the wild sort which cannot be identified with Italians at all. Nevertheless, as much as 60 pounds of beautiful white honey has been taken from each colony in a year, though this is the exception. About ten or fifteen pounds per colony had already been taken before April 20 this spring. Mr. Anderson says that, contrary to recent notes in the Pacific Rural Press, the honey has never been bitter except once, though the first lot is made almost entirely from the almond bloom. Some years ago, both his honey and that of his neighbor, Mr. Straight, was too bitter to use, but they think it must have been due to some other plant which the bees had visited. This almond honey is about the first of the season to be produced in the State, as Mr. Anderson says the Sacramento River alfalfa honey is not taken out until about the first of June.

Bees for Pollination. — Honey, however, is not the important object of these bees, for Mr. Anderson would keep them to pollenize the almonds alone if for nothing else, and he says they do it with a right good hum. They are very busy in the orchard during the almond bloom; and the fruit now set on this 18-year orchard seems to indicate that the bees had much to do with it. Horticultural Inspector Percy Douglas admires the crop as the best in his district, and surely it has all the nuts that the trees can bear.

FIGS FOR THE BIRDS.

To the Editor: Could you offer a suggestion regarding the following plan for the protection of Smyrna figs from birds, or is there some better way of controlling the pest? Last season we found them especially fond of the purple variety which, ripening ten or twelve days ahead of the Smyrna, may be used with strychnine, grafting certain favorite branches and growing trees along a road or canal. They prefer this fig to the Elberta and Phillips peaches and might be attracted in the same way from early fruits by the Lemon fig, which ripens down south in May. Purple Smyrna bears abundantly at from 3 to 5 years. Require no more care than other figs, and no wasps.—G. C. A., San Francisco.

[Early fruits are often proposed and perhaps planted to some extent to keep the birds busy and to attract them away from the trees you wish to save. If your plan is to grow such figs, pick and poison them and expose them in a way to warn people not to touch them, it would be a legitimate protective measure. If you propose to put strychnine in these fruits and leave them in their natural position on the trees, there is probably too much danger of poisoning intruders to warrant the proceeding.—Editors.]

FILLING CROTCH BASINS.

To the Editor: Most of the trees on my 18-year prune orchard have a crotch at the junction of the limbs caused by developing the branches of the young trees near the same point on the trunk. These crotches collect water, fruit, leaves, etc., causing a rot which weakens the trunk at this point. When would be the most advantageous time to clean these out and fill in? I plan to use a 1-6 mixture of sand and cement. Can you advise anything better, or as good and cheaper?—J. J. Santa Clara.

[It is probably desirable to excavate the cavity before filling the basins with cement and to remove all rotted wood and a little bit extra for a margin of safety. Then filling the cavity with cement and sand, or with sand, gravel, and cement will prevent the entrance of more water or spores of decay if you heap up the cement so it will drain well. The sooner you can do it, the better.—Editors.]

SUDAN GRASS NOT BAD.

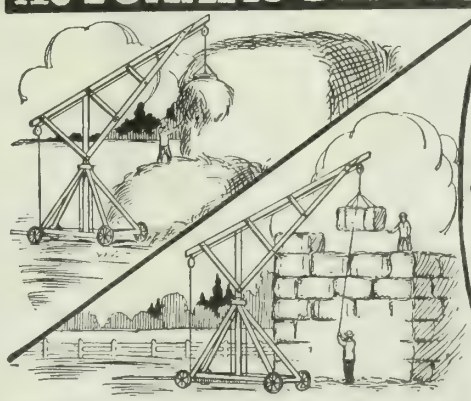
To the Editor: What is your opinion of Sudan grass? Is it a good stock feed to raise? Does it have serious objectionable features?—F. L. D., Oakland.

[We have had some big samples of this grass in our office, raised in the southern Santa Clara valley, which showed that it grows a heavy coarse straw if allowed to go to seed, after which it may be cut and another big crop of fine grass for hay will grow. It is of the Johnson grass order, but has none of the objectionable features of Johnson grass. The danger is that because its seed so closely resembles Johnson grass, unless seed growers are very careful, there will be a mixture and Johnson grass would be imported in the seed.—Editors.]

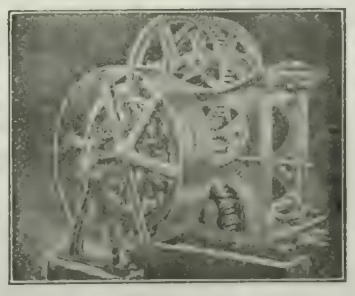
BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

Luitwieler Pump
Exhibit at Both Expositions.
Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.
Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

The Best Way to Handle Loose or Baled Hay
This derrick is used by all modern farmers and will handle loose or baled hay in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved about as easily as a farm wagon. Has great lifting capacity, and is invaluable for hoisting machinery, timbers or heavy loads of any kind.
Write Us Now
and we will tell you all about this derrick—what it can do and how it can save you money.
SCHMEISER MANUFACTURING CO.
DAVIS — CALIFORNIA — BOX 87

CITRUS TREES
Grown by
TEAGUE
—in the Largest Citrus Nurseries in the World.
are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.
Citrus Trees Exclusively
We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.
Place your order early while a good stock is to be had. Get in touch with us.
Send 25 Cents Today
for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.
Quotations Gladly Given
free upon request. Ask for prices and suggestions.
San Dimas Citrus Nurseries Inc
Established 1890 by R. M. Teague
San Dimas, Cal. U.S.A.

Pomona Deep Well Pumps
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.
Write for Catalogue 104,

Do not get oil into the water. Consume less power per unit volume of water pumped.
Write for Catalogue 104, with valuable information on irrigation.
Pomona Mfg. Co., Pomona, Cal.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

LAND

With Pay Day Every Day

That's the kind of land for the farmer of moderate means. In a few years you will be independently rich, then plant part of your land to olives, figs, peaches, etc. But to make money, QUICKLY AND SURELY, there's nothing better than cows, hogs and chickens, raised on alfalfa at

Fairmead

the worth-while fruit and alfalfa section of the San Joaquin Valley, where land prices are still low.

Where an acre of alfalfa will support a cow the year round;

Where good cows are bringing in around 30c each per day;

Where 20 cows mean $6.00 per day, CASH;

Where you can raise hogs at 4c per pound and sell them for 7c to 10c CASH.

Fill out and send today for free booklet.

Co-operative Land Co.

595 Market St., San Francisco.

"How to Secure a Farm at Fairmead on easy terms."

Please send me free booklet,

Name .....

Address .....

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.

Make Your Farm Make More Money

Western Simplified Farm Record

You can make more money off your farm by using this simplest, easiest and most satisfactory of farm accounts ever devised.

It's the Record that is Making Hundreds of Farmers Independent

It lets you know just what money you are making—tells you at a glance just where you are losing money—shows you the leaks—just where your money is going. It places your farm on the same sound basis the successful city business houses are. IT IS SO SIMPLE A CHILD CAN KEEP IT. It is endorsed and recommended by all Bankers and Farm Experts—Banks make quicker and more liberal loans to farmers who use it. Send for full information about this simple system today. It contains six years' records substantially bound—500 records sold around Stockton in 90 days to 500 satisfied users. Costs only 10c a month to systematize your farm business. Every day you are without this money-saving system it is costing you many times its cost. Use it one whole year—if you are not satisfied we will return your money. Written guarantee to that effect. Don't delay. Write today for sample sheet. State and County Territory open to a few reputable, wide-awake men.

WESTERN FARM RECORD CO.

322 Humboldt Bank Bldg. San Francisco, Cal.

California Vegetables. $2 postpaid. Pacific Rural Press.

Raising 150,000 Tons of Sugar Beets.

[Written for Pacific Rural Press.]

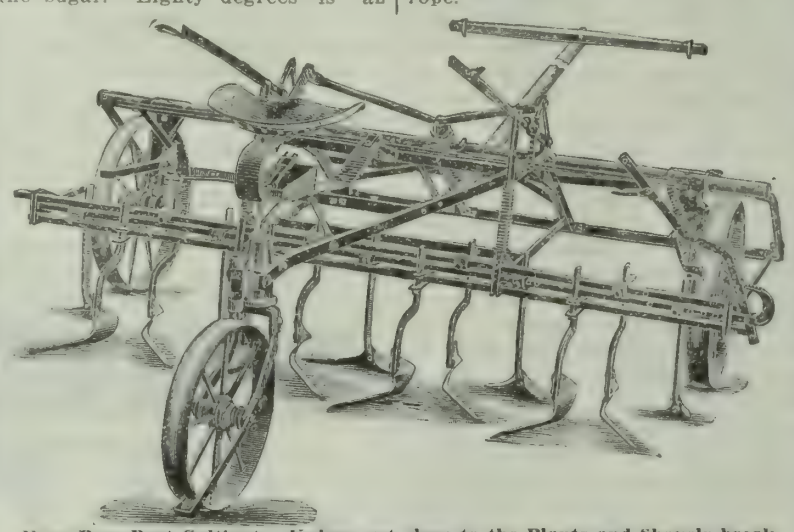
Almost within the sound of the surf of the greatest body of water west of Ventura county is a district so favored that even in this year of European war and tariff reduction, 17,000 acres have been contracted to be planted into sugar beets for one company. According to Horticultural Commissioner A. A. Brock of Ventura county, there were last year in the Oxnard district 14,810 acres which averaged 10.17 tons of sugar beets per acre, testing 21 per cent sugar, and these sold at $6.30 per ton average. This shows Ventura county produced 31,629 tons of the 722,054 of sugar raised in U. S..

It is a mild climate, coupled with a great number of foggy days which makes this section so productive of the sweetest sugar beets raised in the United States, testing 21 per cent sugar on an average. The fog favors assimilation of the carbonic acid gas of the air, which furnishes the sugar. Eighty degrees is an "awfully high" temperature and it very seldom gets above 72 degres, according to G. E. Bensel, Agricultural Superintendent for the American Beet Sugar Co. There is practically no frost, the lowest recorded temperature having been 28 degrees for a few hours only, and it seldom gets below 32 degrees.

Though the average rainfall is only sixteen inches, it is enough, on account of the fogs and low temperature. Early fall rains before the crop is harvested, November 1, very seldom occur. They would increase the tonnage of the beets, but would not add any tonnage of sugar, and would interfere with harvesting, so would be undesirable. The water table is largely 3 to 5 feet under the surface; the soil varies from heavy adobe to sandy loam. The latter is preferred for beets because it may be worked up fine more easily. Those farmers who have very rich soil, high in nitrogen, get a large tonnage, but low sugar content.

Contract Beet Crops. — Farmers who wish to raise a crop whose market is assured, contract with the sugar company to raise whatever acreage they desire, and deliver the beets to the company at maturity for $4.50 per ton for beets which test 15 per cent sugar. If the beets test below 15 per cent, the price per ton is reduced 25 cents for each percentage lower than 15 down to 11 per cent, for which $3.50 is paid. Beets which test less than 11 per cent are liable to rejection. Those which test over 15 per cent are paid for at the rate of 30 cents per ton extra for each increased percentage. This is why the price last year averaged $6.30 per ton on a basis of $4.50 for 15 per cent beets.

American Growers.—"Most of our farmers are white men — not over one per cent are Japanese," says Mr. Bensel. "If a farmer is unable to plow his land 12 to 14 inches deep, which is a most important factor in beet raising, the company will plow it for $4 per acre with one of their dozen caterpillar tractors and Killefer plows. Many of the farmers themselves have their own tractors and machinery. We furnish seed to the farmers at 12 cents per pound. There was no change in price on account of the war, though the company had to pay 33 cents for several cars, most of which came from Europe."



Four-Row Beet Cultivator Knives get close to the Plants and Shovels break Out the Middles.

Beets are planted with four or eight row planters, built somewhat like grain drills, in rows sixteen to eighteen inches apart; or alternately fourteen to twenty inches apart for irrigation, very little of which is practiced, however, because it shows less profit on account of greater tonnage, but smaller sugar percentage.

About as soon as the young plants show through the soil they are rolled and cultivated with two-horse light riding cultivators with two knives running close to each row.

Thinning Most Important.—"We consider thinning one of the most important operations, upon which depends the success of the crop," says Mr. Bensel.. "If we leave two plants in one place, neither amounts to much. As soon as they have four leaves, they are thinned by hand to eight to twelve inches apart, leaving the strongest plants. This is done mostly by contract with Japanese, Mexicans, or Hindoos at the rate of $4.50 an acre, and is done at the same time as the weeds are hoed out of a strip two inches on each side of the row at a contract price of $2.50 per acre. This contract price includes keeping the rows free from weeds until the crop is laid by in May, June, or July, according to the time it was planted. One man can thin and hoe out half an acre a day.

The farmer himself carries on all horse cultivation, the ordinary im-

Put Hercules To Work On Your Farm.

NOT the Hercules of mythology, but the modern Hercules—Hercules Dynamite.

Hercules Dynamite does the work of a dozen men; does in minutes what would take them hours, and does it at a fraction of the cost.

By means of subsoiling Hercules Dynamite releases great quantities of virgin plant food and restores fertility to worn-out soil.

Trees that are planted by its aid are more healthy and vigorous than trees planted in spade-dug holes, and they bear earlier.

Hercules Dynamite rids the land of stumps and boulders.

It helps to drain marshy land and it digs ditches, cellars, cisterns, etc.

HERCULES DYNAMITE

does all these things more quickly than they have ever been done before, more easily, more economically, and more efficiently.

Just *how* Hercules Dynamite does this work is told in a plain understandable way in our

VALUABLE BOOK—FREE

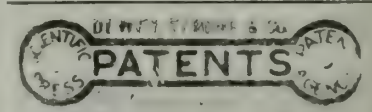
We have called this book *Progressive Cultivation.* Every farmer whether his farm be large or small—should carefully read it. Simply write on a postal, "Send me *Progressive Cultivation,*" and we shall be glad to send you promptly a copy of this valuable book without cost or obligation.

HERCULES POWDER CO.

CHRONICLE BUILDING

San Francisco, Cal.

HERCULES POWDERS



Circular containing 100 mechanical movements mailed free.

plements being the Planet Junior, the Ventura Implement Company's cultivators, and one built locally by Mr. Brenneis. The cultivation is simply to keep the weeds down and provide a dirt mulch on top to save moisture. The crop is laid by when leaves cover the rows so that they would be injured by further cultivation.

Ripen About Aug. 1.—The beets begin to ripen when their leaves begin to turn yellow and drop on the ground. Last year this was about August 1; the year before, it was July 15. If the weather is warm, they ripen in two weeks and the harvest begins when enough are ripe in the district to keep the sugar factory going.

Tests for Purity and Sugar.—Before a field is harvested, Mr. Bensel's assistants sample the fields in order to be sure the beets are ripe. The general method of getting samples is to take the tenth beet in the first row, then step over one or two rows and take the tenth one ahead, and so on across the field. The company's chemist tests these samples for "purity" and sugar. The "purity" which seldom gets below 85 per cent, though sometimes up to 93 per cent, indicates the percentage of dry matter in the beets which consists of sugar. The test for sugar shows the percentage of the total weight of the beets which consists of sugar. "Purity" varies with ripeness of the beets, but no more sugar is added after the leaves die. Big beets have a smaller proportion of sugar, and thus it is that regulation of the size by proper thinning in the springtime is so important.

Plow the Beets Out. — The ripe beets are turned out with an ordinary plow pulled by horses or gasoline or steam tractors. The plow cuts the tap root about twelve inches deep where it is about one-quarter of an inch in diameter. Contract labor tops the beets and loads them onto wagons at 75 cents per ton if the yield is ten tons per acre; five cents per ton less for every increased ton per acre and vice versa. Dirt and all is weighed at the local receiving station, of which there are several in different parts of the valley, and the dirt is deducted as "tare." The beets are then dumped into the cars to be hauled to the factory. As they are dumped, a small basketful containing 25 or 30 pounds is taken as the beets roll over the apron into the cars. This sample is taken to the "tare" room where the "tare" and sugar content are determined.

At the factory, the beets are washed and ground up into pulp. The juice is mixed with lime which precipitates the impurities and is filtered out. The filtered juice is concentrated in large evaporators and finally boiled to grain in the vacuum pans. From these it runs into the centrifugals where the sugar is dried out.

All the impurities and lime are dried into "lime cake" which is used as a fertilizer. This contains about 40 per cent calcium carbonate, two per cent nitrogen, and one and one-half per cent phosphoric acid. Much of the pulp is also dried for cattle feed.

June 16 is "Fresno City Day" at the Panama-Pacific International Exposition.

SETTING RHUBARB AT LEVEL

[Written for Pacific Rural Press.]

A treatise on rhubarb planting with the smell of the farm on it has recently reached our office from Reginald Bland of San Luis Rey.

The point is made that rhubarb, to be certainly profitable, must be marketed before April 1 on account of the fruits and vegetables which begin coming on the market at that time. Mr. Bland emphasizes the point already made in Pacific Rural Press that all seedlings from rhubarb are subject to wide variation, though the winter growing kinds seem to have less variation than the summer kinds when grown from the seed. On this account, Mr. Bland recommends the planting of sections of the crown only. The best planting time is from February to June, as a general rule; the conditions being that the plants should get well started before hot weather or cold weather give them a set-back. Rows five feet apart are necessary, so that cultivation may continue until the plants grow too old to be productive, since the crowns grow upward a little each year.

Emphasis is placed on the necessity of setting rhubarb plants at such a depth that the junction of the root and the crown will be exactly at the general ground level after the plants have become settled. A half inch higher is better than a half inch lower. This is because if they are set too deep, the stalks are likely to mildew or mold, while if the tops of the roots are exposed, they are likely to produce dry, woody stalks and spindly growth.

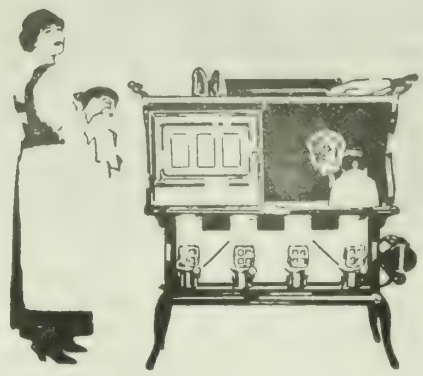
Mr. Bland says that two active men can set out 600 plants per hour by one of them using a long handled, narrow spade, thrusting it into the ground and working it back and forth to make the hole for the other man to set the plant into at the right depth. The man with the spade then sticks it into the ground three inches from the first hole and forces the dirt back around the root, and the one who handles the plants finishes the job with his fingers.

Planting before April 1 is recommended for districts of high summer temperatures. Planting before February is undesirable on account of the coolness in the soil. June and July are good planting months near the coast where the summer heat is not too intense. The ground should be moist before planting, but not too wet; and Mr. Bland finds it best not to wet the plants after they are set out until they have had time to develop new rootlets.

KILLING ALFALFA DODDER.

To the Editor: Where can I get a dodder burner?—D. C., Veteran's Home, Napa.

[If the dodder patch is too large for hand treatment, a tank wagon will have to be rigged up with burners placed on a horizontal pipe close to the ground so that oil may be burned in them as the wagon is drawn over the field. Another way to get rid of dodder is to allow animals to graze it off close all summer, thus preventing its going to seed. If the patch is small and you wish to burn it off, you might get a plumber's blow torch from a plumber or hardware dealer, using gasoline to burn off all the plants infested. Since the dodder is an annual, coming from seed, and since it grows onto the alfalfa plant, sending little rootlets into it and then becoming disconnected from the ground, anything which will prevent its going to seed will kill it off in a year. The usual mowings for hay are too far apart, because the plant blooms and forms seeds as it grows; and by the time the alfalfa is ready to cut, some of the lower blooms may have formed seed which will be ripe enough to germinate when dried with the hay. Pacific Rural Press has treated this question many times in the past few years and these articles may be found by reference to the semi-annual index.—Editors.]



Gas-Stove Convenience with Kerosene

A good oil stove is like a gas stove —ready at the touch of a match. Any degree of heat you want *instantly* by simply raising or lowering the wick.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Burns oil, the clean, cheap fuel. It roasts, toasts, broils, bakes—better than your kitchen range. No wood, coal or ashes to lug—no soot or dirt—no odor—does not taint the food. And your kitchen is always *cool*. Several sizes and styles. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

$1.50 Per Acre

For Rental of Fertile Farm Lands

5,000 Acres can be rented for a term of years at $1.50 per acre per year, and up.

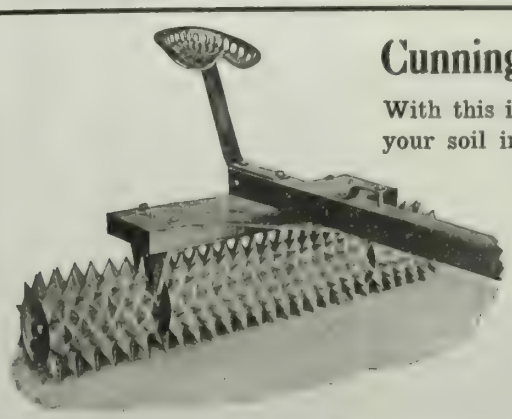
Located 11 miles from Dixon, "the Dairy City" in Solano County. Excellent transportation facilities are afforded by the O. A. & E. Ry. Electric freight and passenger service to all parts of the United States.

Other lands in Solano County, splendidly located, can be leased or rented for various terms of years at low prices.

FULL INFORMATION WILL BE FURNISHED ON REQUEST.

Oakland, Antioch & Eastern Railway

Address L. H. RODEBAUGH, Traffic Manager,
40th and Shafter Ave., Oakland, Calif.



Cunningham Pulverizer

With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.

Write for circular and prices.

LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

Agricultural Review.

CITRUS AND SEMI-TROPICAL.

The Co-operative Orange Association of Lindsay is to build a packing house.

The picking of Valencias has begun in Lindsay. Twelve carloads have been shipped and the packing houses will be running full force very soon.

The planting of citrus trees in the vicinity of Orland will be quite heavy this season. Two carloads of oranges and lemons recently reached that section, and five more are expected within a short time.

The highest price for a carload of fruit from Redlands this season was reported recently by the Redlands-Highland Fruit Company on the Boston market—Navels $3.75 per box, Bloods $3.

A heavy bloom is reported in the Florida orchards, some growers stating that it is the heaviest in years. The grapefruit bloom is not so heavy as that of the orange, but there is a prospect of a large grapefruit crop.

About fifty prominent fruit men, directors of the Orange County Fruit Exchange, and the directors and managers of the various packing houses of the district, recently met at Orange to discuss the various phases of the citrus industry. The marketing end of the question was discussed by G. Harold Powell, head of the California Fruit Exchange; C. C. Teague, head of the Limoneira Ranch, spoke of lemon culture.

DECIDUOUS FRUITS.

R. L. Wilson, horticultural inspector of Riverside county, states that the Beaumont district leads all other parts of Riverside county in the number of deciduous trees planted during the season 1914-1915.

Horace V. Winchell of Minneapolis is planting a large pear orchard in Nevada county, eighty acres of which is already in pears and eighty being cleared and planted at this time. Mr. Winchell plans to make this ranch one of the show places of the county.

An effort is being made by the civic bodies of Fresno to combine and dispose of the surplus tonnage of the 1914 peach crop before the 1915 crop is ready. Committees will be appointed from members of the various civic organizations to meet with the growers of the county in an effort to aid them.

County Horticultural Commissioner H. P. Stabler of Sutter county reports the careful inspection with reference to blight of all nursery pear stock coming into the county. He states that the present condition of the orchards is better than it has been for several years, the growers having been persistently encouraged to fight the pear blight.

The Shasta County Cured Fruit Association held its third annual meeting at Anderson May 5. The following directors were elected: W. J. Hill, S. G. Roycroft, F. S. Field, H. P. Dodson, and T. M. Miller. W. J. Hill was re-elected representative to the California Cured Fruit Exchange. President Ogden, Secretary Walker, and General Manager Ellis of the Exchange were present and addressed the meeting on the various lines of the Exchange work.

GRAPES AND SMALL FRUITS.

Berry growers of Happy Valley, Shasta county, who recently formed an association for marketing their product, have established a selling agency at Redding. R. C. Jones is in charge and J. L. Dwinell will be sales agent.

On account of the danger of mildew caused by the continued moist, cool weather, Horticultural Commissioner of Sutter county, H. P. Stabler, has sent the grape growers of the county the most approved method of mildew prevention.

OLIVES AND NUTS.

A tree bearing olives without the bitter taste of the ordinary fruit was discovered in the Bangor section by P. M. Ronnse, and many buds have been taken for propagation.

Extensive olive planting will be done in Sacramento county this year, over 400 acres being the number reported by County Horticultural Commissioner Howard Kercheval. In April 35,837 olive trees were shipped into the county.

J. A. Meiser, who has thirty-five acres of olives in Napa county, is meeting with good success in the venture and believes from his experience that Napa county should be added to the list of California olive-growing counties. Mr. Meiser expects to market olive oil as well as the pickled olives.

Moorpark growers have organized a co-operative association, a branch of the California Walnut Growers' Association. The capital stock of the new association is $5,000, and the directors in charge are: Wm. Bauer, W. S. Dunshee, J. C. Thompson, Jno. Laughlin, D. S. Hendry, J. M. Cornett, and S. L. Gisler, all of Moorpark.

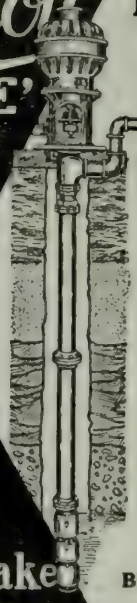
GRAIN AND FIELD CROPS.

Several thousand acres in the southern end of Kings county will be planted to rice this year, due to the success of the experimental plantings of last year.

The California Vegetable Union of Fullerton is busy handling the excellent offerings of cabbage, more than one hundred cars having been shipped since the season opened in February.

Extensive double planting of beans in the Tipton and Poplar sections of Tulare county will be done this year as an experiment. The beans were

"Jackson MADE"



Write for Catalog No. 47 F

A Better Maker Not Made

For Water Deep Under The Ground

Jackson Deep Well Turbine Pumps give continuous and efficient service. They do not get out of order as they have no valves or plunger rods. Very little care or attention needed as they are oiled from the surface. Are much lower in cost than other types of deep well pumps when the expense of dug pits, cribbing and timbering is reckoned. They raise water from the very bottom of the well, thus eliminating heavy vacuums and delivering all the water the well yields. They develop slow wells and increase their flow.

Like all Jackson Made Pumps These Deep Well Turbine Pumps Are the Very Best Pumps Made for the Purpose—They are Dividend Earners, Not Expense Makers

Whatever your water problems may be our Expert Pumping Engineers will help you out free of charge—write

BYRON JACKSON IRON WORKS, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal. and Visalia, Cal.
Works: West Berkeley, Cal.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtholdt Co.
Geo. D. Kellog & Son	Pioneer Fruit Co.	Vacaville Fruit Co.

California Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

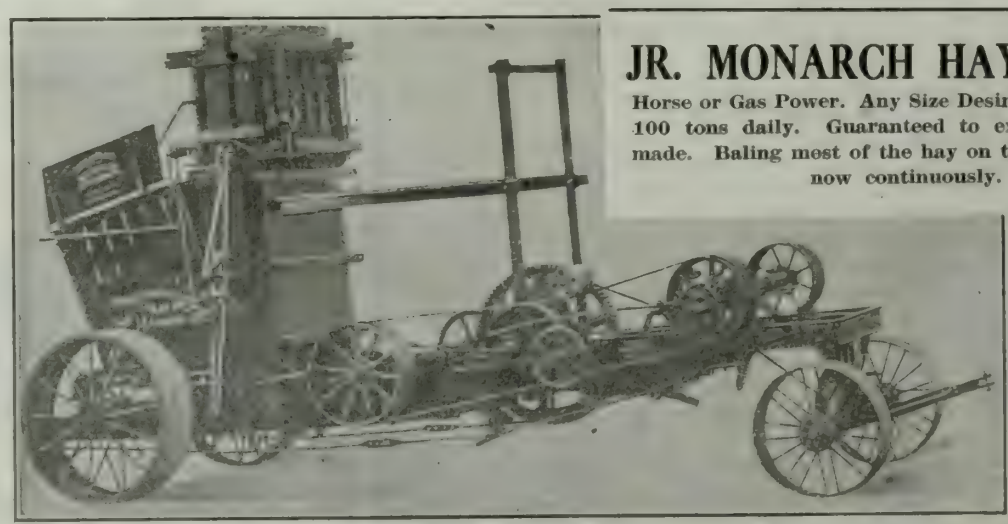
PIPE

For Every Purpose NEW Threads & Couplings. Hot Asphaltum

Second Hand and NEW

Screw Casings Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. Main and Howard Sts., San Francisco



JR. MONARCH HAY PRESS

Horse or Gas Power. Any Size Desired. Cap. 40 to 100 tons daily. Guaranteed to excel any Press made. Baling most of the hay on this coast. Fed now continuously.

Jr. Monarch Hay Press Company

Office and Factory, San Leandro California.

planted early in April, the growers expecting to harvest a crop before the first of July. A second crop will then be planted, and it is expected that another good yield will be secured this season.

MISCELLANEOUS.

The University State Farm is to get $45,000 for new cottages and a farm building out of the budget of $15,300,000 for the support of the State Government in the next two years.

On account of the two expositions being held in the State, Kings county has decided not to hold a county fair this year, but to devote her efforts to making one of the best sectional fairs ever held in California next year.

An agency to handle Coast fruits has just been organized by the Di Giorgio-Charters interests, which control the bulk of the Eastern auction markets. It is to be known as the General Sales Agency and will be a non-profit organization, established to create the highest sales efficiency. It is said that the only charges will be the cost of operation. A number of large shipping organizations have already signed contracts with the Agency to handle their output, among them being the California Fruit Distributors, Sacramento; Mutual Orange Distributors, Redlands; and the California Vegetable Union, Los Angeles.

Fruit growers from Australia visiting our office state that they are helpless against the Mediterranean Fruit Fly and that the government is considering the project of removing all fruit from the trees for three years in infested districts to starve the fly. Some growers are spraying with molasses and lead arsenate hoping to poison the pest. Every other measure conceived by anyone has been tried without success. The Fruit Fly is not yet in California, due very largely to the vigilance of the State Horticultural Quarantine officers, who search even the baggage of passengers coming from the infested countries west of us.

INTRODUCING QUEEN BEES.

To the Editor: Please tell us how to introduce Italian queen bees.—H. M. B., Turlock.

[If you have other kinds of bees and want to work into Italians, get some pure Italian queens from bee breeders, or get some brood comb. If you get the queens themselves, they will probably be shipped to you in "cages" made by boring holes into a board, and covering the holes with screen, after the queen is put in. If you do this, you may introduce the queen to the swarm of bees by setting it in a corner of the hive for several days still enclosed in its "cage." Bees fiercely object to strange queens; and if allowed access to them, will "ball" them. This expression refers to the fact that they sting the queen to death; and in their fury, a multitude of the bees sting her again and again, piling up into a ball of them in their senseless fury. But after a few days in your hive, the queen gets the same scent as the rest of the bees; and after all other queens are taken out, she may be turned loose and will be acknowledged mother of the hive. The eggs she will lay, if she has been fertilized before shipment, will produce pure Italian bees, and in a short time the swarm will be worked over to that variety. The latest and probably best method of introducing a queen is to give the swarm a puff of smoke, which confuses them and starts them into a small uproar. Then shove your new queen in quickly and give her a puff of smoke as she goes. This gives all of the bees the same scent, and by the time they have settled down and the smoke odor has gone, they will be ready to accept her.—Editors.]

NOTES ABOUT THE CROPS.

Grapes are just blooming in Fresno county. The wind which blew so hard in the central part of the State seems to have spread out and lost its force in the southern San Joaquin valley.

The last frost in Kings county in former years was reported May 22.

Contra Costa county grain has been lodging considerably.

Late apples in Sonoma county are a fair crop; grapes, light; prunes, spotted; berries a big crop, but no contracts for sale and growers fear the war will injure markets for both apples and berries. The rain hurt the strawberries.

More Santa Clara fruit has been blown off, and on both the east and west sides tender shoots on the north side of the tree have been burnt by the wind, though practically no damage was done to the fruit in the hills.

Santa Clara prunes seem lighter than a week ago.

The dried fruit brokers have been offering 7½ to 8 cents for apricots in the Santa Clara valley.

Humboldt county reports fair crops of everything grown.

Offers are said to have been made of $22.50 per ton for green apricots to can, with the buyers taking care of the crop from now on, in the Saratoga district.

Sugar beets all over the State are doing extra well.

Sacramento county strawberries and cherries have been hurt by the rain.

The second crop alfalfa is ready to cut in some sections.

Sonoma county cherries showed up badly cracked on the market on account of the late rains.

Grain, mostly wheat, amounting to 230,000 acres, is growing on the Tulare Lake reclamation, and most of it is looking fine.

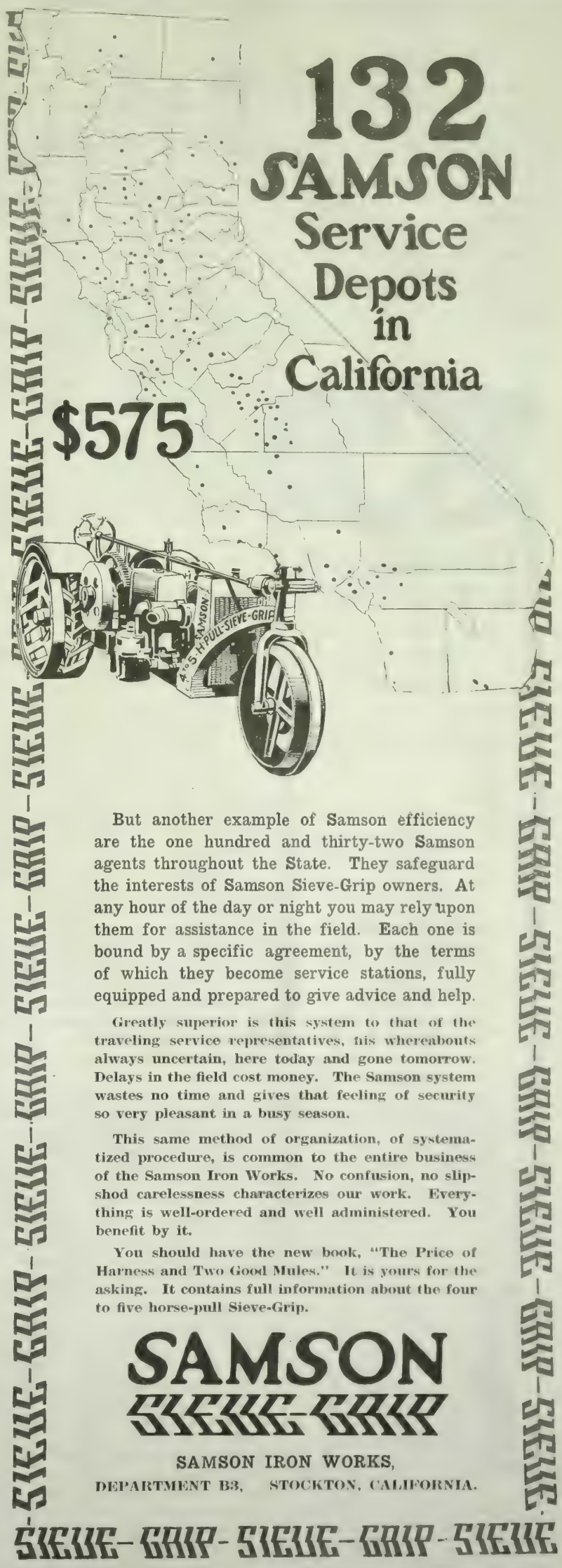
Yuba county grain looks fine; but fruit is beginning to need warm weather.

Apples in the mountain counties have suffered some from frost.

The continued rainy weather has been favorable to fungus diseases which will show worse after the rains are over.

Damage to dried apricots due to the wind is estimated at 100 tons in Orange county. Walnuts in Orange county are in first-class condition, with aphis, blight, the June drop, and possibly hot waves in summer yet to be escaped.

Never sell a fruit crop until it begins to color. Then you can see how much you have by looking in evening or the cool of the morning; but it won't show at midday. It is mighty hard to estimate correctly while fruit is the color of the leaves.


132
SAMSON
Service
Depots
in
California
$575
SIEVE-GRIP-SIEVE-GRIP-SIEVE-GRIP-

Mechanical Power on the Farm.

ENGINE DRIVEN ALMOND HULLER.

[Written for Pacific Rural Press.]

A gas-engine-driven almond huller which leaves not over a dozen sacks of stick-tights out of twelve to eighteen tons which E. A. Goodwin of San Joaquin county raises on his thirty-acre orchard, may be seen amongst a great variety of machinery on his place.

The almonds as they come from the orchard are dumped onto a canvas belt with wooden strips across it to elevate them into the "beater." This is an axle with two or four rows of iron fingers about as thick as they can be conveniently placed, which revolve within a cylinder and pound the hulls loose. The nuts then run onto a shaking screen made of heavy wires zig-zagged in short bends of the wire horizontally. This shaker lets the hulls through because they are of curved shape, but the nuts pass over them onto another slow draper 2½ feet wide. This runs them past two girls who pick out any remaining pieces of the hulls and bad nuts. Those which have stuck tight are collected into a pile on the floor and sprinkled with water. Burlap is left over them over night and next day the hulls have been softened so that when they go through the machine the second time, practically none of the hulls stick.

Of the half dozen varieties which Mr. Goodwin raises, the Nonpareil is the hardest to hull without injury to the nuts, on account of its thin, tender shell. IXLs are the easiest.

Many of his neighbors bring their nuts to this huller so that it will in time have paid for itself.

DRAIN AND IRRIGATE ALFALFA FROM SAME DITCHES.

[Written for Pacific Rural Press.]

Using irrigation ditches for drainage during the wet season, the Whitehall Estates grow alfalfa on 2500 acres where it would be drowned out without drainage. There are several miles of the irrigation ditches which water about 5000 acres of alfalfa. These are built deeper than usual in order to serve as drainage ditches and also built high so that they may be used for irrigation.

About the first of April, they had just completed a two and a half months' pumping campaign, having used two 45 h. p. gas engines and centrifugal pumps to lift the water out of basins into which it had drained from the irrigation laterals.

Another 12 inch drainage pump is kept ready for emergencies such as happened last summer when the San Joaquin levees broke in May and June.

Their irrigation system is composed partly of a 36 inch syphon which automatically carries water over the levee into an 8-mile slough which has been dammed to prevent the water from running out during the dry season. When the water in the syphon runs out, an automatic electric primer pumps it full again, so that it will start whenever there is need, and practically no attention is given to this part of the irrigation system.

Four electrically run pumps take the water from the slough at different places on the ranch and start it from cement basins through the miles of irrigation-drainage ditches. Three of these are 20-inch direct connected centrifugal pumps run by 120 h. p. electric motors. One is an 18-inch pump driven by a 125 h. p. motor, requiring the extra power because it has a 14-foot lift and a 14-foot shove to raise it from the slough onto the high land. In this case, electric power is found cheapest, as well as best, according to C. W. Clement, who has charge of all the pumping plants, tractors, trucks, and automobiles on the

KC
IRRIGATION SYSTEM
THE 20th CENTURY METHOD OF IRRIGATION

As superior to old methods as the modern auto is to the ox-cart.

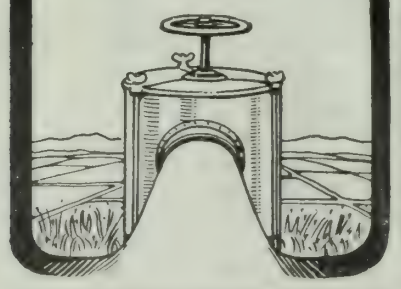
Saves Water, Land and Labor.

Don't experiment — the best is the cheapest in the long run.

Illustrated Catalog and full particulars on request.

Kellar-Thomason Co.
"Originators of the Valve System of Irrigating."
1234 EAST 28th ST.
Los Angeles.

(Ask your Dealer or Contractor.)



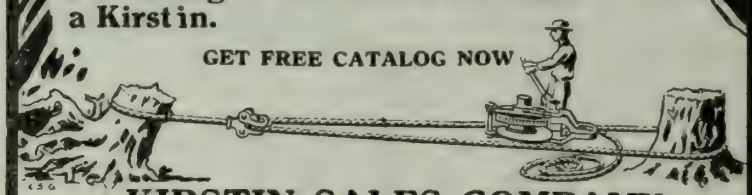
The Powerful One Man
Kirstin

Strong, simple, speedy—this one man way of turning stump land into cash income is the way for you. Many fine, attractive features, such as the

TRIPLE SPEED

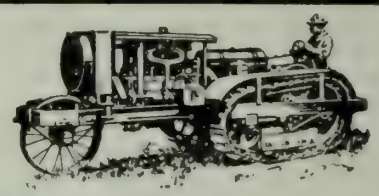
This splendid feature lets you triple the speed after the stump has broken loose. That means something to the man who owns a Kirstin.

GET FREE CATALOG NOW



KIRSTIN SALES COMPANY
341 E. Morrison St. Portland, Oregon

Little Stories of Success



No. 7

"To see ourselves as others see us."—We had such an opportunity the other day in a letter the manager of the Santiam Fruit Colony wrote a prospective purchaser in answer to his inquiry regarding the Caterpillar "30." Here are a few characteristic paragraphs:

"*Regarding track item:*—Of course, there is an expected amount of wear, but the splendidly arranged adjustment takes care of this quite satisfactorily."

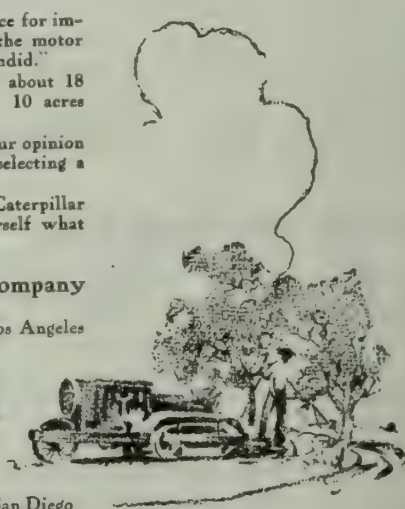
"*Engine speed:*—There is little chance for improvement in the relative working of the motor and the traction, as it seems to be splendid."

"*Cost per acre:*—We have averaged about 18 acres per day discing and about 8 to 10 acres plowing."

"If you are going to buy a tractor, our opinion is that you will make no mistake in selecting a Caterpillar."

Let us give you the name of a Caterpillar owner near you, and then see for yourself what he'll write you.

The Holt Manufacturing Company
(Incorporated)
San Francisco Stockton Los Angeles



CATERPILLAR
Reg. U.S. Pat. Off.
Don't say Caterpillar unless you mean Holt!

Both Expositions—San Francisco and San Diego

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.

MADEWELL SURFACE PIPE
ROBINSON HARDWARE CO.
GILROY, CAL.

LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—the Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.
SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.

If so, we can put the great conveniences of electric light and household appliances within your reach, and you can have GENUINE EDISON Electric Light and Power—exactly the same as in the largest cities—and just as if you were living on a power circuit. A wonderful Edison invention—the

TRADE Thomas A Edison MARK

ELECTRIC LIGHT PLANT

gives you your own electric light and power plant—economical, efficient, trouble-proof. Reduces fire hazard.

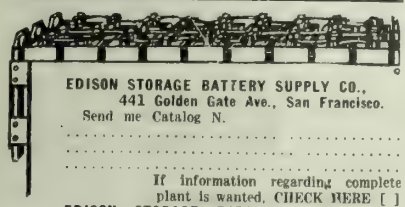
The Edison Storage Battery is composed of nickel-iron parts in alkaline solution instead of the ordinary lead plates in acid solution.

It will therefore do its work much more satisfactorily, and it's the only battery with a four-year guarantee (which it will greatly outlast).

Write for catalog N.

Mail coupon shown below. It entitles you to valuable free information about the Thomas A. Edison Electric Light Plant.

Edison Storage Battery Supply Co., Distributors.
441 Golden Gate Ave., San Francisco, Cal.
Los Angeles—Seattle—Portland.



EDISON STORAGE BATTERY SUPPLY CO.,
441 Golden Gate Ave., San Francisco.
Send me Catalog N.
.....
.....
.....
If information regarding complete plant is wanted, CHECK HERE [ ]
EDISON STORAGE BATTERY SUPPLY CO.,

SYMMES & MEANS
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL.

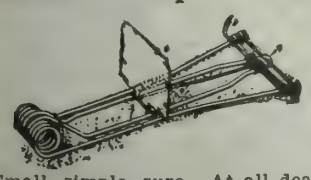
BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by
Z. A. MACABEE, Los Gatos, Cal.

ranch. This is because one man can attend to all four electric pumps day and night, at a salary of $75 a month. The engines require more attention. One of them is "an old rattle-trap" and requires a man all the time at $2.50 a day to take care of it. This, of course, is not fair comparison because it is a bad engine. Nevertheless, Mr. Clement believes that the engines require too much attention even when in good running order.

A LOAD OF BEANS.

[Written for Pacific Rural Press.]

While Jas. A. Gill, who raises 1500 acres of Lima beans near Oxnard does not mention cultivating them with a Caterpillar tractor, he does plow the land by that means. When the beans are threshed in a three cylinder open thresher made locally, they are piled in sacks on the ground. But in that country it is well enough not to leave the beans on the ground at night because they may not be there in the morning. On account of this need, they are usually loaded at once, 100 sacks of 90 to 100 pounds each on six wagons, all of which are hauled at once to market by one tractor.

TRACTORS TO CHINA.

[Written for Pacific Rural Press.]

China has begun to buy California tractors; the Samson Iron Works of Stockton recently shipped a 45 h. p. machine to Shanghai. An expert driven went along to show the buyers how to operate it and to demonstrate the machine to other people who are sure to be interested in its operation there.

CABLE PLOWING UNECONOMICAL

To the Editor: In regard to plowing by cable run between two 25 h. p. tractors, that was tried on our grain ranch last fall, but I cannot say that it is economical, and I do not expect to have any more done that way. It did a good job, plowing 18 inches deep and 24 inches wide at a speed faster than an ordinary horse would walk.

Corcoran. F. A. Cleveland.

DISK CLEANS DITCHES.

[Written for Pacific Rural Press.]

Thinning the rank winter growth out of old irrigation ditches is no small job, according to J. A. Good all of Stanislaus county, and it should be done early. Mr. Goodall plows his ditch banks uphill and then smooths them down with a scraper.

On the Stanford-Vina ranch they accidentally hit a better scheme by which half a mile of ditch could be cleaned out of the thick, high grass 18 inches tall, in half a day by one man with four horses and a disk—as much as fifteen men could do in the same time with shovels.

It was three or four years ago, as told by General Foreman J. S. Houseman, that they had plowed some tough sod to make a ditch, with 20th Century graders and scrapers. The sod was too tough and rough, so they started to disk it down. Very shortly they saw that the disk was making a ditch, so they kept it up.

The disks are set at as sharp an angle as possible and run back and forth along the line of the proposed ditch, always throwing the dirt outward and upward, and cutting the grass and roots fine. No finishing with shovels or scrapers is needed. The disks are set in line while making the turns on hay land or wherever digging action would be objectionable.

At the Vina ranch, early in May last year they were cleaning a big ditch with steep banks 30 inches deep and a little farther apart than the disk was wide. They proposed to do this on all of their main ditches which are left dry a couple of months in the spring for the purpose.

Whenever they need new field ditches, as for instance for new alfalfa sowing, they plow a strip eight feet wide, leaving a dead furrow and finishing the ditch with a disk. "It takes good stock to pull it."

SEE OPERATING EXHIBIT OF

KEWANEE

WATER SUPPLY SYSTEMS

First Street and Avenue E, Machinery Palace.
(At West Main Entrance.)

Also other Private Utilities for every comfort for the farm or country home, including Electric Light, and Sewage Disposal.

This is one of the most instructive exhibits at the Exposition, for it shows the latest and most successful types of systems to meet any set of conditions for the supply of running water and electric light in the home. See these Kewanee Systems which are built for steady service just as carefully and thoroughly as the big public utility plants are built to give every-day service.

Kewanee Systems are known all over the United States and there are over 20,000 in use. They never fail to deliver the goods.

Attendant at Exhibit all the time to explain everything.
See Stock at Store when down Town.

Simonds Machinery Co.

117-119-121 NEW MONTGOMERY ST., SAN FRANCISCO.

If you will be ready to take this up before visiting the Exposition, write for Catalog B.

"Best on the Surface of the Earth"

"American" Surface Irrigation Pipe

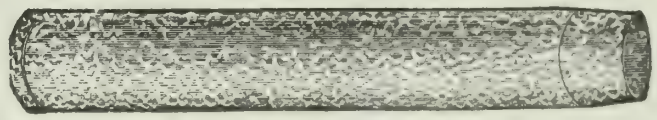
The pipe with the original double-locked turned seam—stronger—more durable—more convenient—more satisfactory in every way than riveted pipe, and far superior to any other surface irrigation pipe of any character.

In lengths 10 feet 6 inches.

Don't experiment with unknown pipe—get the tried and tested "American." Write for catalog.

American Steel Pipe & Tank Co.

354-56 PACIFIC ELECTRIC BLDG., LOS ANGELES, CAL.
Branch: 1228 H St., Fresno.



If you want the most for your money ask for, insist on, and demand that your dealer furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good"—it cannot be furnished. Every sale carries with it an unqualified guarantee.

Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives Power Tables, Belt Speeds, List Prices, etc.

New York Belting and Packing Co. of New York

Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

Irrigation Machinery at World's Fair.

[Written for Pacific Rural Press.]

Irrigation machinery exhibits at the Panama-Pacific, from well drilling machinery to pumps, water meters, and concrete mixers for ditch lining, are practically all in the Machinery Hall. All of these are in charge of courteous attendants paid to explain the superior points of each system and supply printed information for the visitor to either carry home or have sent to him.

Entering the grounds at the Fillmore Street entrance, one who wishes to see the irrigation machinery will walk straight ahead toward the north, passing the Southern Pacific Building, to the first open door in the big building at the right. The floor space in this building is laid off in numbered streets and lettered avenues.

This first open door leads one to First St. and Ave. G, where is the large exhibit of the American Well Works, represented by the California Hydraulic Engineering & Supply Company. It is well to get the attendant in charge to explain every display, for the visitor cannot possibly see or learn all that is to be desired without talking to the man who knows. There are several types of two-stage centrifugal pumps here, some of them direct horizontal connected and some with vertical shafts; also a two-stroke, deep well pump with the cylinder and valves used.

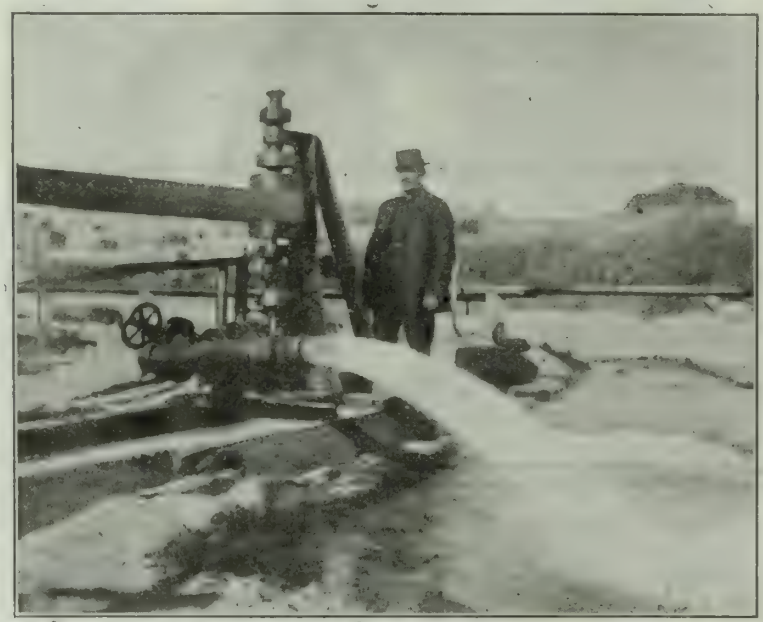
To get the most comprehensive view of the irrigation machinery, one must religiously avoid all the other multitudinous attractions on all sides, for otherwise he will find himself and the day thoroughly spent before all of the irrigation exhibits are seen.

Follow up First St., stopping if desired at the Western Gas Engine Company to see their "Portable 20" engine, claiming a cost of a ¼ cent per horsepower hour.

At the corner of First and F is the Simonds Machinery Exhibit of many lines. Here is the Luitweiler non-pulsating, triplex-pressure pump which has run 220 revolutions per minute without noticeable vibration. With this and facing Ave. E is the Kewanee System of home water works. The principle of this system is to pump water directly from the well into a closed iron tank in the cellar or underground, at the same time pumping air with the water, both to purify it and fill about a third of the tank's capacity with air at a 40-pound pressure which will force the water to a height of 90 feet for fire protection, bathroom connections, and outside irrigation.

Up First St. past the Edison Storage Batteries, one comes to the Neptune Meter Company's exhibit. These folks did not know what the State Engineer states is a coming necessity with irrigators; i. e., water meters in order to prevent over use of water by some to the detriment of others in periods of low water.

Beyond them are some compressed air pumps which operate in the well and give a steady stream of fresh water under faucet control, with no need of tanks for storage.



Krogh Deep Well Turbine Pump in Golden Gate Park.

Turning down Ave. C-2, we leave the interesting exhibits of the United States Navy Department and turn back on Second St. to Ave. F, where may be seen the Star Well Drilling machinery.

At Ave. G-2 and Second St. the attention is attracted by a big, tumbling waterfall over eletcric lights. The water is continually furnished by two Layne & Bowler motor driven centrifugal pumps, one furnishing 2000 gallons of water per minute, and the other 900. The various types of pumps made by this company are handy to take apart, and willing men are there to explain their points of superiority. One of their patented square-wire wound screens to prevent entrance of sand or gravel into the pump is on exhibit.

Passing down Second St. beyond another water meter display, we turn down Ave. H to Third St., where the attention is caught by the Krogh "automatic pump for cellar and sump." A float starts and stops an electric motor-driven pump which empties a "cellar" mighty quick after the water is run into it slowly. The same exhibit includes a tremendous centrifugal pump five feet in diameter with a two-foot outlet; also a direct connected turbine pump with a capacity of 500 gallons a minute against 220 pounds pressure.

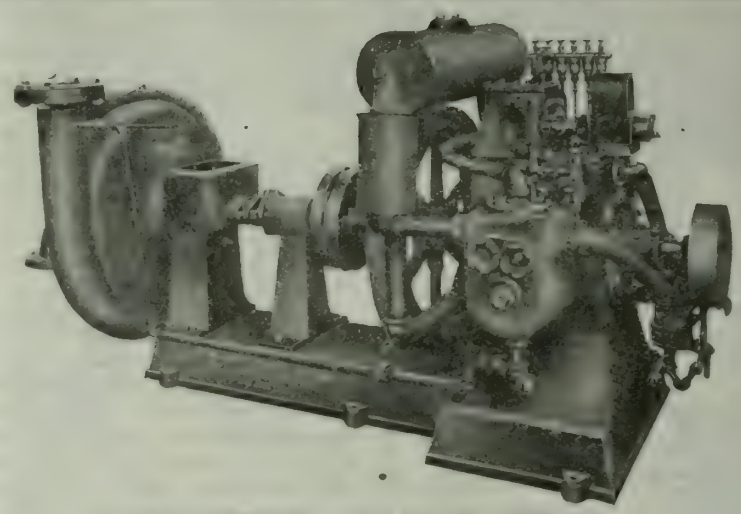
Deep well turbine type of pumps, similar to that shown in picture and advertised in this issue, are being used exclusively by the Panama-Pacific International Exposition Company. Other equipment which goes to make the plant a modern and complete water works, consists of three 6-inch, 5-stage Krogh Horizontal Turbine Pumps belted to 125-horse-power electric motors, the total capacity being approximately 2,500,000 gallons of water per 24 hours, which is pumped through 19,300 feet of 12-inch, lap-welded, dressed-joint pipe to the Presidio reservoir, which has an elevation of 365 feet above the pumping plant, the water then being distributed through gravity pipe lines to the Exposition Grounds.

On up Third St. at F we see the Utility Gas Machines and another peculiar pump run by air, and then we see the Westinghouse motors and equipment at C and Third.

Turning down C, at Fourth we find a number of power concrete mixers for concrete linings of irrigation ditches, silo building, etc. These are exhibited by the E. R. Bacon Company, while farther down at Ave. C-2, the A. L. Young Company exhibits more concrete mixers.

At Fourth and D, the Bessemer Gas Engine Company shows distillate, kerosene, and gas burning engines, one of which is pumping 5,000 gallons of water per minute into a redwood tank by way of Remco wire-banded redwood stave pipe suitable for pressures up to 400 pounds.

Nearby is a tremendous Pelton-Doble water wheel, weighing 186,000 pounds, fifteen feet high, capable of generating 20,000 horse power under a 500-foot head. It was built for the P. G. & E. to install in 1916 on their Lake Spaulding development.



DIRECT CONNECTED

Centrifugal Pump and Gas Engine

Here is one of the most popular irrigation outfits in California. It furnishes the maximum of efficiency at a minimum of expense. Used by the California Fruit Canners' Association, Miller & Lux, Southern Pacific Co., and other large concerns, as well as many individual farmers and orchardists throughout the State. This outfit is

"BEAN BUILT"

from end to end. It consists of a Bean Centrifugal Pump direct connected to a Bean Opposed Engine. Among the many distinctive advantages of this outfit we call your attention especially to—

LOW COST OF OPERATION—being less than any other form of pumping equipment. The Bean Opposed Engine develops surprising power at trifling fuel expense and the direct connection carries the full power to the pump.

PORTABILITY—On account of its opposed construction the Bean Engine is much smaller and lighter in weight than other engines of the same H. P. It requires no special foundation on which to operate. The complete outfit can be mounted on an ordinary truck and easily hauled from place to place.

GREAT SPEED POSSIBLE—making the outfit adaptable to conditions where the head varies somewhat.

EASY TO START—the Bean Opposed Engine is as easy to start as the ordinary one-cylinder engines of half the H. P.

ENGINE READILY DISCONNECTED—and put to work at any power job. There is no end to the things that the Bean Opposed Engine will do at small cost.

See this Outfit—and other Bean Products—at our Exhibit in the Palace of Horticulture at the Panama-Pacific Exposition. Exhibit adjoins to Cuban Gardens, which are under the Big Dome.

If you'd like further information about the Bean Direct Connected Pumping Outfit, Bean Centrifugal Pumps, and Bean Gas Engines, WRITE FOR CATALOGS.

Bean Spray Pump Co.

211 WEST JULIAN STREET, SAN JOSE, CALIFORNIA.

200,000 FEET CHEAP

Just received several carloads of new and 2nd hand water pipe. Oil Well and Water Casing; Riveted and Surface Irrigation Pipe. Big Stock. All sizes. Prompt shipments. Lowest price. Write, phone or wire.

WATER PIPE

ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy 1264—F1917
(Under entirely new management.)

EXPOSITION HORTICULTURE.

One of the most glorious sections of the Panama-Pacific Fair Grounds at San Francisco are shortly to be the bulb and shrubbery gardens planted for competitive displays south of Horticultural Hall.

There will be five separate gardens. Three of these have been arranged by Superintendent Carl Purdy in sections of each kind of plant by itself. No exhibitor is allowed to make a medley of different kinds of varieties on little space, without harmony, as so often happens, but within each group, the rose garden is all roses, the bulbs are all together, with the shrubbery around the edges. Each exhibitor gets credit for what he shows wherever it appears. The Exposition management takes care of the exhibits and will hold the stock for the exhibitors at the end of the Fair.

One group is displayed entirely by Massachusetts' commercial flower-growers, and will soon be a credit to that State. Another is displayed by Netherlands' growers, without the names of the exhibitors, the government having stipulated that it should be arranged to exploit the Dutch bulb trade as a whole.

A fine lot of conifers, both rare and beautiful, are planted about. Some are dwarf, hugging the ground like an overturned bowl; others are tall and slender. Their colors range from the blue of that variety of spruce to almost black.

One group is the $10,000 International Rose Contest, in which a dozen exhibitors from France, Germany, England, and America have about a hundred varieties of new, unnamed roses competing for the honors of the Exposition. Beside this rose garden are the California gardens, in which it would be unfair to name any one exhibitor. One firm from Santa Clara has 75 varieties of roses, another from Pomona has many more, and group of 800 varieties of dahlias will claim attention beside a group of 200 varieties of German iris, the best display ever sent to the West.

C. C. Morse & Co. have a place by themselves, a gorgeous array of spring bulbs to be followed by other ornamentals throughout the season.

According to Mr. Purdy, the Panama-Pacific Exposition has the finest landscaping ever performed on account of: (1) The bay shore topography backed up by the hills; (2) Golden Gate Park and the Presidio from which to draw landscaping materials; (3) the liberal use of money; and (4) the employment of the best brains obtainable. This is not a personal boost on his part, since he has charge of only a small part of the total landscape work at the Fair.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

State and National Exposition Buildings.

[Written for Pacific Rural Press.]

The best state or national building on the World's Fair grounds, viewed from the outside or within, is that of our own California. Built on the bay shore so that visitors to the Marin county section may rest and look through a fine, big window across the boat-and-island-dotted bay to the hills of Marin county and Mount Tamalpais; spread over five acres; convenient to Agricultural Hall; built in Mission style; surrounded by characteristic California trees, flowers, and shrubs; this building presents a most striking effect.

Inside, the visitor suffers no lack of entertainment. On entering the east end, he passes the separate exhibits of the coast counties emphasizing the peculiar agricultural products of each, characteristic of which exhibits is Sonoma county's feather ferris wheel with all kinds of poultry in the cars.

Southern California has united to show a glorious array of oranges, lemons, grapefruit, and other products, besides a striking group of large, illuminated color photos illustrating the snow-capped mountains back of the gold-and-green orange groves.

Sacramento Valley has her own separate exhibit—agricultural, horticultural, and mineral; and San Joaquin Valley is not outdone. There are moving pictures to illustrate the activities in the various counties everywhere in the building, even for the mining counties of the northern mountains.

This building, in common with a few others, is open until 5:30 p. m., though most of the state and national buildings close at 5:00.

The Canadian building is more theatrical and more talked about. It also emphasizes agriculture, but pays much attention to minerals and water power. Panoramas show Vancouver harbor; an apple orchard painting perfectly blended with an exhibit of thirty varieties of apples in perfect condition laid out on a broad undulating lawn to make a far-reaching landscape; and some pictures showing the various stages of home making on the great grain prairies of Canada.

Australia and New Zealand also have special agricultural exhibits and many other national and state buildings show their typical products by specimens of the best.

Most of the exhibits, however, are in the main buildings, and the principal use of the state and national buildings is for present or erstwhile natives of these states and countries to rest, meet their friends, get warm by gas-log fireplaces, or find their friends from the old home towns from card index registers.

The architecture of the buildings is usually of national interest and quite often of historic interest. Massachusetts has reproduced her State House, which has for over a century decorated the head of Boston Common; Oregon has reproduced the Parthenon with giant logs for pillars; China has reproduced part of the Forbidden City; New Jersey has the Trenton barracks which formed the headquarters of Washington for a long period during the Revolutionary War; and Virginia has reproduced the buildings of Mount Vernon.

FEATURES OF HORTICULTURAL BUILDING.

[Written for Pacific Rural Press.]

When you see the glass dome 185 feet high and 152 feet in diameter, you may know that it is the Horticultural Building. This is illuminated on some nights by a circle of great searchlights which make it look like a ball of living fire.

Under the dome is a Cuban garden of fruits, palms, and other tropical plants, with some characteristic Japanese plants also.

In the eastern end of the exhibits section of the Horticultural Building is a raisin seeder in operation, furnished by the Associated Raisin Company, with an extensive raisin exhibit.

Nearby are a couple of large apples; one from Walla Walla, Washington, is 8 inches in diameter, hollowed out and filled with electric lights and the odor of fragrant apples displayed inside in attractive baskets. Near this, Hood River Valley itself may be seen inserted in one its own apples fourteen feet in diameter.

On the south side of the building is the Price fruit sizer, showing how apples are graded for size by rolling wooden balls into an iron hand which throws all of them with equal force, the different sizes going different distances, dropping into canvas baskets whence they roll into the packing compartments.

In the southwest corner of the building is a large fruit and vegetable cannery in operation from 10:00 a. m. to 4:00 p. m. every day when raw material is available. They are canning asparagus now, but soon cherries and apricots will come.

Near this is an orange grader involving unusual features. Beside this is the Cuban exhibit of fruit.

In the center of the building is a space 30x50 feet, occupied by exhibits of fruits and vegetables originated or originally imported by by Luther Burbank.

Customary exhibits of fruits and horticultural plants, including beautiful flowers, characterize the rest of the building.

Among the interesting horticultural exhibits are the direct-connected gas engine centrifugal pumps for orchard irrigation displayed by the Bean Spray Pump Company, along with some of their power sprayers and other manufactures.

The prune grower will see most up-to-date prune dippers and graders at the exhibit of the Anderson-Barngrover Manufacturing Company, not far away.

SECOND HAND **PIPE**

Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.

WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco

The Pump that

is always spoken well of—the pump that meets the most rigid requirements and produces water at the lowest cost—that's the pump you should have.

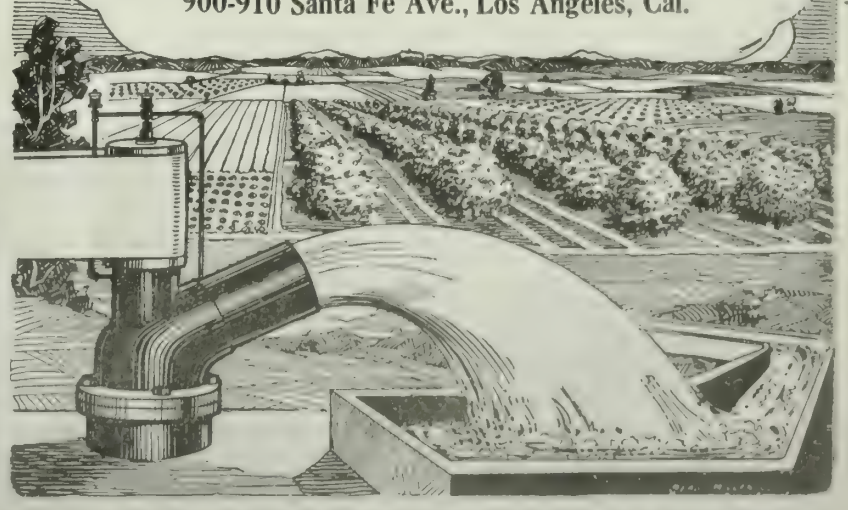
Install The

Layne & Bowler Pump

Write Today for Pump Catalog No. 25

The Layne & Bowler Corporation

900-910 Santa Fe Ave., Los Angeles, Cal.



Bird's-eye View of the Panama-Pacific International Exposition and San Francisco Bay: 1. Machinery Building. 2. Varied Industries. 3. [illegible] 12. State and National Buildings. 13. Live Stock and Poult[illegible]

How to See the World's Fair Best.

[Written for Pacific Rural Press.]

We went to the top of the Broadway hill at Devisadero St. one night to see the illumination of the World's Fair Grounds. By daylight, the buildings are masses of sparkling color set amid green palms and trees, fronted with shrubbery and grass, with fountains and lakes all surrounded by acres of lovely flowers. At night, this color seems to have vanished and in its place is only the shining white of the towers and buildings which seem to glow with their own light. From Devisadero and Broadway, one can see the Fair Grounds from the far end of the Zone to the Liberal Arts Palace. By going one block west to Broderick the rest of the Fair Grounds can be seen. From Devisadero can be seen most of the searchlight effects, and the fireworks which pass far beyond any previous conception of the kind and are displayed two or three nights in the week. Forty-eight great searchlights spread their rays into and through the usual fog which forms a high blanket over the Fair Grounds at night. Beside each of the searchlights is a man who at a given order places different colored screens over his light, giving surprising color effects to the clouds and to the buildings on which the lights are directed. When the sky fireworks are exploded, in addition to the usual brilliant effects, seachlights are turned onto the smoke, illuminating their laced patterns with beauty beyond expression until the smoke has collected into a cloud in the distance.

By daylight, the "Jewel City" is different, but still wonderfully beautiful, for this greatest of world's fairs is set at the foot of a tall line of hills right on the Bay shore. Beyond the "Jewel City" the islands of the Bay suggest other jewels; and the mountains of Marin county suggest the Maker of all. Far toward the right from the Marin mountains and still across the blue bosom of the Bay is the city-covered Alameda shore.

All Things Here for Comparison.—The chief value of this World's Fair to the visitor, aside from pleasure, is comparison. The best specimens of the leading manufacturers of machinery, food products, clothing, and shelter materials are here grouped together. The best products of all the leading countries of earth, the latest achievements of scientists, educational institutions, inventors, plant propagators, etc., are here displayed and illustrated in ways designed to impress most vividly on the minds of men the most modern knowledge of the leaders of the world. All things here are together for comparison, such as one will not see together again—things from the ends of the earth, all of which no one could ever see otherwise. Whatever line one is interested in, he can find the latest and the best, for the predominating feature of the Exposition is to present achievement; not past history. No exhibit is eligible for award unless produced since the St. Louis Exposition.

Be a Questioner.—If you spend your carfare to come to the Exposition, when you get here do not be a gazer—Be a looker and a questioner. One of the saddest of spectacles is that of the blank expression on the faces of hurrying, floor trotters anxious to see everything, but actually seeing nothing and returning home with a jumbled mass of ideas, from which none can be remembered enough to tell the folks at home. Ask questions everywhere. There is someone in charge of every exhibit, who is paid and anxious to answer the questions that may come to your mind.

Pretty soon you will get foot weary and just then you will be beside a moving picture show where you can stay free of charge and see some line of agriculture illustrated, as it is actually done in the industry. Educational movies are everywhere and free.

The World's Fair is divided into three general parts: The Zone, where you spend your money; the exhibits, where you do not spend money; and the state and national buildings, where you rest and meet your friends from the East.

Plan the Day's Sightseeing.—Every morning buy a newspaper and get the program of events for the day. This five cents will save many weary steps and enable you to see much more than otherwise. Before entering the grounds, notice the bulletin board on the outside, which always gives the list of the leading events for the day. Take a lunch if preferred rather than restaurant eating, and don't go fast.

It will be well on the first day to enter the Fillmore St. entrance and pay 25 cents after entering for an official guide book. Sit down on a bench, of which there are plenty everywhere, and study out the location of all the main buildings from the map in the guide book. With the general plan in mind and the guide book in hand for ready reference, walk slowly west on the first main avenue to the left. This leads at first between the Varied Industries Building and Festival Hall, past the Manufactures Building on to the grand court in front of the Towel of Jewels. To get the best view of the Tower, walk out to the main entrance and see the tower from the greatest distance possible. Through its grand archway you will glimpse the Court of the Universe, while in the foreground are acres of pansies with bulbous flowers to match the colors.

Back to the main avenue and past the Liberal Arts Building, then between the Education and Horticulture Buildings swerve around the Fine Arts Palace and rest the eyes from unparalleled architecture by glimpsing the lovely lagoons in front of the beautiful house of pictures and sculpture. Passing around this lagoon, look off to the west over the state and national buildings, but on this first day turn back eastward toward the main buildings and return along the Bay shore, passing between the Food Products Hall and California Building. Then pass Agricultural Hall just beyond which you can glimpse the back of the Towel of Jewels. Going on down the shore, you pass the Transportation and Mining Buildings and then turn to the right toward the starting place. At your left, as you walk toward the Fillmore St. entrance, is the greatest building of all, Machinery Hall. Count your steps from one end to the other. Your feet will give an idea of its magnitude, both by measuring the distance and by the achey feeling.

Locating the Zone Shows.—If they do not ache too much when you reach the Fillmore St. entrance, turn to the left and walk over the half mile of more or less interesting so-called amusements, noting which ones you have money to spend on. Among them all, perhaps the one you will find most interesting is the five-acre Panama Canal. This costs more than the rest of them and is worth it. The Panama Canal is reproduced on the five acres, viewed from a moving platform on which the visitor sits down to travel from one end of the Canal to the other and back on the opposite side. A telephone receiver is fastened to his ear and a phonograph receiver describes every point as it is passed. To see the ships go through the locks, it is best to step off the revolving platform at the end of the Canal and wait until the boat comes through. It is very interesting and costs no more. One can stay on the platform

THE Panama-Pacific International Exposition opened February 20 and will close December 4.

It covers 635 acres, is 2½ miles long, and cost $50,000,000.

The Zone is over one-half mile long, set solid with big shows on both sides.

It lies on the shore of San Francisco Bay, a 5-cent ride from any part of the City, and 10 cents from cities across the Bay.

Practically all of the exhibit space is now occupied.

Entrance is 50 cents a day. There need be no other expenses except board and room which are as inexpensive in San Francisco as in any other city. Restaurant meals on the Fair grounds cost very little more than outside.

Exposition officials have inspected and listed a large number of hotels which have agreed not to raise their rates. These lists, with rates, will be mailed to any one on request. They may be consulted and reservations made at the free Exposition Information Bureaus at the Ferry Building, where all railroads enter, Southern Pacific Station on Third St., and in the Press Building on the grounds.

The P. P. I. E. is the twelfth of its kind ever held in the world, and it beats all the rest.

From San Francisco to New York is 13,135 miles via Magellan; 5,262 via Panama.

From San Francisco to Liverpool is 13,502 miles via Magellan; 7,836 via Panama.

Total attendance to and including May 7 was 4,072,105.

Twenty-three foreign countries, 26 States, and 58 California counties are participating.

Water used daily at the World's Fair varies from 900,000 gallons to 2,000,000, averaging 1,400,000.

Electricity used daily equals about 45,000 kilowatt hours.

tallurgy. 4. Manufacturers. 5. Transportation. 6. Liberal Arts. 7. Agriculture. 8. Education. 9. Food Products. 10. Horticulture. 11. Fine Arts. lelli Building at Entrance to Zone at the Right. 15. Festival Hall.

or off from it within the show as long as he likes.

The incubator babies, Yellowstone Park, Grand Canyon, and the aeroscope are notable features.

At the far end of the Zone, the day will have been well spent and perhaps much of the night, for the shows do not close until way after bedtime, though the main exhibit buildings close at 6:00 and the state and national buildings at 5:00 or 5:30.

This first day's trip, locating things and getting the general idea in mind, will be ample to fill the brain so full that it cannot receive any more anyhow, and the mental locating of the various buildings, in their relation to each other, will save many weary steps, useless wanderings, and wasted time and temper.

Plans Laid before Starting.—Next morning before going to the Fair, decide in which buildings you wish to spend the day. Lay out your sight-seeing trip before starting, for you will get tired enough anyway without skipping back and forth aimlessly and missing much that you would like to see. Get a permanently bound pocket note book and pencil; because unless you take notes everything will be jumbled in your mind on your return home so that you will not have much of an idea of anything you have seen.

On entering a building, notice that it is laid out in numbered streets and lettered avenues. A general trip of inspection and location in each building is preferable to the aimless wandering usually indulged. Walk up one street the full length of the building, skip one street and walk back on the next until you have covered the building, not stopping anywhere, but taking notes locating the things you want to see by their street numbers. At the end of the general trip you can immediately go and see to the best advantage the things you have located.

Comforts and Conveniences at Exposition

For your comfort in the inspection of the World's Fair, the state and national buildings have been provided as club rooms for easy resting and cleaning up. There are card index registers for all who live or have lived in any state and in these registers you can find the names of old friends, when they are to leave San Francisco, where they are stopping, and where they are going afterwards. There are free seats everywhere on the grounds, free band concerts with seats, free moving picture shows with seats to illustrate all phases of activity, and a large number of the exhibitors make provision for the comfort of their visitors. The outside pavements are all of asphalt and the floors are of board to make the least foot-weariness.

If one doesn't care to walk, he may get a guide and a push car at 50 cents an hour, or two together may have a guide and push car operated by a bicycle. Not caring to have a guide, one may get an electric automobile at $1.00 per hour for two, which he or she may operate alone. Less luxurious traveling is obtained on the automobile-pulled train from one end of the grounds to the other for 10 cents, or the same price along the Bay shore behind the miniature steam engine.

There is water to drink everywhere from sanitary fountains free of charge. Lavatories are placed in all buildings at convenient locations.

Restaurants, among which is the Y. W. C. A., may be seen on all sides, and the Inside Inn takes care of people over night within the grounds. If one wants something to eat for nothing, he can get samples of most everything that is good to eat in the Food Products Building.

Colors of Buildings Restful.—The colors of the buildings and the pavements are not glaring as at many exhibitions, but are soft and easy on the eyes, both as to the buildings, statuary, mural paintings, towers and arches. Fountains, green trees, shrubbery, and beautiful flowers are everywhere abundant.

There is a bank on the grounds, many telephone booths, and telephones everywhere for public use at 5 cents per message. There are several branch postoffices besides the main one, to which mail may be directed. Lost children and property are cared for, information is free everywhere. Just ask the guard.

The visitor will always need a light overcoat throughout the whole year, especially in the evening.

Costs. — Railroad fare to San Francisco and home again is cheaper this year than it is likely to be again. Carfare from the Fair Grounds to any part of the city is five cents, or if the visitor wishes to stay in Oakland or Berkeley, ten cents provides a twenty-minute ferry ride on the Bay from the Fair grounds and trolley ride to any part of the other cities.

San Francisco is a city of hotels. The expenses of living here during the Fair are more reasonable than they are now in most cities. No prices have been raised, and there are restaurants a plenty to suit each pocketbook. All exhibits on the Fair grounds are free to all. The shows on the Zone are mostly 25 cents, except the Panama Canal, which is 50 cents. The concerts in Festival Hall of the best music in the world cost ordinary prices. Use of camera on the grounds costs 25 cents per day.

When to Come.—Come whenever you can get here, and stay as long as you can. The climate is quite uniform the year round. If there is no other special time when you wish to come, it would be well to consult the list of conventions, and come during the ones in which you are interested. These conventions have been grouped as closely as possible so that all the different societies interested in similar phases of activity meet at about the same time, and one trip to San Francisco will enable you to attend most of any one group.

To get to the Fair Grounds or the hotels from the depots and the ferries, there are numerous ways. Coming by way of San Jose, the train stops at Third & Townsend Street station. There are frequent cars from this station direct to the Fair Grounds for five cents. Taxicabs are numerous and always ready at reasonable rates.

Official Hotel Information at Depots.—An official information bureau for the World's Fair is located in the depot, and there are listed all the reputable hotels with their prices so that one may determine before leaving the depot where he wishes to stop. Clean, single rooms with hot and cold water are a plenty at 50 cents a night. One of our friends had two rooms and a bath for himself and wife at $2.75 per night in a fine hotel.

Most of the car lines run in front of the Ferry Building, which is the only other railroad station in the city. There are three different companies operating car lines, all of which have cars direct to the Fair: The little cable cars are under one control, the large green cars of the United Railroads are the most pervasive of the city, while the drab-colored municipal cars give exceptionally fast and courteous service to all parts which they reach, including the various entrances to the World's Fair. There is a limited interchange of transfers between the three systems.

All cars direct to the Fair are marked "Exposition" or "Direct to the Fair," so that one need not transfer at all. The Municipal car marked "To the Fair Grounds by way of Chestnut St." takes one to the Zone entrance at the east end of the grounds and then runs along the south side as far as the Horticultural Building. Some cars are marked "Zone Entrance," which means the east entrance, from which the exhibit buildings are half a mile. Cars marked "Fillmore St. Entrance" land the visitor at the east end of the exhibit buildings handy to Machinery Hall. Cars marked "Main Entrance" unload in front of the Tower of Jewels.

THIRTY-TWO livestock and poultry associations meet at the World's Fair between October 20 and November 24, with a few others before that date.

Thirty-four agricultural and horticultural conventions will have met at or near the Fair, including the California State Fruit Growers' Convention in July; the American Pomological Society, the International Irrigation Congress, and the American Society of Agricultural Engineers in September, and the California Conference of Boys' and Girls' Agricultural Clubs in October.

The U. S. Government mine in the Mines Building makes you think you are dropping 2000 feet. It is under the earth and includes all sorts of mines and mining machinery. There is also a great deal of radium on exhibit in the mine.

Inspect the U. S. forts guarding the Golden Gate, and see the daily exhibitions of the Life Saving Service, all of which are free.

The Atlantic fleet of the American navy has been expected to pass through the Canal and reach San Francisco in July.

The Boston Symphony Orchestra is to give eleven concerts in Festival Hall,, May 14 to 22.

Sousa's Band arrives at the Fair May 22.

Aeroplane exhibitions are given almost daily.

The Fair grounds and buildings are illuminated every night.

Interesting Machinery Building Exhibits.

One of the largest wooden structures ever erected is Machinery Hall, which is 136 feet high, 367 feet wide, and 967 feet long. The feature of all the exhibits is actual operation of the machines and courteous explanation of details and advantages by capable attendants.

Aside from the irrigating machinery which is mentioned in another article, but of considerable interest to our readers, are the exhibits mentioned below.

For fruit growers, the southwest corner has a number of machines exhibited by Berger & Carter Company. A peach and apricot automatic peeler and washer stands beside cider and grape crushers, a power peach slicer, and some hand power fruit pitters which cut peaches and apricots off from the pits instead of squeezing the pits out of them. Their capacity is two tons of peaches per hour and one ton of apricots—size not making any difference except in speed.

Navy Department.—The northwest corner of the building is devoted to the Navy Department. Models of battleships abound, including the Oregon which was built by the Union Iron Works of San Francisco and sent around Cape Horn to take part in the great naval battle off Cuba in the Spanish war. Several models of battleships and army transports are cut in two, lengthwise and crosswise, to show their inside construction.

A revolving cyclorama shows the development of the American navy from the time of the Bon Homme Richard of 1778 to the latest superdreadnaught, California, of 1915. Torpedo boats and torpedos are there; and a working exhibit of submarine harbor protection mines is demonstrated on a ship in the water at 10:00 and 11:30 a. m., and 1:30, 3:00, and 4:30 p. m.

A large platform filled with dummy soldiers shows the evolution of American uniforms from the beginning. Motion pictures show army drills. Military equipment is exhibited to illustrate all phases. Lighthouses and lighthouse equipment stand near models of different makes of road beds, built to show their construction from the foundation up. Working models of dry docks with demonstrations every half hour show how ocean vessels are lifted out of the water.

Printing Presses Operating.—In the northeast corner of the building is an automatic printing press throwing out printed sheets faster than one can count. Nearby, a gigantic Hoe press, capable of putting out 40,000 copies per hour of a 48-page newspaper, or 15,000 copies per hour of a three-section colored Sunday paper, printing, folding, inserting and counting them before the papers come out in stacks. This operates from 11:30 a. m. to 3:30, from Saturday to Wednesday inclusive every week. The four-color printing process is illustrated by illuminated negatives.

Nearby are the linotype, barotype, and monotype machines representing the latest means of rapid type making and setting. Nearby is a small printing press automatically printing three colors at once on letter-sized sheets.

THE EXPOSITION'S LIVESTOCK CONVENTIONS.

Californians will be given an opportunity of attending meetings of livestock associations having both national and international standing, this year, as is evidenced by the following list of conventions to be held in the summer and fall months.

As these conventions are always productive of new thought and progress in the livestock world they should receive the enthusiastic support of all western livestock men, and one of every stockman's trips should be so timed as to allow him attending one or more of the following meetings:

International Milk Dealers' Association, San Francisco, July 8 and 9.

Association of American Dairy, Food, and Drug Officials, August 2-5.

California State Bee Keepers' Association, San Francisco, August 5, 6 and 7, 1915.

Official Dairy Instructors' Association, August 7.

California Draft Horse Breeders' Association, October 1.

American Association of Importers and Breeders of Belgian Draft Horses, San Francisco, October 2, 1915.

American Shire Horse Association, San Francisco, October 4, 1915.

Ayrshire Breeders' Association, October 20.

American Shorthorn Breeders' Association, San Francisco, October 22, 1915.

American Aberdeen Angus Breeders' Association, San Francisco, October 25.

The Polled Durham Breeders' Association, San Francisco, October 26.

Red Polled Cattle Club of America, San Francisco, October 26.

California Creamery Operators' Association, San Francisco, October 28 to 30, inclusive.

American Milch Goat Record Association, November 3.

American Poland China Record Association, San Francisco, November 3.

Romney Sheep Breeders' Association, November 4.

Continental Dorset Club, November 5.

National Swine Growers' Association, November 5.

American Rambouillet Sheep Breeders' Association, November 5.

American Hampshire Swine Record Association, San Francisco, November 6.

American Oxford Down Record Association, November 8.

American Southdown Breeders' Association, San Francisco, November 6.

American Hampshire Sheep Association, San Francisco, November 8.

The National Duroc-Jersey Record Association, San Francisco, November 9.

American Tamworth Swine Association, November 10.

American Angora Goat Breeders' Association, San Francisco, November 9.

O. I. C. Swine Breeders' Association, San Francisco, November 10.

The American Shropshire Registry Association, San Francisco, November 11.

American Berkshire Congress, November 12, 13.

National Mohair Growers' Association, San Francisco, November 11.

Northwest Angora Goat Association, San Francisco, November 11.

The Chester White Swine Record Association, San Francisco, November 11.

American Yorkshire Club, November 15.

American Buff Plymouth Rock Club, San Francisco, November 18.

Buff Minorca Club of America, San Francisco, November 20.

American Cornish Club, November 24.

American Pigeon Fanciers' Association, November 24.

VISIT

The World's Greatest Exposition

The Panama Pacific International Exposition

and the Greatest Exhibit of the Exposition

The Carnation

Stock Farm

where there are on display and for sale a great herd of

Registered Holstein

Cows, Heifers and Bulls

Including

Dutchland Governor

Sir Colantha 90477, son of Colantha Johanna Lad and 20 of his daughters.

All splendid Individuals, mostly out of A. R. O. dams

Prices Reasonable

For further information address

The Carnation Stock Farms

Dairy Stables

EXPOSITION GROUNDS

Where Stock Men Should Go at P.P.I.E.

[Written for Pacific Rural Press.]

Assuming that the Exposition visitor wishes to see the livestock and its allied interests in the easiest possible manner, he should start in the northwest corner of the Agricultural Hall, where will be found the exhibits of the dairy supply companies, with their displays of all that is new in their respective lines, also the U. S. Department of Agriculture's animal husbandry exhibit.

Here will be found the De Laval company's display of separators, milk coolers, milk pails, manure carriers, feed trucks and an exhibit of exceptional merit called the "Evolution of the Cream Separator," which shows the gradual improvement in separators. The separator exhibit of the International Harvester company in their large display of agricultural machinery shows the Primrose, Lily and Dairymaid separators; and the Associated Mfg. company's exhibitor nearby shows the various-sized Iowa cream separators.

Milking machine companies also are well represented in this building, the Hinman Milking Machine company having an attractive booth where is shown their milker being run by electric power; also an ingenious water bowl that gives the visitor a good idea of the working principles of the machine.

The Mehring Foot Power Milker exhibit, showing one of the oldest makes of mechanical milkers that we have, is well worth the visitors' attention, showing as it does the method of milking without the use of other power than the operators' feet.

Perhaps the most striking exhibit of milking machines is that shown by the Calf Way Milking Machine company, who have a remarkably good imitation of a dairy cow, upon which the milker is shown to work as successfully as the calf which stands alongside of its statue mother. Other imitation cows stand in James stanchions and show the visitor the exact position of the machine in operation.

Modern milk bottling machinery, sterilizing apparatus, feed cutters and steel silos will also be found in close proximity to the above mentioned exhibits by the visitor.

Leaving Agricultural Hall, the visitor will next stop at the Carnation Milk company's model condensary, located close to the Fine Arts Building on the Avenue of Nations. Here will be seen the method by which whole milk is cooled, clarified, reduced to the consistency of cream, and the canning process.

Continuing from this point the next objective is the livestock department proper, where one's attention is first attracted by an automatic hog feed grinder and then the battery of silos which loom up alongside the dairy barn. Included among these silos are two manufactured of redwood by the Redwood Manufacturing Co. One is full of corn silage. Two stave silos are exhibited by the De Laval Dairy Supply Co., both of which are filled with corn; two stave silos by the Pacific Pipe and Tank Co.; one by the Saginaw Silo Co.; and a Columbia Metal Silo. To those who are interested in silo construction, and there are many more such dairymen now than there were three years ago when this paper first took up the present silo campaign, the silo exhibit holds out much of educational value.

Almost directly across from the silos will be found the Percheron horse exhibits of Dunham-McLaughlin and Mrs. Anita Baldwin in barn number eight. Here will be seen what is perhaps the finest lot of Percheron mares and stallions at present in this State, all of them having been imported from Europe for founding a stud ranch in Los Angeles county.

Coming out of the horse exhibit onto the main street the next point of interest is the milking stable which is more fully described on another page, together with the exhibits it contains.

After passing through the milking stable the visitor will continue on west to the poultry exhibit where will be found the 650 hens which are competing in the egg laying contest, as well as the sales and view flock exhibits of chickens and pigeons.

Being an international affair, the egg-laying contest is of special interest to the utility poultry raiser and should be attended by every farmer on account of the general interest which the utility hen holds for the majority of farmers.

If the visitor be in attendance between June 5 and June 15 or between October 30 and November 13 and cares to see the harness races he will find the gates of the race course and athletic field near the poultry show.

Coming out of the race course and walking back the main street, one should next visit the judging arena which is to be used in the fall during the competition for livestock premiums.

At present, one should go from this arena to barn number two, where will be found the Berkshire view herd of 20 head, shown by the American Berkshire Association of America. This stock is all from the Pacific coast, and a large part from California breeders.

Walking from here toward the water front one comes out near the utility show of beef animals, which are explained in detail on the first page of this issue.

Going from here east brings the visitor to the Hall of Congresses which has been erected for the livestock conventions to be held during the year. Here one will find between 10 and 12 o'clock in the morning and to 2 to 4:30 in the afternoon a free moving picture exhibition, showing actual livestock scenes in countries all over the world.

This brings the visitor to the end of his trip so far as livestock exhibits have progressed to this date with the exception of the displays of livestock products in the buildings occupied by foreign countries, all of which are well worth seeing if we have enough time.

SQUIRRELS EAT GRAIN AND GRAPES.

To the Editor: Gophers are not very numerous around here now, but I believe there must be millions of squirrels.

Last year I put in ten acres of oats and it kept me on the jump to keep them from eating it all. This year it has not been quite so bad though, as I knew how to get the best of them.

As soon as I would see a few holes open on my place, I would give them a good smoking with sulphur and old sacks.

One of my neighbors put in ten acres of barley last year and they cleaned about four acres before he noticed it. They do a great damage to the vineyards around here. When the grapes are ripe they certainly profit by that old saying, "Make hay while the sun shines," for you can see them scampering to their holes from the direction of the vineyard, and the grapes can be found scattered all along the road.

A friend of mine put in ten acres in sunflowers last year, and he didn't get over five pounds of seed on account of the squirrels.

I don't think it will be long, though before they will be pretty well cleaned out, as many people are putting in alfalfa, and there will be too much water for them.

Ripon. Joe Gomas.

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials. 10-dose pkge. Blackleg Pills $1.00. 50-dose pkge. Blackleg Pills 4.00. Use any injector, but Cutter's best. The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct. THE CUTTER LABORATORY, Berkeley, California.

Hopland Shorthorns
Hopland Berkshires
All Stock Registered.
Bulls of Highest Quality
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
Hopland Stock Farm
HOPLAND, CAL.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM
A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland
TAMWORTHS, DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

FOR SALE.
Poland-China and Duroc-Jersey Hogs.
The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, BOLIVER, MO.

Special discount on the first 100
Kirstin One-Man Stump Puller
Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.
W. E. MORRISON.
821 Riverside, Dept. I., Spokane, Wash.

GRANDSONS OF TILLY ALCARTRA
At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade of pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write
J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

Short Horn Bulls
7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

The Visitor at the P. P. I. E. Dairy Barn.

[Written for Pacific Rural Press.]

Although the outbreak of the foot and mouth disease has materially lessened the number of dairy cattle at the Exposition till the beginning of the competition for prizes in October, compared with the number that had been expected by this time, no visitor to the Exposition, and particularly those who are interested in dairying, should fail to visit the modern dairy barn which is situated at the western end of the grounds, near the athletic grounds, and adjacent to the Presidio.

Interior View P. P. I. E. Dairy Barn, Showing James Equipment and the Carnation Stock Farm's Holstein Herd.

The barn itself was designed by Mr. J. N. Gilman, manager of the De Laval Dairy Supply Company of San Francisco, and is particularly well equipped with all of the latest sanitary devices of the James Manufacturing Company, as was described in these columns in a recent issue.

P. P. I. E. Dairy Barns and Court, Showing Presidio in the Back Ground.

At present the only exhibit of dairy cattle on the grounds is located at the dairy barn, the Carnation Milk Company maintaining a large herd of registered and high grade Holsteins there for the purpose of supplying their model condensary on the grounds with fresh and pure milk.

The visitor's chief interest in this herd, particularly those who already have or are contemplating the purchase of registered Holsteins, will be found in the breeding of the purebreds, as well as the reason for the Carnation Milk Company branching out into the breeding business.

M. H. Tichenor, who is vice-president and general manager of the Carnation Stock Farms, which is a subsidiary company of the milk company, with breeding farms at Oconomowoc, Wisconsin, and Seattle, Wash., relates that these herds of registered cattle were started about seven or eight years ago for the purpose of improving conditions for the 9,000 customers which the company serves at their 16 condensaries. Their idea is that through the use of purebred bulls, these customers will be able to materially increase their output of whole milk, and with that end in view, the company has spared neither cash nor labor in securing Holsteins of exceptionally high merit.

Especially is this true in regard to the herd sires, and it is doubtful whether any farm in the country supports a larger number of high class herd bulls than are maintained by this company at their ranch near Seattle. Among them are the bulls, Dutchland Governor Sir Colantha, sired by Colantha Johanna Ladd 32481 and out of the cow Pontiac Latona, a daughter of the great

"Come Over to See the Milker, Judson?

THERE it is. You're the sixth neighbor that's called today. I'm mighty proud of the machine. It's advertising my dairy. Luke had a piece in the Bugle about it last night. And Jud—I took Sunday off, something I haven't had a chance to do since the Mayflower landed. The Milker has '**The Teat Cup with the Upward Squeeze,**' patented by the folks who invented it and used only on the

SHARPLES MILKER

This Teat Cup gently massages the teats **upward** 55 times a minute, keeping the blood circulating as it ought to and the udders and teats in the pink of condition.

Cows like it—Jud, they take to it like a calf was getting its breakfast. The Teat Cup isn't particular what kind of teats it milks. Snuggles over long ones, short ones, thick and slim ones perfectly. Put it on that three-teater I was thinking of shipping to the beef folks; and, honestly, I think the old girl's coming back to life and means to get in the big producer class.

The boys grin while they milk now. They get plenty of sleep, milk quickly, and get out in the field a couple of hours earlier. Better get a Sharples, Jud, and cut out that hand-milking drudgery, or your trade will switch over to me."

It is our conviction that cows cannot be successfully milked by a machine without the upward squeeze. This process is covered by the broadest patent which our Government can grant—a process patent—owned by us. No other milker made in the world today gives an upward squeeze. We will promptly defend our customers and ourselves should any infringement be attempted.

The SHARPLES TUBULAR CREAM SEPARATOR is made in the oldest and greatest separator factory in the U. S.

Send for literature describing in full detail the manifold advantages accruing from the every-day use of Sharples products. Sent anywhere on request.

The Sharples Separator Company

West Chester, Pennsylvania

Principal Branches: Chicago San Francisco

District Offices and Agencies Everywhere

Hengerveld De Kol. This bull is now being shown at the Exposition together with 20 of his daughters out of A. R. O. cows and a nice lot of his bull calves. Another of the herd sires is Ollie Johanna Sir Fayne, out of Ollie Watson Prima Donna with a seven day record of 31.10 pounds of butter, and sired by Johanna Fayne, a bull with 25 officially tested daughters. Still another of the sires is Forward Prince Segis, whose dam, Inka Princess Mutual De Kol, has a seven-day butter record of 33.25 pounds, and whose sire, Segis Lyons Hengerveld, while still a young animal, has already a good list of daughters. Rag Apple Korndyke 7th, whose brother, Rag Apple Korndyke 8th, sold at auction for $25,000, is another of the sires which is being used on 45 heifers sired by Johanna McKinley Segis at the Seattle Farm. The bull, Johanna McKinley Segis, is used at the Oconomowoc Farm. This bull has a high standing in Holstein circles, his sire being King Segis and his dam Johanna De Kol Van Beers with a seven-day record of 40.096 pounds of butter, being sire of a 33-pound five-year-old, and having a two-year-old granddaughter who has recently made a record of 30 pounds in seven days in Wisconsin, the first two-year-old to reach this mark in the breed. With this foundation of herd sires, Mr. Tichenor is anticipating great results at the pail in the future, and is a firm believer in the official test.

Of almost equal interest to the cows themselves is the manner in which they are cared for, sanitation being the watchword of the management, and in this respect it is important that the visitor time his trip to the dairy barn so as to be there around three o'clock in the afternoon, at which time the entire herd is milked with the mechanical milker demonstrated by the Calf Way Milker Company.

This is one of the later innovations along milking machine lines and offers the dairyman who is the least bit skeptical or curious an exceptional opportunity of seeing the machines in actual operation under conditions that are typical of a well-regulated dairy plant.

As an educational feature, the barn, cattle, and milking machines should be seen by every dairyman.

TEPARIES, FETERITA, DWARF SHEEP.

To the Editor: I notice considerable discussion concerning teparies and feterita just now. From my experience I think teparies will become a standard crop in both the Sacramento and San Joaquin valleys. Eventually a large demand will grow up for them, and they will be sold as teparies and not as small white beans. They are especially palatable when baked. The flavor resembles a mixture of white beans and dried peas, the pea flavor being quite perceptible.

Feterita will also become popular, where threshing by machinery is intended, but I find the seed sticks too tight in the hull for chickens to get it out. One might tie the heads to a stake. Like Mr. Biedler, I was unable to see a great difference in production between it and Kafir, under similar conditions, though it does not shell out in handling like Kafir.

Feterita is susceptible to damage by birds, contrary to some writers. Birds attack all the sorghums when in the milk or soft stage, biting out the center of the grain, and feterita does not escape. I found also the linnets would crack the ripened grains, leaving a part in the hull.

I read "Orange Grower's" sheepish inquiry (Rural Press, March 13) and it called to mind an idea I've had for a long time. That is the need for a small-sized sheep—a "bantam" sheep. We have ponies, small cattle, and why not small sheep?

Of course we could kill lambs while small, but it would be baby mutton and not mature flesh.—Reader, Oakley.

CHOPPED OR GROUND ALFALFA.

To the Editor: For the rancher with 30 cows and 100 hogs, who can't afford to buy both, which would be of greater benefit to him, an alfalfa cutter, simply to cut up alfalfa for cows and hogs, or an alfalfa mill to make meal to feed cows and hogs? The question is, which will benefit the stock most. S. T. C., Berenda, Cal.

[We do not believe it would be profitable for you to invest in a piece of machinery as expensive as an alfalfa mill to make meal for so few a number of cattle and swine unless you could run it as a custom mill, doing work for neighboring ranchers. From our observation, we believe that a feed cutter would be more profitable for your purpose, as they are less expensive and the results of feeding in this State do not seem to indicate any great improvement in hay that is ground over that which has been run through a cutter and stored in the barn. Several of our advertisers are handling feed cutters of this kind and will doubtless supply you with information upon request.—Editors.]

TWIN SHEEP PRODUCE TWINS.

To the Editor: In a recent issue a subscriber inquires if selecting twin ewe lambs to breed from will give the tendency to breed twins. You ask any one who knows to give information.

My observation among sheep men and their practice in the east where I lived was that it was common practice among old breeders to choose a twin buck to head the flock. I once viewed a flock of sheep, that of a neighbor, and remarked the very large majority of ewes had twins. The owner told me he had selected twins for breeding-ewes, for years, and the tendency to drop twins was well nigh universal.

From my observation the tendency is inherited in all animals, and though it may not appear in the first generation, is very apt to in the second.

I never noticed that twin ewes were apt to be sterile.

Lodi. M. H. Cusick.

COW FAILING.

To the Editor: I have a young cow in calf, that has had diarrhoea for a long time, and is getting very thin. Her appetite seems to be fair, but her inner teeth are getting black, and her hair or coat is very rough. I have tried some remedies for diarrhoea, but without avail. Is there anything that I can do for her?—O. A., Patterson.

[Have your cow tested for tuberculosis. If she reacts, dispose of her. For diarrhoea, give six tablets Abbotts' sulphocarbolates compound twice a day.]

The De Laval Line at the Exposition

De Laval Cream Separators.
De Laval Milk Clarifiers.
De Laval Special Centrifugals.
Alpha Gasoline and Distillate Engines.
The Viking Rotary Pump.
James Sanitary Barn Equipment.
The Ideal Green Feed Silo.
The Ideal Sanitary Cream Cooler.
Alpha Combination Power Sprayer.
Everything for the Dairy.

THE EXPOSITION COW BARN was designed by us, and is fitted exclusively with JAMES SANITARY BARN EQUIPMENT.

THE IDEAL GREEN FEED SILO was the first completed WORKING EXHIBIT on the Exposition Grounds. It is at the main entrance to the cow barn. Do not fail to see both.

You are invited to make our Exhibit in the Palace of Agriculture your headquarters while visiting the Fair.

De Laval Dairy Supply Co.

San Francisco. Seattle.

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using

W. DAVIS & SONS'

Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collar, each... 3.00

This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."

The "Felt-face" collar is all-leather, first-quality of oak-tannage, hard-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.

It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules, which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.
W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us,

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

Hillcrest Stock Farm

THORNTON S. GLIDE, Prop., Davis, Cal.

Breeder of

Short Horn Cattle
Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

With the Live Stock Men.

DAIRYING.

Madaule Bros. have leased eighty acres near Porterville and will operate a dairy on the place.

Shadlich Bros. of Oakdale recently brought twenty-five head of dairy cows from Kings City, which were distributed among the dairymen of that section.

B. E. Nixon of Napa recently purchased from W. L. Mitchell the thoroughbred Jersey bull, "Merry Maiden's Index," and will import a number of heifers from the East.

A. L. Gilbert of Stanislaus county recently leased his ranch near Burnett to Peter and John Pisenti of Ceres, who will establish a 300-cow dairy on the place.

An amendment to Assemblyman Satterwhite's pure milk bill was passed by the Assembly providing that the tuberculin test for dairy cattle shall be postponed from January 1, 1916, to October 1, 1916.

An exhibition cow test will be conducted by the University at the Panama-Pacific Exposition on six cows chosen one each from Yolo, Stanislaus, Sonoma, Kings, Marin, and San Mateo counties.

State Dairy Inspector C. A. Pears, for Tulare county, in one of his recent visits through the county, discovered a cow belonging to D. Gum, which is more than twenty years old and still giving a good flow of milk.

The Orland Cheese & Butter Company made a record of turning out more than 400 pounds of butter daily during the first ten days of their operation, practically all of which went to the San Francisco market.

The leading hornless Holstein breeder of the United States, Geo. E. Stevinson of Pennsylvania, was a recent visitor to San Francisco and other California points last week. Mr. Stevinson is much interested in the alfalfa industry of the State, and gives as his opinion that central California is the leading alfalfa section of the nation.

B. B. Atkins, president of the Holstein-Friesian Ass'n of America, was a visitor at San Francisco this week. Mr. Atkins stated that he considered the action taken by the Holstein Association regarding the view herds at the Panama-Pacific Exposition was short-sighted, and hopes to be able to get the Association to carry out the original plans with the Black and Whites.

SWINE.

The Yolo County Swine Raisers' Association recently appointed twelve men from that county as members of a board of control to assist the farm advisers in eradicating hog cholera.

CATTLE AND SHEEP.

Rodden Bros. of Oakdale recently shipped four cars of steers to the Western Meat Company, San Francisco.

Finley Bros. of Sacramento recently purchased a carload of cattle in the Riverdale district of Stanislaus county.

A prize herd of Poll-Angus cattle, valued at $20,000, will constitute part of Live Oak's exhibit at the Butte County Spring Exposition.

An average of $9 a head is reported to have been received by W. S. Carter of Yuba county for his entire herd of sheep sold to Oscar Hutchinson of the same county.

The Whitehall Estates recently shipped two carloads of horses to Tracy and seven carloads of cattle to San Francisco. They have been feeding this stock on the Goodman lands south of Chowchilla.

It is estimated that the loss to sheepmen of Nevada on account of the recent storm will reach a million dollars. The loss is chiefly among the lambs, which were unable to stand the severe cold.

A shipment of 520 head of beef cattle, weighing about an average of 1275 pounds and valued at approximately $40,000, left the Porterville stock yards recently for the San Francisco market. The consignment consisted of twenty-three cars, nineteen of which were placed by Gill Bros., and two cars each by D. A. Vaughan and Frank Gill.

MISCELLANEOUS.

Portland Union Stock Yards' receipts for the week ending May 6 are: Cattle, 985; Hogs, 2138; and Sheep, 2442. Choice steers sold around $7.50 to $7.90 and cows at $6.25 to $6.60. Several loads of hogs went at $8.05 to $8.10, representing the top of the market. The sheep supply was small and the market quiet. A couple of loads of spring lambs sold at $8.25, being the top price for that class of stock.

JERSEY CONSIGNMENT SALE.

That dairymen and breeders do not yet fully appreciate the value of purebred stock was demonstrated at the consignment sale of Jerseys offered at Modesto last week by California breeders. The 86 head which were offered sold for a trifle less than $13,000, or an average of about $150 per head. The fact that a good deal of young stock was offered was probably responsible for the low average. The highest price paid for a single animal was $350 for the bull, Owl of Bellevue, consigned by F. B. Wulff of Modesto, and purchased by the University State Farm. This bull is considered one of the finest in the State, both as to type and milk pail standards, and at the above price is exceptionally cheap. The largest buyers at the sale were Murray and Jones, who have recently purchased a large herd of Jerseys near Ceres, and added 28 head of those consigned to their already large foundation. Other large buyers of cattle were H. M. Barngrover of San Jose and Jenkins Bros. of Tulare. Both of these buyers already have nice foundation herds. Notwithstanding the low prices brought by the Jerseys, the 40 head of Poland-China hogs offered by Chas. N. Odell of Modesto fared better in regard to prices, averaging $40 per head. This seems to indicate that the demand for purebred hogs is continually on the increase and that buyers are willing to pay top prices for hogs of good breeding. Col. Benj. A. Rhoades of Los Angeles acted as auctioneer in his usual happy manner. The sale was managed by G. O. Hillier, who disposed of the balance of his herd established some years ago.

SANTA CLARA ALFALFA BEST?

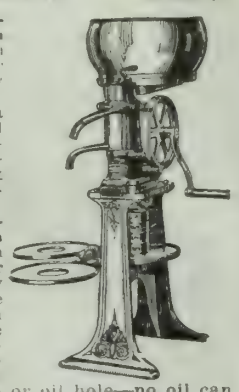
[Written for Pacific Rural Press.]

"I had to guarantee to my neighbor, then recently from Sacramento Valley, that his cow would eat alfalfa. I offered to give it to him for bedding if she wouldn't eat it. He said it was too coarse, there was no feed value in it, and the cow wouldn't eat alfalfa. He hadn't seen mine," said C. A. Phelps of Santa Clara Valley, who has cut 47 annual crops within two miles of his present home.

"Our alfalfa hay is worth twice as much as that in the San Joaquin valley, and I think it is largely because they cut it too late and let it get too dry. The leaves drop off, and of course stock do not like the stems so well as they would if of finer texture and mixed with more leaves. If I were handling alfalfa in the San Joaquin, I would follow the mower immediately with a rake and let it cure not too dry, in winrows."

Newspaper matrixes are used by many orchardists as protectors for young trees. They are cheap, easily applied, white to reflect the heat, tight to prevent rabbits, and to prevent the development of suckers below the exposed head.

ANKER-HOLTH THE DIFFERENT SEPARATOR



The **Anker-Holth** Cream Separator is the only separator with a bowl guaranteed never to get out of balance.

The **Anker-Holth** Cream Separator is the only machine with a complete splash oiling system — not an oil cup or oil hole—no oil can necessary.

The **Anker-Holth** Cream Separator is the only machine that has an interchangeable skimming device. You can put it together any way you pick it up.

The **Anker-Holth** Cream Separator has detachable shelves, the bowl empties at the bottom; it is light running; it is one of the closest of skimmers, simple and durable.

We will establish an agent in every town.

THE J. C. ROBINSON CO.,
44 First St., Portland, Ore.

Stock Ranches!

5000 A. Sonoma Co., fine water, feed, fences & buildings. 200 A. Hay land, very fine. $10.00 per acre, or **will exchange for Alfalfa Ranch.**

1280 A. Grassy Open Range deep clover. 15 springs. 400 A. tillable. Bldgs. $11 pr. a. Terms.

71A Dairy. 30 A. irrigated in crop. Good house and 2 barns. 14 cows, horse, hog, etc. $2250 cash. Mtg. $2750.

80 A. Perfect Fruit & Olive Land. Irrigation 60c acre per year. Free water right snap $40. ¼ cash. Sell part.

W. W. WILLIAMS,
110 Sutter St., San Francisco

HINMAN
THE UNIVERSAL MILKER

THESE TWO HINMAN MILKERS *$135.00*

Including complete equipment and by attaching a one-half H. P. Electric motor or a 1 H. P. Engine you can milk at the rate of 15 to 18 cows per hour and keep a record of each cow's milk. Any time you want to reduce the milking time add another unit at a cost of $50.

Your Cows Will Respond

as well as to hand milking as the action on the teats is identical with the hand squeeze. Our independent vacuum pumps produce the vacuum just as it is needed and apply it in a gentle, soothing way to the teats. When the machines are adjusted to the cow a 15 in. vacuum is used, but as soon as the milk starts freely the pressure is reduced. When milk flow slackens the pressure increases to normal. This action is automatically controlled and is intermittent. All pressure is removed from the teats 45 times a minute.

A Hinman Feature

The **Hinman** is the only machine that absolutely breaks the vacuum after each draft of milk, giving the same release as hand milking. May we mail you one of our free books, "Making More Money with the Hinman Milker" and "Opinions of Users."

See the **Hinman Milker Demonstrator** at Our Exhibit in the Agricultural Palace, P. P. I. E. Grounds, or write for further particulars to

CHAS. F. DANIELS & SON.

2511 PRINCE STREET, BERKELEY.

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

GROWTH ON RECTUM.

To the Editor: I have a large gray mule about ten years old, that developed a growth on her rectum about six months ago, that grew till it was the size of an egg, and then broke and discharged a black pus. The growth is now as large as one's fist, with a cavity in it. The mule is in good condition. I feed alfalfa hay.—M. E. B., Brawley.

[Gray mules and horses are subject to this trouble, called melano sarcoma. There is no cure. The tumors gradually become larger, but do not affect the health of the animal unless their growth interferes with some of the vital functions. Interference with the growth only aggravates the trouble.]

BLACKLEG.

To the Editor: The latter part of April I had one calf about six months old die from blackleg. I then vaccinated all, using Park Davis Blackleg pills. Two weeks later another one died, and one week after another, presumably of blackleg. These calves were running in a small woodland pasture with good mountain water to drink. Why should they die after being vaccinated?—P. F., Sonoma county.

[Most probably your calves did not die from Blackleg, but from some other disease. Are you sure they got the vaccine and that it was not lost out of the gun or syringe?]

CALVES LOSE EYESIGHT.

To the Editor: Some time ago an infection started with my yearling calves, which seems to be spreading rapidly. The eyes first become mattered, sore and inflamed, and the animals almost lose their sight. Oftentimes, one eye becomes entirely out. The disease has now spread among the younger calves, and I am at a loss to know the reason. Kindly advise me what it is and what I should do about it.—P. T. C., Lafayette.

[If you are feeding foxtail hay, examine eyes for foxtails and remove. If this is not the trouble, your calves have an infectious conjunctivitis. In either case, instill a few drops of a 50 per cent solution of argyrol twice a day.]

GROWTH ON FOREHEAD.

To the Editor: We have a two-year-old heifer wth a hard growth in the forehead right between the two eyes. It looks like a wart and she has several on her neck which are smaller. Kindly inform us what to do, as it spoils her appearance.—A. R., Vacaville.

[Scrape warts off with knife blade and apply tincture of iodine daily for one week.]

MARE'S UDDER DRAWN UP.

To the Editor: I have a fine brood mare had a colt two years ago. I weaned the colt at the age of about eight months, and the mare was all right until last summer; then one side of her udder began to swell, and it got very large and hard and quite painful. I tried to reduce the swelling by rubbing the udder, but it did no good. At last it broke open in several places, and a clear yellowish-looking matter would come out drop by drop and thin like water. Then the swelling went down and now that side of her udder is all drawn up. Can you tell me the cause of this and would it do any harm if she were bred and foaled again?—Subscriber, Bethany.

[Your mare had an infection of the udder, which is apparently cured. It will be all right to breed her again.]

ERUPTION ON HORSE'S SKIN.

To the Editor: Would you please suggest some good remedy for a six-year-old horse whose skin is full of pimples. He is always rubbing himself and rubs off his hair on these pimples and leaves little round spots. It doesn't seem to be contagious for I have had his mate with him all the time. I keep him out in a small alfalfa field and sometimes he eats some hay. When he sweats, it seems to bother him more and also during warm weather.—J. M. M., Newman.

[Get a quart of Fowler's solution of arsenic and give your horse one half ounce in a bran mash three times daily. Also have the following put up and apply all over him externally, rubbing in well. Apply three times at intervals of eight days: Oil of tar, one ounce; oil of cajuput, one ounce; flowers of sulphur, one ounce; and neutral oil, enough to make one quart.]

DILATOR FOR HARD MILKER.

To the Editor: I have a nice heifer which I am milking. However, she is a hard milker, and I want to know if there is anything one can do for that condition.—G. W. M., Dixon.

[Spend ten minutes massaging the udder before milking. If the orifice of the milk duct in the teat is very small, send to the F. S. Betz Co., Hammond, Ind., for some teat plugs to gradually dilate the opening. Always boil plugs for fifteen minutes before inserting and keep them in a 2 per cent liq. cresolis comp. solution. Wash off teat with this before inserting. Insert after milking and allow to stay in between milkings. Specify catalog No. 1-15 Teat Plug No. 10L1006, get eight; they cost 25 cents apiece.]

A mile of perfect highway bestowed upon the centuries to come, constitutes a fundamentally constructive influence certain to gather cumulative force as the years sweep on.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

WANTED—12 to 60 Holstein cows, registered or well-bred grades, in exchange for high-class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. E. H. Whitten, R. D. 5, Box 646, Los Angeles.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa For prices and particulars, address J. B. Agee, Napa, Cal.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal

REGISTERED HOLSTEINS—A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

WANTED—Prices on four graded Holstein cows and a registered bull. G. A. Stewart, Nevada City, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

REGISTERED JERSEYS—J. A. Goodall, Turlock, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

TWENTY GRADE PERCHERON MARES with colts. Weight 1500 lbs. Imported Percheron Stallion, 8 years old. Also other horse stock for sale. S. L. Skaggs, Madera, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Registered Short Horn Bulls. L. A. Macomber, Tipton, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sacramento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

CHESTER WHITE PIGS—We offer for immediate delivery choice, well-bred registered Chester White (O. I. C.) pigs of either sex We will sell in trios (boar and two sows) not akin, or in any number and registered at from $15.00 to $25.00 each at 8 weeks of age. Get busy with the Chester Whites and you will never regret it. F. T. Knewing, 261 Mills Bldg., San Francisco.

BLUE RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno. P. Daggs, Modesto, Cal.

GOLD MEDAL HERD DUROCS—Weaned pigs, either sex, from prize-winning sows and boars State Fair, 1914. I have Grand Champion sow, Champion sow bred by Exhibitor, second prize boar. Pigs of these sows, mother and sisters. Priced right. Elmer Lamb, Ceres, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc., 919 Hearst Building, San Francisco.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg., San Francisco.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

FOR SALE—50 Brood Sows, registered Berkshire and Grades. Four registered boars, 1 O. I. C., 2 Berkshire, 1 Duroc Jersey, 125 pigs—all ages. Newark Farms, Newark, Cal.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Hobson Co., 819 J St., Sacramento.

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

REGISTERED BERKSHIRES—Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

REGISTERED BERKSHIRES for sale. All ages. Boars ready for service. Stanislaus Ranch Co., Crows Landing, Cal.

REGISTERED DUROC-JERSEY SWINE—Bred sows, gilts, weanlings, young boars. H. D. Van Vlear, Lodi, Cal.

QUALITY BERKSHIRES—Boars, Brood sows. Weanlings, $10. F. H. Wilson, Mgr., Allison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford.

REGISTERED BERKSHIRES—Young stock for sale. John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS—Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Palmas Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED POLAND-CHINAS—Young stock for sale. Hewitt & Hewitt, Hardwick, Cal.

READAKS RANCH herd of registered Poland Chinas. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. E. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock. E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS — T. H. Beckman, Lodi, Cal.

REGISTERED BERKSHIRES—J. A. Goodall, Turlock, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric car at Santa Rosa or Petaluma for Live Oak.

SHROPSHIRES—Registered yearling rams for sale, $25 and up. Enterprise Stock Farm, H. P. Eakle, Woodland, Cal.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. R. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. L. Sayre, Madera, Cal.

CALIFORNIA ANNUAL---1915

What It Is.

CALIFORNIA ANNUAL—1915 is the most remarkable publication ever issued in the West, if not in the entire United States. It represents unremitting application to the task of obtaining from the most noted Californians their best original thoughts upon the resources, development and accomplishments of California. In articles not too technical for general understanding, yet accurate as to data and other details, the men who are in the van of all great undertaking, particularly in agricultural lines in California, have written of the enterprises in which they are recognized authorities. These articles are all profusely illustrated and are classified so as to be readily accessible. They are clear, concise treatises upon horticultural, agricultural, and kindred subjects. There are descriptions of fruit-growing of every sort; of vegetable growing, of field products, of natural resources, of poultry keeping, of stock raising, dairying, etc. There are articles by California women upon woman's activities in this State; the Panama-Pacific Exposition is described in detail by the chiefs of each department. There is a section devoted to the Canal and other waterways; there are ethical, economic and statistical papers by the most prominent citizens of California. Never before has there been accumulated between two covers so convincing an array of facts and figures, which tell the story of California's greatness for all the world to read.

Edited by

E. J. WICKSON, A. M.

Professor of Horticulture, University of California; Editor of Pacific Rural Press; Author of "California Fruits and How to Grow Them" and "California Vegetables in Garden and Field," etc.

Illustrations.

A FEATURE of California Annual—1915 is the illustration. Practically every page is enlivened by a splendid half-tone reproduction of a striking photograph depicting the details of some particular work, the scenic attractions of California, etc. There are no portraits save those of some of California's most prominent women. This is not a biographical volume, nor a series of paid write-ups, nor yet a catalogue of the State's products in almanac style. It is a concise, authoritative, practical and absolutely up-to-date collection of contributed papers of things done by men who do things. It is the most beautiful book from a typographical and artistic standpoint ever printed in this State. There are a series of natural-color plates that are in themselves worth the cost of the entire volume. These are from nature or from paintings by famous artists of natural subjects. There are many pages on which are displayed the scenic wonders of this wonderful State—the Yosemite Valley, the High Sierras, the National Parks, the interior valleys and mountains, beautiful homes and gardens—all these subjects are photographically reproduced, together with the articles appropriate thereto. As a gift book, a reference work, a book to send home to the folks in the East, or a volume for general use, **California Annual—1915** surpasses any similar work ever published.

The Best Thought of the Best Thinkers in the West Today Condensed into One Splendid Volume of More Than Six Hundred Pages.

California's Opportunity.

THIS is the day of California's greatest opportunity, and never before in its history has there been a more persistent and sincere demand for reliable information regarding its resources, development and the chances for investment or for enterprises in every line. The completion of the Panama Canal, the great Expositions of this year, the European troubles—all have been influential in turning the trend of thought westward, and this is being followed by a tremendous influx of strangers—for the most part men and women who are not only here to see the fairs, but to see California in its entirety as well. Of these, thousands will become charmed by the beautiful climate and the myriad attractions and so desire to make it their home. **California Annual—1915** will be to these people a veritable vade mecum—a constant companion, indispensable to a thorough understanding of what the State offers the sight-seer, the prospective investor, the home-seeker, the business man or manufacturer, and, particularly the farmer and agriculturalist in all departments. There are hundreds of thousands of available acres in California suitable for farming of every description, and the opportunity of the farmer is California's opportunity as well. For the growth of population in this State means a growth of prosperity. There is no problem of over-crowding here. We could easily absorb the entire population of several other States and still have room to spare. So that **California Annual—1915** is the medium whereby the people may be made to realize what the State has to offer, and both the readers and the State will profit thereby.

The Price of California Annual—1915 is

One Dollar

per copy, postpaid.

For the Agriculturist.

CALIFORNIA, whatever its attractions in other respects, has long been and will continue to be, pre-eminently a farming country. It offers more in the way of climatic conditions, soil and fertility, luxuriance of growth, than any other State in the Union. It affords the farmer a thousand different ways of earning a livelihood; it places him in an independent position and keeps him and his family well and prosperous and happy. What the farmer wants, whether he is already located here or is merely contemplating coming to the State, is reliable information on its characteristcs and possibilities. This is what **CALIFORNIA ANNUAL—1915** supplies. The men who have written for it are absolutely the foremost experts, and their unimpeachable character and high standing in the community and their recognized places in the front rank of the industries they represent render their contributions not only dependable, but thoroughly practical as well. The list of contributors on the next page is proof positive of this statement. If you are interested in raising livestock—you will find the subject treated in all its branches in this volume; if you would like to know more of fruit-growing, of grain, grape, or alfalfa—consult this book, and the most eminent authority in the State will answer your questions. Poultry, bee-keeping, walnuts, almonds, olives, figs, dates—these are among the subjects discussed. University savants have written on soil and climatic conditions, upon the educational features, and the potentialities of California. Some of the most prominent solons have considered the economics and ethics of the State's position with respect to the farmer. Rural credit is taken up, the financial resources, transportation facilities, and labor conditions are presented. The range of topics covered is wide, yet each bears definitely upon the fundamental purpose of the work—to present California truthfully to those who are interested in the greatest State in the Union.

On the next page will be found a partial table of contents of CALIFORNIA ANNUAL—1915. It is an impressive list, and in its entirety is a statement of the things done in California by the men who do them.

Table of Contents of California Annual—1915

(Following is a Partial List of Articles and Contributors.)

California Fruits.

Why California Leads the World in Fruits.
By **E. J. Wickson** (Editorial).

Why the Plum is Great in California.
F. B. McKevitt, President California Farmers' Protective League.

The Citrus Fruit Industries of California.
F. O. Wallschlaeger, Secretary Citrus Protective League of California.

The Olive: A Unique California Product.
Mrs. Freda Ehmann, Ehmann Olive Co.

The California Prune Industry.
Joseph T. Brooks.

Why California Will Lead in Fig Production.
George C. Roeding, President Fancher Creek Nursery Co.

The Date in California.
Silas C. Mason, Aboriculturist Bureau of Plant Industry, U. S. Dept. of Agriculture.

California Almond Growing and Marketing.
George W. Pierce, President California Almond Growers' Exchange.

California Walnuts and Co-operative Marketing.
Carlyle Thorpe, Manager California Walnut Growers' Association.

What California is Doing for the World in Raisins.
James Madison, Vice-President and Manager California Associated Raisin Company.

The Grape in California.
E. M. Sheehan, Member and Secretary California State Board of Viticultural Commissioners.

Co-operative Marketing.

What the Railroads Have Done for the Fruit and Vegetable Industries of California.
J. S. Leeds, Manager Santa Fe Refrigerator Dispatch Company.

Co-Operative Marketing of Deciduous Fruits.
J. L. Nagle, Mgr. California Fruit Exchange.

California Fruit Growers' Exchange.
Dr. G. Harold Powell, General Manager California Fruit Growers' Exchange.

Co-Operation in Selling California Cured Fruits.
Henry M. Ellis, General Manager California Cured Fruit Exchange.

How the California Fruit Distributors Distribute.
Charles E. Virden, General Manager California Fruit Distributors.

Growing of Vegetables for Distant Shipment in Southern California.
H. S. Hazeltine, Secretary Vegetable Union.

Field Products.

California's Leadership in Alfalfa.
E. J. Wickson (Editorial).

Hay in California.
F. A. Somers, President Somers & Co.

Hop Growing in California.
E. Clemens Horst, Pres. E. Clemens Horst Co.

The Future of the California Cotton Industry.
John N. Blackburn.

The California Rice Industry.
Theodore Goodman, General Manager California Rice Growers' Association.

Truck Farming in California.
E. J. Wickson (Editorial).

The Potato in California.
Eugene H. Grubb and W. S. Guilford, Authors of "The Potato," published by Doubleday, Page & Co.

The Lima Bean in California.
Parry R. Cole, Manager The Lima Bean Growers' Association.

Fundamental Principles of Plant Breeding.
Luther Burbank, President Luther Burbank Society.

Seed Growing in California.
Lester R. Morse, President C. C. Morse Seed Co.

Food Manufacture.

The Milling Industry in California.
Hon. Horace Davis.

Methods and Achievements of the California Dried Fruit Industry.
Henry P. Dimond, Secretary Dried Fruit Association of California.

Factors in California Canning.
A. W. Bitting, Food Technologist.

How California Fruits are Served Fresh Around the World.
Charles H. Bentley, Sales Manager California Fruit Canners' Association.

The California Sugar Industry.
Robert T. Oxnard, Vice-President American Beet Sugar Company.

Livestock and Dairying.

California Range Cattle.
W. Mayo Newhall, Vice-President Newhall Land and Farming Co.

The Shorthorn in California.
David J. Stollery of the Howard Cattle Company.

The Hereford and the Range Interest.
J. W. Goodwin, President Oro Electric Corporation.

Swine Raising in California.
A. M. Henry, President Swine Breeders' Association.

The Sheep and Wool Industry of California.
F. A. Ellenwood, Secretary California Wool Growers' Association.

The Horses Which Move California Industries.
Henry Wheatley, President California Horse Breeders' Association.

The American or Five-Gaited Saddle Horse.
Hon. E. A. Bridgford.

The California Trotting Horse.
Will M. Neal, Editor "The Breeder and Sportsman."

Dairy Products from the Cow to the Consumer.
Ed H. Webster, General Superintendent of the California Central Creameries.

Opportunities in California Dairy Industry.
State Dairy Bureau.

California Annual--1915

Contains More than 600 pages.

PRICE $1.00 PER COPY POSTPAID 136 articles by foremost authorities. More than 250 fine illustrations. 32 pages of natural-color plates. **California Annual — 1915** is the greatest book on California ever printed, and is edited by Edward J. Wickson, A.M., of the University of California.

Dairy Instruction at the University Farm.
Prof. H. E. Van Norman, Vice-Director and Dean University Farm School at Davis, Cal.; President National Dairy Show.

Work of the United States Bureau of Animal Industry in California.
Dr. H. H. Hicks, Inspector in Charge of U. S. Bureau of Animal Industry, San Francisco.

Natural Resources.

The National Forests of California.
Coert DuBois, District Forester Fifth District, U. S. Forest Service, San Francisco.

Fish and Game—One of California's Great Resources.
Ernest Schaeffle, Executive Secretary California Fish and Game Commission.

The National Parks of California.
Mark Daniels, General Superintendent and Landscape Engineer of National Parks under the U. S. Department of the Interior.

Relation of California Soils to Permanent Fertility.
Dr. C. B. Lipman, Professor of Soil Chemistry and Bacteriology of the University of California.

The Climate of California.
William G. Reed, Instructor in Climatology at University of California.

California State Forestry Work.
G. M. Homans, State Forester.

Lumbering in California.
G. X. Wendling, President Weed Lumber Co. of S. F.

Chemical Industries of California.
John Maxon Stillman of Stanford University.

Development.

Agricultural Potentialities in California.
Dr. Thomas Forsyth Hunt, Dean of College of Agriculture of the University of California and Director of the University Agricultural Experiment Stations.

Rural Credit and State Development.
Col. Harris Weinstock, Member from California of the American Commission on Agricultural Co-operation and Rural Credit.

California Farm Mortgage Investment.
Norman Lombard, S.B., LL.B., Manager Agricultural Credit Corporation of California.

California's Immigration Problem.
Hon. Julius Kahn, Member of Congress from California; formerly member Legislative Assembly of California.

The Parcel Post Service in California.
Charles W. Fay, Postmaster of San Francisco

California Coming into Its Own.
Edgar Allen Forbes, Secretary California Development Board.

Electric Transportation in California.
Paul Shoup, President Pacific Electric R'y.

What Railroads are Doing in California.
E. O. McCormick, Vice-President Southern Pacific Company.

Development of Transportation in California.
Seth Mann, Attorney and Manager of Traffic Bureau, S. F. Chamber of Commerce.

Light and Power of California.
John A. Britton, Vice-President Pacific Gas and Electric Company.

Roads and Highways of California.
George B. Harrison, Chief of Right-of-ways Division, California State Highway Commission.

Why California?

What California Can Do for the World.
Dr. David Starr Jordan, Chancellor Stanford University.

California's Promise to Posterity.
Gavin McNab, Attorney-at-Law.

The High Quality of California Rural Life.
E. J. Wickson (Editorial).

What California is Doing in Education.
Hon. Edward Hyatt, State Sup't. Public Instruction.

California's Financial Resources.
Hon. Alden Anderson, Formerly Lieut. Gov.

Labor Conditions in California.
W. V. Stafford, Formerly State Labor Commissioner.

The Human Factor in State and National Development.
Hon. Franklin K. Lane, Secretary of the Interior, U. S. A.

California: Playground of the World.
Menard Gilbert.

Waterways by Panama.

A Forecast for California and the True Significance of the Panama Canal.
Dr. Benj. Ide Wheeler, President University of California.

The Panama Canal and What it has Demonstrated since Opened to Traffic.
Hon. Joseph R. Knowland.

California's Possibilities for Pan-American Commerce.
Hon. John Barrett, Director-General Pan-American Union.

Looking East from the West.
Robert Newton Lynch, Vice-President and Manager S. F. Chamber of Commerce and of California Development Board.

The Shipping Industry of the Pacific Coast.
Captain Robert Dollar, President Robert Dollar Company.

Poultry Section—32 pages—edited by George H. Croley, President of Federated Poultry Association of California.

Besides Mr. Croley's contribution there are a dozen or more other articles by the most prominent poultrymen on the Coast. Special articles on Bee-keeping, etc., are also included.

Exposition Section—48 pages. Special articles on the various departments of the Panama-Pacific International Exposition by the chiefs of the departments and by prominent officials, such as President C. C. Moore; Vice-President R. B. Hale, and others. Beautifully illustrated.

California's Women—48 pages—Edited by Mrs. Marie Hicks Davidson. Including special articles written exclusively for California Annual—1915 by Mrs. Phoebe A. Hearst, Mrs. Frederick G. Sanborn, Mrs. Gaillard Stoney, Mrs. Emily Hoppin and many others. A comprehensive survey of women's activities in this State.

A special limited edition of **CALIFORNIA ANNUAL—1915** is now on the press and will shortly be ready for distribution. Orders received now will be filled from this edition, but should be sent in immediately to avoid delays in delivery. Use the accompanying order blank and mail it today with One Dollar. The Annual will be mailed immediately upon publication postpaid to your address.

ORDER BLANK. CUT THIS OUT AND MAIL TO.

THE CALIFORNIA ANNUAL CO.,
811 First National Bank Building, San Francisco, Cal.

Enclosed find one dollar for which mail to me as soon as ready a copy of **CALIFORNIA ANNUAL—1915**, special limited edition, postpaid.

Name.....

Street Address or P. O. Box.....

Town or City.....

State.....

IF THE poultry breeders of California and the Pacific Coast fail to appreciate the advantages that are to be afforded them at the Universal Poultry Show of the Panama-Pacific Exposition to be held Nov. 18 to 28, they will lost opportunities which may not present themselves again in a lifetime. This applies not only to the fancier or breeder of show fowls, but with equal or greater force to the ordinary poultry farmer who produces poultry and eggs for market purposes only. Owing to the surprising benefits that were derived by many utility breeders through their visits to the Utility Division provided by the San Francisco Poultry, Pigeon, and Pet Stock Association at its show in San Francisco last December, the management of the Universal Poultry Show has decided to make the display of utility fowls and practical farm equipment, two of the most extensive educational features of the Exhibition.

Opportunity for Western Poultrymen.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Ass'n of California.]

In the issue of May 8 we published an illustration showing a bird's-eye view of the quadrangle of eight pavilions that will be used for the Universal Poultry Show. Our article which accompanied it was chiefly an appeal to the class of breeders whose aim is the production of fancy or show fowls, to consider the exceptional opportunity for establishing a reputation and form acquaintance with the great number of visitors who may be met at the Universal Poultry Show.

In this issue we particularly wish to impress the other class of breeders—the poultry farmers of California—most of whom now have pure-bred, but not fancy flocks, with the importance of entering at least one pen of their best fowls in the utility class. The cost is a trifle as compared to the knowledge to be gained. Walter Hogan, the originator of a system and method of determining the producing capacity of fowls and their ability to transmit this qualification to their young, will judge this class of fowls and each afternoon will demonstrate his system.

The knowledge to be gained in this manner should be worth many times the cost to any one who owns a small poultry plant as a side line; and to those who make poultry raising a business, in many cases, it will mean thousands of dollars of added profits in the years to come.

It is the intention of the management to charge only a very nominal entrance fee for the Utility class of fowls in order to encourage poultry keepers in all parts of the Pacific Coast to enter their fowls, all of which will be tested and judged by Mr. Hogan. A record or score card will also be issued by him, showing in detail the value of each individual fowl, and these records will be delivered or mailed to the owners of the fowls after the close of the Show. By this means, the exhibitor who is unable to visit the show will be furnished with a schedule of merit relating to his own fowls, which can be used as a basis for studying the Hogan method of testing fowls and to use as a guide in judging the remainder of his flock.

Objections have been made to holding an exhibition of utility fowls in the same show with the fancy specimens on the grounds of lack of mutual interest existing between the two classes of breeders. We have never been able to see any justification for such a contention for the reason that each class always has been dependent on the other for profitable existence. Without the deep study and painstaking care devoted by the fancier to his pets or his hobby the utility breeder would never have been able to preserve uniformity or systematize his breeding; while on the other hand, just stop to think what would happen to the business of the breeder of thoroughbred fowls were it not for the utility poultry farmers who buy the greater part of the fowls that are reared by the fancier!

As a concrete statement in behalf of our argument, we refer to the show report in January issue of Fanciers' Monthly by R. L. Tebbs, Assistant Secretary of the San Francisco Poultry, Pigeon, and Pet Stock Association. In this article he calls attention to the success of the united Utility and Fancy show of this Association in December; and in substance states that at this exhibition the sales of fowls and poultry farm equipment exceeded those of all other Pacific Coast poultry shows combined that were held prior to that date.

T. E. QUISENBERRY, Superintendent of the Universal Poultry Show, says that he is striving to make this the most thoroughly educational poultry exhibit ever undertaken.. Congress Hall, a large auditorium in the Live Stock Office Building, located within a few feet of the show rooms, is properly equipped for lantern slides, moving pictures, etc.; and it is the intention to hold lecture courses and demonstrations in this hall. Efforts are being made to have as many as possible of the Agricultural Colleges and Poultry Departments of the various states stage their educational exhibits in the poultry show buildings and to also assist in making these lectures and picture shows more complete than anything of the kind undertaken in the past.

By a majority of nearly 1,000 votes, the American Poultry Association has decided to hold its fortieth annual meeting at the Panama-Pacific Exbosition during the third week in November.. This great convention will probably be held in Congress Hall and will be of great interest to not only fanciers or breeders of fowls for show purposes, but to the practical poultry farmer as well, for the reason that this association is now encouraging utility educational features. Prof. C. T. Patterson of the Missouri Poultry Experimental Station has compiled for this Association a work on poultry culture intended for use as a text book in public schools; and he will submit the manuscript of the book for the approval of the Text Book Committee at this meeting.

POULTRY COMMISSIONERS' BILL WINS.

Assembly Bill No. 1539, providing for a State Poultry Commissioner, passed the Assembly and the Senate on May 9, a few hours before the close of the session of the Legislature.

When it is considered that the champions of 1955 other pending measures were also striving to rush their bills through at the last moment and failed to get them passed, this is a great victory and calls for the thanks and unstinted praise of Assemblyman Knox Boude of Sebastopol, who introduced this bill, and Senator Herbert W. Slater of Santa Rosa, who came to the rescue in the Senate.

Naturally, we of the Federated Poultry Association feel very elated because this much has been accomplished; but, look out, the Governor may not sign the bill! He certainly will not do so unless a large number of poultrymen send urgent requests for this action. There has been great opposition to this bill; and no doubt this will now be continued with equal or greater activity. As the matter stands, the Governor will naturally be guided by the evidence placed before him. If enough of our poultry breeders write letters showing the necessity for the establishment of this State poultrymen's bureau—this is what the appointment of this Commissioner amounts to—we can expect favorable action; otherwise, the bill will fail to become a law.

Now is the time to act. We have only a few days in which to work. Therefore, please write to the Governor at once. These letters may be written something like this:

To His Excellency, the Governor, Sacramento, Cal.: Please sign Assembly Bill 1539, providing for a

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

WANTED.

RICE MAN—Will inspect your land, make estimate for checking, irrigation, raising crop, and, if you wish, take full charge of work with guarantee. Agricultural Engineer, 1633 Dwight Way, Berkeley, Cal.

POSITION WANTED as WORKING RANCH FOREMAN OR SUPERINTENDENT. 42, active, sober, intelligent. Grain, Fruit, Horses, Dairy, Poultry. Box 58, Rural Press.

POSITION WANTED—Foreman or Bossman of large vineyard by Japanese agricultural college graduate. Will contract vineyard work. Box 56, Rural Press.

GERMAN wants position as milker and butter-maker, or as cook on dairy ranch for six or eight men. Experienced. References. Box 57, Pacific Rural Press.

POSITION WANTED—Young married Swiss dairyman wants position as milker. Address John Hefty, Afton, Glenn Co., Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

MISCELLANEOUS.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

5 POUNDS SUDAN GRASS SEED planted on one acre will bring you $250 within four months. I will give you 5 pounds of Pure Seed for 25 Baby Chicks, week old. 863 Willow St., Inglewood, Cal.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. R. 8, Fresno, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

VERY CHOICE COLLIE PUPPIES, pedigreed stock, $10 up; also grown stock very reasonable; just what you need to guard your home. BROWNDALE COLLIE KENNELS, Redwood City.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost-resistant variety, from four to seven feet high, $2. Write for literature. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

SOUDAN GRASS SEED—First-class guaranteed seed, free from Johnson Grass. Now 35c per pound or $25 per hundred f. o. b. Santa Ana. C. E. Lewis, R. 5, Santa Ana, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

MELON SEED—from selected Melons. Black Seeded Chillan, 85 cents; Red Seeded Chillian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E. 7th St., Los Angeles, Calif.

TEXAS YAM SWEET POTATO PLANTS for May delivery. $2 per 1000; 25 cents per 100 f. o. b. Lindsay. C. W. Braswell, Lindsay, Cal.

BURBANK SPINELESS CACTUS—$6 per 100; $50 per 1000. Thos. Cathers, R. 24, Morgan Hill, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

FOR THE BEST Orange, Lemon and Grapefruit trees, write us. J. G. Gillian, El Monte, Cal.

LAND FOR SALE.

FOR SALE OR RENT—Ideal dairy ranch. Two hundred and ten acres bordering on Sacramento river. One mile from station. Four miles from city of four thousand. About one hundred and fifty acres in alfalfa. Can be irrigated from river. New dairy barn stanchions for sixty-six cows. Concrete creamery. Terms given. Address Strain Bros., Red Bluff, Cal.

FOR SALE—107 acres of irrigated and bottom land at $250. Good terms. 8 acres in bearing olives and apricots, 12 in woodlot, the rest in alfalfa. Water, $1 per acre per year. Fine barn for 85 head of cows, house, separator house, house barn. Crossfenced. Address George Thresher, R. F. D., Gridley, Cal.

FOR SALE—135 acres sandy silt, 40 acres checked, balance pasture, beets, hay, etc. New modern improvements. Electric lighted. 20 cows, 25 young stock, 5 horses, 10 hogs, 200 hens. All farm tools. Plenty good water, choice fruit, wines, etc. $250 per acre. R. 1, Box 52C, Dixon, Cal.

CALIFORNIA LA[illegible]—Money-making little farms. High-class, low-priced [illegible] all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—Highly productive small fruit ranch. Well located edge of small city in Sacramento valley. Fine buildings, excellent modern home, good income from property. I want to retire on account old age. For particulars address Box 387, Corning, Cal.

FARMS WANTED—We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

GOVERNMENT AND STATE LAND—County Sectional maps showing vacant Government Land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and Circular FREE. Write Joseph Clark, Sacramento.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit. Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR RENT Land suitable for corn or other late crops. Irrigation water available. Share crop rental. Address Box 29, Willows, Glenn County, Calif.

FOR SALE—Santa Clara Valley Ranch. 90 acres all level; 40 acres in alfalfa. Improved. Address owner for circular. F. E. Romie, Edenvale, Cal.

FOR SALE 40 acres well improved, 3½ miles from town. Will sell one-half. Chester K. Harris, R. 2, Corning, Cal.

State Poultry Commissioner.

Add to this, if possible, some reason for urging the appointment of this commissioner, and remember the letters must reach Sacramento before May 19 to be of any use.

Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

With the warm days the little chicks' greatest need, next to food and water, is shade, and it is just as easy to provide them with natural shade and feed all in one as to putter around looking for something to make an artificial shade with.

A natural shade made by planting a few rows of Swiss chard, cabbage, or even rape will furnish more real enjoyment and cool hiding places than anything I know of. Flies and insects galore will get under the leaves to find the cool, shady spot, and the chick lying there with ease makes a dive and Mr. Fly is potted; same with insects of all varieties; they all make animal food for the chick which has a green, shady spot to ramble in during the warm days.

Don't harbor the chicks around the buildings just for want of a shade, but get them out on the ground where they can see green. A nice alfalfa patch is a fine shade and feeding ground combined; no suffering from heat for chicks that have an alfalfa run, while hens that are so privileged ought to consider themselves in "clover."

Lacking the green to run under, an orchard is the next best thing on a warm day. Here the fowls can find either sunshine or shade. After shade, the next great need is fresh water, not once a day but several times, and it should be kept in a clean vessel high enough so that dirt will not be scratched into it. This is sometimes hard to do, but it pays to go to a little trouble to manage it.

For both old and young stock a bath is not merely a luxury, but a necessity. A duck likes to bathe in water, but a chicken of any age likes to bathe in nice, clean, moist earth. Not in an old box of dried up, stale road-dust, as some advocate, but the fresh clean ground turned over by a spade. Chickens like to be clean if given opportunity. If the ground is dry, have one particular place in a yard to throw out all extra water, such as washings of crocks and what is left over of drinking water; then every few days take a spade and dig all around that moist patch. The chickens will know what to do with it.

Roosting Houses Off the Earth.—Another important item that saves labor and worry is to make sure of plenty of fresh air in the houses during the summer months. By raising the roosting houses up from the ground about four inches you get a free circulation of fresh air rising up among the fowls. This carries whatever foul odor there may be in the house up to the top, where it can do no harm. Another gain made by raising the houses is that it keeps the ground under the sills dry and free from mites. Mites hate daylight; they want to hide in dark, moist places during the day and then make life a burden for the hens at night.

Whether the houses have floors in or not, it pays to raise them about four inches from the ground during the summer months.

Keeping Lice Off.—Now the next serious question for both old and young, particularly the young, is lice. It is most astonishing the amount of ignorance there is among people on this question. A man of full stature, physically, told me the other day that he had a hen hatch ten nice chicks on Sunday, and as they looked so nice he left her in the nest, the chicks under her, until the next day; and lo, when he went to put her and her chicks out doors the little things were dead. He came to see if I could tell him what ailed the chicks. I told him I guessed the ailing part was the hen, after he admitted that he had not dusted her at all, did not know anything about such a thing as dusting a hen with insect powder. And it is a sure thing that he is not alone; there are lots more never heard of such a thing as dusting a hen and these are the people we are trying to reach and make poultrymen and women out of. But it is awful uphill work, As a rule this kind of people want $20.00 worth of information for the price of their subscription and then but a fraction of the information they get is used; that is the pity of it. If little chicks are to grow and do well they must be kept free from lice, and if they start right, with clean mother hens or brooders, it is but a small job to keep track of them and see that they are kept right.

I used to have a good old recipe, years ago, that I have neglected for newer ones, until this spring I just thought I would go back to it. It is to have a good-sized piece of bacon rind; if you slice bacon from the inside down to the rind, and slip your knife under the back side, you will have a good piece when your bacon is used up. Take that bacon rind in one hand and Mrs. Hen in the other and grease her under the wings and on the breast and abdomen; then when the chicks go under for the night they get enough of the bacon rind odor and grease to keep them free from lice and you only have to spend time with the hen. It is much easier on the one that does the work, and on the chicks, than catching each one separately and going over them. What is better yet, it does not hurt either hen or chicks.

In brooding chicks with hens the great need is to keep the hens clean and free from lice. Then the chicks are safe, for they will not breed lice if they are not put on them as a starter.

For the laying stock and growing stock that have size to them, any commercial lice killers will do the work, and for those that want to make their own there are several recipes in "Poultry Practice" that are all good, easy to make, and cheap; so there you are, "you pays your money and takes your choice," as Sam Weller says.

Weaning the Chicks.—Here we have another side of the chick raising, and usually this is a little hard to handle. When an old hen gets tired of her family before they are large enough to keep warm, it is a good idea to leave them right in the box the hen and chicks have brooded in, but tack a gunny sack across each end about eight inches from the floor. This holds the animal heat down and if a little short straw or hay is put in the box the chicks will not suffer at all from the loss of the hen. Clean the box regularly. When night comes they will go back to the box they have been used to, and be comfortable. It is a mistake to move chickens unless compelled to do so on account of room, for it upsets them and hinders growth.

Brooder chicks should be weaned from heat as soon as possible, and they will do very well if treated as the hen chicks are—give them a good bed and a piece of burlap to hold the heat down.

Fleas on Rabbits.—I have two rabbits with fleas on them. Please tell me how to rid them of fleas.—Mrs. E. G.

Dust the rabbits with any good insect powder you would use for chickens. A good deal depends on the thoroughness of the job; you must go over the whole body, nose, ears, and eyes, as fleas will lurk in all these places. Send to the Department of Agriculture, Washington, D. C., for free Bulletin on care of rabbits.

Ducks Died After Pipping.—My duck eggs pipped on the 24th day and died in the shell. What can be the matter? After the eggs began to pip, how long before they should be out?—J. M. C.

I think your heat has been too high. If it had not, the ducklings should not have pipped until the 26th day at least and the 27th would have been better. Run the incubator at 101 the first week, 102 the second and third, and gradually bring it up to 103. If it runs up to 104 during the hatching it won't hurt, but don't allow this during the first week of incubation. After they pip, if the heat has been right, all should be out in 12 hours, but sometimes little ducklings have to be helped out, especially if the shell has not been rotted with moisture.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks, Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

THE EVERLASTING LAYERS—"BROWN LEGHORNS"—My strain matures early, grow like weeds—and hardy. Give them feed and exercise, and the egg basket will pay the bills. Baby chicks, delivered, $9.50 hundred. I send only A1 chicks. Guarantee safe arrival. J. H. Stubbe, Campbell, Cal.

BABY CHICKS—Varieties, Pullets and Hatching Eggs from our Santa Clara Valley Farm. Birds, Incubators, Brooders and Poultry Supplies. Globe Hatchery & Feed Co., 1378 Market St., San Francisco, California.

HICKS JUBILEE HATCHERY—36,000 capacity this season. Now booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

S. C. WHITE LEGHORN Baby Chicks and Hatching Eggs that are topnotch. Write for particulars. Prices reasonable. Ten years in the business. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

WHITE PLYMOUTH ROCK Eggs for hatching from prize-winning, heavy-laying stock, $3.00 per setting. Thornton L. Green, San Mateo, Calif.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beagle & Cullen, Empire, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons. Susan Swaysgood, Route 2, Pomona, Calif.

PETALUMA HATCHERY—We have chicks every Monday. Five varieties. Send for May and June price-list. L. W. Clark, Petaluma, Cal.

S. C. BLACK MINORCA EGGS from prize-winning pen and utility stock. J. W. Benoit, Route 2, Modesto, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded Toms recently from East. Inquire today, John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL, Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHESANTS.

WHILE THEY LAST—Plymouth Rock Homer Pigeons for $3 per dozen. Very fine. Geo. M. Bosworth, Geyserville, Cal.

PHEASANT EGGS—Golden, Silver, Chinese and Amherst. L. R. McCoy, R. 1, Box 205, Stockton, Cal.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

FLEMISH GIANTS—"The real giants." A fine lot of young bucks and does, 4 to 8 months old, from $1.50 up. All thoroughbred stock. Several mature Belgian and graded does for sale. All fine producers. Rabbits make fine meat, eat cheap food and are profitable to raise. Get good producers and you make money. J. H. Stubbe, Campbell, Cal.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

RIPON RABBITRY—Rich, racy Belgians. Prices reasonable. Howard C. Jones, Ripon, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

Good roads are the sinews of commerce.

California Poultry Practice

By Susan Swaysgood.

This handsomely illustrated, cloth bound

160 Pages of Text Book

should be in your homes if you are interested in poultry. It will help you in the egg production in hatching and raising the chicks. Tells how to feed properly and how to keep your flock free from disease. It is a California book, written by a poultry woman after many years of successful experience in this State.

Sent Postpaid for $1.00

Pacific Rural Press

525 Market St., San Francisco.

Get the Best for your chicks.

Coulson's

Special Chick Food

Write for particulars and free book, "Chickens," to Coulson Co., Petaluma, Cal.

The Home Circle.

HARD LUCK.

He had a prophylactic bent,
And led a sterile life,
Had hygienic children and
A sanitary wife,
Lived in a fumigated house
And wore aseptic suits,
Ate germicidal food and smoked
Denicotined cheroots.

His milk was always Pasteurized,
He drank denatured water;
He ne'er forgot to swat the flies,
Mosquitoes he would slaughter.
He screened his doors and windows and
His office disinfected;
Against microbes of every kind
He felt himself protected.

He exercised; he slept by rule,
And timed his every breath;
His health was excellent and he
Defied disease and death.
His plan was admirable, no doubt,
But 'twas his measly luck!
He went and got run over by
A ten-ton motor-truck!

—Exchange.

EXPOSITION INTERESTS THE LADIES.

This issue of the Pacific Rural Press is devoted largely to what may be seen and learned at the Panama-Pacific International Exposition. Other pages tell of exhibits of particular interest to farmers, and we thought the following letter written by a young lady to her grandmother would give the feminine viewpoint to our lady readers. There are many more buildings and interesting exhibits to be seen, and if the young lady should visit them and write another letter, we may be able to secure a copy for publication. — Editors.]

Dear Grandma:—The Exposition is simply wonderful! Father took me out this afternoon, and I am so tired now. There is so much to see and so much to tell about, that only a little bit of my first impressions can be written.

In the first place, the soft coloring of the buildings is so unique and pretty. The huge Tower of Jewels stands high above all the rest of the buildings and when the sun shines on it, it looks like fairyland. The jewels are small and sparkle like diamonds. The bay is beautiful, and from the Marina, that is the promenade along the water, one can see the Golden Gate, the Marin hills, Mt. Tamalpais, and Alcatraz Island, where the Federal Prison is located; the soft green of the hills rising from the blue bay, with ferry boats, coastwise, and trans-Pacific steamers moving around, with the gray battleship Oregon stationed in the foreground, makes a wonderful marine picture.

We went through the Southern Pacific building first—it is just to the right of the main entrance, and you surely will want to spend some time in there. One can have a summer vacation just looking at the views shown. By a combination of painted scenery with real water or sand, grass, or plants in the foreground, the scenes really look real. They are the scenic points touched by the Southern Pacific railroad. The Yosemite Valley was marvelous.

Varied Industries then is the first palace to the left of the entrance and we went through it next. There are just lots of interesting things there that you will like. We saw silk being spun by silk worms and silk being woven into handkerchiefs; and in a Switzerland exhibit, how Swiss embroidery is done by machinery. We saw Alaskan garnets extracted from rock and polished, and heard a beautifully toned organ with chimes that was being demonstrated.

One very instructive exhibit is that of the Crane Co., stationers, where you can see the whole process of making note paper, from rags before they are ground up to putting your monogram on.

The Butterick exhibit is so pretty and attractive—all the latest styles are shown on dolls that are dressed perfectly, from bathing suits to party clothes, to a whole wedding outfit of the bride and darling bridesmaids in pink, all with shower bouquets and other accessories.

Gorhams have the most gorgeous silver exhibit. Huge chests of silver, vases, etc., I know would attract you. Shreve Bros., across the aisle, have beautiful jewelry displayed, which makes one feel so luxurious to even look at.

The Singer Sewing Machine has a clever exhibit of dolls dressed in native costumes of the places where the Singer Sewing Machine is used and it was so much fun to pick out those costumes that I knew from last year's European trip. Tell Kitty to look there if she wants an idea for a masquerade costume. She can get it much easier and more exact than from pictures.

In the Palace of Manufactures in the northeast corner is a miniature house of Mission style that is called the Home Electrical, an exhibit of the General Electric Company, that Father and I enjoyed the most of all, and you will too, I know. It is a complete house equipped with every electrical appliance. We went in by the back door and saw the patent washing machine, wringer and mangle; wall-disappearing ironing board, with, of course, an electrical iron on it. The kitchen has a big electric stove that looks just like a gas stove, and an electric grill, too. A big electric dish-washer, percolators, and chafing dishes, of course; but funniest of all, an electric-driven ice cream freezer! The butler's pantry has another kind of dish-washer which is part of the sink. The other dishwasher was movable. The dining room had a little corner cut off for an Anne Hathaway courting settle, with a smaller table all set for breakfast, with the electric toaster, grill, and percolator, all ready for merely the plug. Of course, the dining-table had its electric bell, and there was a nice, cheery electric heater in the room, too. The dining room and living room open onto a court that has a natural fountain, with moss and shrubs, lighted with tiny electric bulbs that blink on and off. The bathroom had all the latest equipment, even to a hair dryer and a new shaving glass that has a light cleverly placed behind the glass, but reflected just right. Father was greatly taken with that glass. I think I shall remember his birthday with a similar one. Off from the bed room was the baby's room, where we found an electric pad-warmer, a gauge on the wall, new inventions for warming milk in the bottle by electricity, and an electric pump bringing in fresh air. The little sewing room had an electric-run sewing machine in it, and also a vacuum cleaner. The living room

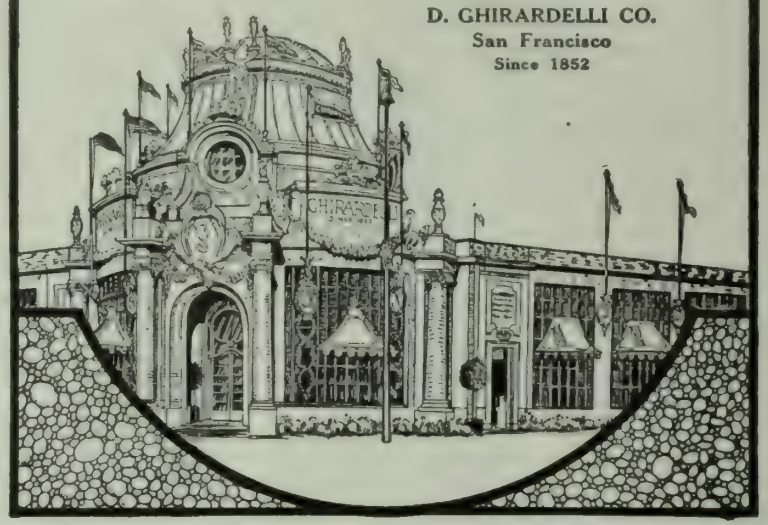
The Great Exposition

is now opened to the World and prominently situated on the grounds is a model factory showing the complete process used in making

Ghirardelli's Chocolate

A cordial invitation is extended our visiting friends to make themselves known at our exhibit on the Zone.

D. GHIRARDELLI CO.
San Francisco
Since 1852



1915

Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.

LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.
1st & St. James Sts., San Jose.

California Fruits and How to Grow Them

By EDWARD J. WICKSON, A. M.

Contains many line cuts, besides 24 full-page half-tone engravings depicting California Orchard scenes from blossoming to picking, drying and shipping

SEVENTH EDITION

Bound in Blue Cloth Vellum with Gilt Lettering
Price, $3.00, Postpaid Anywhere

PACIFIC RURAL PRESS

525 MARKET ST., SAN FRANCISCO, CAL.

Almost Driven Out of Business by Ants.

How a Los Angeles Grocery Store Conquered This Aggravating Pest.

Anyone who has ever suffered with a place overrun by ants will appreciate the experience of a prominent grocery man in Los Angeles, who was almost driven into giving up his business by this aggravating pest. He had tried various methods of exterminating them without success, until a remedy devised by a baker in the same city—who had had a similar experience with ants—was brought to the groceryman's attention, with most remarkable results.

All sufferers from ants will be interested to know that this remedy is being put up for general use under the name of Kellogg's Ant Paste, and can be obtained at any drug store. Each package has a patent rattle cap, which assures the purchaser that it is the original article, and provides a warning day or night that the contents are poisonous.

Insist upon Kellogg's, and make sure that it has the patent rattle cap.

Home Building
Without Labor Hire

It's easy—you, **anyone**, can build your home as well as any carpenter can. For $205, or more for larger homes, we sell you a **complete** substantial house.

And the plans that accompany the material are so simple—that your child can take up the building where you leave off.

The **Pioneer** "knocked down" house company of the Pacific Coast guarantees you satisfaction.

Let us mail you our catalogue. It's **free.**

Ready Built House Co.

973 Broadway. Portland, Ore.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, Blake, Moffit & Towne, Blake, McFall & Co., — SAN FRANCISCO, Los Angeles, Portland, Oregon

had an electric fireplace and a piano run by electricity. Can you imagine so much electricity? I cannot half describe it though, so be sure to see it.

Also in the same building we saw overalls being made and gloves also cut out and sewed. Billiard tables, too, are exhibited; and we saw the most wonderful billiards being played there.

The Japanese exhibit is very large in this building and is mostly of embroidered robes, screens, and pictures. Other countries, too, have exhibits in this building and scattered through the other palaces.

Leaving this building, we went out into the Court of the Universe. This is the largest court and the most central one. The sunken gardens were just ablaze with rhododendrons—pink, lavender, and purple. The Tower of Jewels loomed up at our left, and the huge Column of Progress on our right. There are band concerts here that are so refreshing to listen to 'mid such inspiring surroundings.

After just a breath of fresh air in this lovely court, we went on into the Liberal Arts Palace, where you want to see the huge Underwood typewriter that weighs 14 tons and the ribbon of which is about six inches wide. It is controlled by electricity. The American government has a large exhibit in this building, which is very instructive. Models of Indian villages, and the Panama Canal instruction by pictures, also diagrams for "first aid," and signalling were some of the interesting things shown.

In this palace, the Victor Talking Machine has its exhibit, a lovely place to rest in—quiet, soft-colored, and with good music. This is free, as are all the various moving picture shows all over the Exposition. The kodak exhibit is simply wonderful! On no account ought you to miss that. You are given a catalog of the pictures and you are in an art gallery of black and brown of historical, animal, and purely interesting, fascinating pictures—all kodaks. I had no idea that such wonderful coloring and softness could be obtained from enlargements.

The Bell System Telephone has a theater of lectures and moving pictures, too, that is very interesting, telling of how the system has lengthened from two miles in length 35 years ago, to from New York to San Francisco by direct wire, over 3400 miles.

In the Palace of Education are many interesting and enlightening statistics, pictures, and examples of work from everywhere. China and the Philippines have both large exhibits and the Philippine one is very interesting, giving the development of the natives under our education.

We crossed then to the Palace of Food Products, and it really was funny to see the crowds in there, compared to the few in the Palace of Education. Of course, it was growing late and I have discovered that it is far easier to look at exhibits that require thought when you are not tired and hungry. But I warn you, don't go into the Food Products building if you are the least bit hungry, for the sight and smell of all those good things to eat will make you ravenous.

We saw puffed wheat and rice shot from a gun, and bought some of the awfully good puffed rice candy, and ambled around just like everybody else, munching away. There are all sorts of demonstrations of jello, shredded wheat, canned fish, crackers, and so on, so that if you had patience enough to wait for the talk and then nibble a thimbleful of food, you really could get quite a meal in time. The tea exhibitors, coffee and chocolate, too, serve their beverages for a nominal price and there are all kinds, so if you have a choice you can see what it is that you prefer. The finest exhibit of the building is that of the Sperry Flour, I think. There is a whole mill in operation and representatives of all nations in costume, making national delicacies from Sperry flour for those interested. The next finest exhibit, I think, is that of the State of Washington, where you see fish and fish. Fish eggs and their development, fish wheels for trapping fish, and then monster fish frozen in ice.

The making of cigars is exhibited in this Palace, also, that I think would interest you. The surrounding conditions are a little cleaner, but not so romantic as that factory we saw in Seville last spring. I presume though that cleanliness is better for the cigars than romantic setting, anyway. But I love to think of that factory where Carmen worked in connection with cigars, rather than this exhibit.

But do not let that influence your coming. We had dinner on the grounds and then saw the illuminations. If the place seemed unreal before in the daylight, it certainly seemed like fairyland under the influence of the indirect lighting. Nothing is glaring, and everything seems just perfect. The fireworks and the steam with the colored searchlights thrown through it was beautiful, but most lovely was the reflection of the Palace of Fine Arts in the Lagoon. The sight goes beyond my vocabulary—you will have to see it yourself, how one melts into the other until you don't know whether you are standing on your head or feet.

The Court of Abundance in the daytime is the most beautiful place on the grounds to me, but at night in that queer half-other-world light of pink steam and gas, seems mystical; seems like some of the places in Spain and Tangiers that we loved so.

I could just write on and on, it is all so fascinating, but the trouble is that you could not walk on and on as I did; but luckily there are chairs that you can hire by the hour, either pushed, pedaled, or run by their own motor, so that you can save your energy to merely look and imbibe.

I shall write as soon as we finish the other palaces and tell you what I think you will enjoy the most, so that you will not be wearied at looking at everything. With love,

MARGARET.

STRAWBERRY JAM.

To each pound of fruit allow three teacups (¾ lb.) of good preserving sugar. Barely cover the bottom of the preserving pan with cold water, add the sugar, keep the pan by the side of the fire until the sugar is dissolved, then bring it to boiling point. When the syrup has boiled gently for ten minutes put in the strawberries and boil them quickly for fifteen minutes, reckoning from the time the whole really boiled. This jam is not intended to set stiffly. It will keep perfectly if covered immediately on being poured into the jars.

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres

of Good Land Along the

Western Pacific Railway

IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

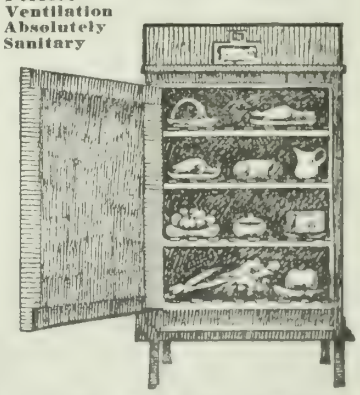
Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

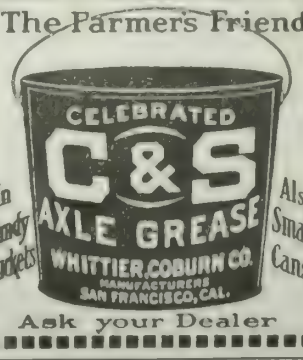
Perfect Ventilation Absolutely Sanitary



Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

"The Farmer's Friend"



Ask your Dealer

Redwood Tanks

I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. WILSON, Stockton, Cal.

Canned and Dried Fruit Market Conditions

[Written for Pacific Rural Press.]

CANNED AND DRIED FRUIT.

The present uneasiness in regard to the chances of selling canned fruit makes the canners very cautious. Jobbers and retailers are buying only for their present needs because of unsettled shipping, crop, weather, and financial conditions. For these reasons, the canners seem unable to get big orders on the new crop; and in fact are still trying to sell the 1914 crop.

Last year about 12,000 tons more of cling peaches were canned than ever before. Just about this much hold-over is said to be in the way of marketing the present season's crop, which promises to practically equal that of last year.

Sugar is about 6 cents now wholesale, while early last year it was 4⅛ to 4¼; and should the war stop so that Germany's tremendous export might again reach the markets of the world, the price of sugar would go down. The canners cannot afford to put up a large stock of fruit without orders, on high priced sugar which may be cheaper before the entire pack of this season is sold.

Since the canners pay cash for fruit and materials used in canning, but do not get returns until the pack is practically completed, most of their business is done on borrowed capital and bankers do not care to assume the risk when orders are not on hand.

England takes a large share of our canned exports and their market is practically clean of pears and peaches, though they still have some apricots. Freight rates to England, however, are double those before the war, and space is hard to get on steamers. The sinking of the Lusitania and other boats may further raise freight rates and deter shipments. This prevents the buying of canned goods for export except just what must be shipped for immediate consumption. It is thought that the English hold-over of apricots will be cleaned up, but the future trade will depend on freight rates and available space on boats.

Low prices of canned goods are looked for on account of these reasons, and this likelihood will probably reduce the prices offered to the growers. This will reduce the planting next season, which has been rather extensive in the past, and will stimulate consumption, so that people who seldom ate canned peaches before will get the habit.

The shot-hole fungus on apricots is very bad in some districts, such as Suisun, and is developing in the Santa Clara valley; while pear scab is also developing in some of the Coast counties. Diseases may so reduce the crop as to automatically take care of the excess mentioned for next year.

While canners are not buying, they are watching the crops and markets closely and some think that it will be safe to buy cherries within two weeks before canning commences, while others think perhaps they may be so high as to prevent canning much. Just now it looks like there is a great deal of damage by the rain, due to cracking, and both canners and growers need to await conditions of weather before contracting.

Dried Peaches Sold "Short."—We recently saw a telegram shown us by a large dried fruit broker, from his agent in the East, saying that a large competing California packer was offering peaches at the bulk basis of 2¾ cents.

Since the broker must pay out of the 2¾ cent price about 1-6 of a cent for cash discount and brokerage, and since he counts on about ¼ cent profit per pound, he must get his peaches from the growers at the rate of 2⅓ cents bulk.

A large dried fruit operator is authority for the statement that about 20,000 tons of the estimated 30,000-ton crop of 1915 dried peaches have been sold by the packers at about this price. Very little dried fruit has yet been bought from the grower, and this operator suggests that if they will all realize their opportunity and hold for at least the cost of production, they may be able to get it.

1915 PRUNES SOLD SHORT.

We have estimates from authorities in close touch with the market that about 1,000 cars or 20,000 tons of 1915 prunes have been sold by the packers already, with very few bought to date, and more are being sold. England is said to have gotten about 4,000 tons of these. Such figures are necesarily crude estimates; for no one who knows will tell the truth about it.

If such quantities have been sold out of the total of the estimated 80,000-ton 1915 California crop, there would be some small leverage for growers, if organized, to exact living prices from the packers if they will stand together and make the most of their opportunity.

It is said that the short sales have been made at prices which will allow the packers to make their customary profits after buying from the growers on a 3 cent basis. If they can do this on the estimated 1,000 cars, they will make about $300,000 that the growers could just as well have, if they were all organized into one body. Moreover, such future sales at such low prices would not have occurred. Three and a half cents to the Eastern jobber is the commonest figure now rumored, but this doesn't prove what it may be a week or six months from now, because changes in foreign commerce may have greater effect on the prices to be paid the grower than probable crop changes due to the weather. While Pacific Rural Press cannot hold out hopes of high prices to the grower, we hold to our belief that no crops should be sold until a definite total output is reasonably assured and marketing conditions are more settled.

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Recent reports from Colorado indicate that the severe frost of a week ago has seriously damaged the Peach crop; the exact estimate, however, has not been made public up to the present writing.

Revised reports from Texas indicate that about the first of May the thermometer registered 23 above zero, with everything in full bloom. Damage to the buds, however, did not exceed 60 per cent.

We also understand that there is a large crop in Arkansas and a good crop in Oklahoma, and about 75 per cent of the crop in Georgia.

The recent rains and unseasonable weather throughout California have unquestionably affected deciduous fruits. Early Cherries in some sections will be unmarketable. Pears in the Sacramento River district are showing considerable scab and in the Hill districts are dropping.

Curled leaf is noticeable on Peach trees throughout the State. It is more apparent than for the past three or four years and the last heavy rain and cold weather has produced gum on several varieties of Peaches.

Cherries that have arrived in sound condition in the East have brought very satisfactory prices. A few full cars have been sold in Chicago and New York, but most of the shipments have been made by pony refrigerators.

The following prices have ruled for the week:

Chicago—Purple Guigne $2.00; Advance $2.00, Chapman $2.35, Rockports $2.30, Knights Early Black $2.10, Burbanks $2.35, Tartarians $2.07.

Philadelphia — Chapmans $2.60, Knight's Early Black $2.50.

New York—Chapmans $2.50, Purple Guigne $2.17, Advance $2.22, Rockports $2.20, Burbanks $2.64, Knight's Early Black $2.31, Tartarians $2.00.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, May 12, 1915.

WHEAT.

Lack of shipping facilities to foreign markets is still a depressing factor, though a great deal of northern grain is going east. Local prices on most varieties show a further decline.

Cal. Club. Ctl.	$2.25	@2.30
Forty-fold	2.30	@2.35
Northern Bluestem	2.35	@2.40
Northern Club	2.25	@2.30
Northern Red	2.25	@2.35

BARLEY

Foreign shipments are very light, with little tonnage available, while there is stil a rather heavy stock on hand. The tendency of prices is accordingly still downward.

Choice Feed, ctl.	$1.22½ @ 1.27½

OATS.

A cargo of 2500 tons is being shipped to England, which tends to add firmness to the market. Supplies are ample, however, and no advance is noted.

Red Feed	$1.55 @ 1.60
White	1.85 @ 1.90

CORN.

Values show no change. There is considerable business of a jobbing nature, as the various grades are extensively used for feeding, but offerings are large, and large arrivals of Oriental grain tend to keep values down.

California Yellow	$1.75 @ 1.80
Eastern Yellow	1.80 @ 1.85
Egyptian White	1.75 @ 1.85
Milo Maize	1.75 @ 1.80
Manchurian	1.40 @ 1.60

BEANS.

Pink beans show a little more firmness, but there is very little change of prices in any line, most descriptions being fairly steady at the present quotations. There has been only a limited demand for some time, and stocks on several kinds are still fairly large for this time of year, but it is not expected that there will be much further weakening until the new crop comes in. As for limas, reports from the south indicate liberal stocks, with prospects of a carry over; and planting of all varieties is proceeding under very favorable conditions, with prospects of an unusually heavy yield. It is too early, however, to count definitely on the output, or to judge as to conditions affecting the coming season's demand.

(On Wharf.)

Bayos, Cal., per ctl.	$4.75 @ 4.90
Blackeyes	5.50 @ 5.65
Cranberry Beans	4.25 @ 4.50
Horse Beans	3.50 @ 4.00
Small Whites	4.65 @ 4.75
Large Whites	4.50 @ 4.65
Pink	3.50 @ 3.85
Limas	4.85 @ 5.00
Red Kidneys	5.75
Mexican Reds	4.75 @ 4.90
Garbanza	7.00

SEEDS.

Values are unchanged and largely nominal, as there has been little business of late in any description.

(Wholesale prices, San Francisco.)

Alfalfa	17½ @ 18½
Brown Mustard, per lb.	Nominal
Canary	10 @ 12½ c
Hemp	3 @ 3½ c
Millet	2½ @ 3 c
Timothy	7½ @ 8 c

HAY.

Arrivals continue heavy, and the week of rain has cut down the local demand, making it almost impossible to move the arrivals from day to day. The market is accordingly easy, though values are not quotably lower, and there are factors which may bring more strength in the near future, the principal feature being the large shipping business which is developing. A local firm has taken a 4,000 ton contract for the Philippines, and it is hoped that California can continue to supply that market; while large shipments are being made to Australia and elsewhere. With the new crop coming on, buyers are naturally trying to work prices down, and the large amount still held in the country is rather in their favor. The little new alfalfa that had been cut is about done for by the week of rain; the effect on the grain hay is expected to be beneficial, but it is a little early to tell.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50 @ 11.00
do No. 2	7.00 @ 9.00
Barley	5.00 @ 8.00
Tame Oats	6.00 @ 12.00
Wild Oats	6.00 @ 8.00
Alfalfa	6.00 @ 9.00
Stock Hay	4.50 @ 5.00
Straw, per bale	.30 @ .45

FEEDSTUFFS.

Owing to the abundant supply of alfalfa, alfalfa meal is lower, though a good deal is being shipped east. Rolled barley also shows a further decline. The inside figure on bran has been reduced, owing to arrivals from the Orient.

(Wholesale prices per ton, carload lots, San Francisco.

Alfalfa Meal, ton	$15.00 @ 16.00
Alfalfa Molasses Meal per ton	18.00 @ 19.00
Bran, per ton	25.00 @ 28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00 @ 26.00
Cracked Corn	40.00 @ 41.00
Middlings	32. @ 33.00
Rolled Barley	26.50 @ 27.50
Rolled Oats	33.00 @ 34.00

VEGETABLES.

The week of rain has disturbed the market considerably, tending to retard the demand, and also curtailing supplies in some lines, while some are plentiful. The top price for asparagus has eased off a little, while rhubarb is firmer. Peas have dropped sharply, while good lots of beans remain firm. Mexican peppers and tomatoes still command high prices, with hardly any local stock appearing, and cucumbers and eggplant are still very scarce. Summer squash also has advanced. Celery is much lower, and lettuce is arriving in large quantities from several quarters.

(Wholesale prices, San Francisco.)

Artichokes, doz., No. 1	40 c
No. 2	25 @ 35 c
Asparagus, box	$1.50 @ 2.25
Peas, lb	2½ @ 3½ c
String Beans, lb	3 @ 6 c
Peppers, bell, Mex. lb	20 @ 25 c
Tomatoes, Mex.	2.00 @ 3.40
Celery, crate	50 @ 1.25
Lettuce, crate	.70 @ 1.10
Rhubarb, box	50 @ 85 c
Cucumbers, Southern, bx	1.00 @ 1.15
Eggplant, lb	10 @ 15 c
Summer Squash, crate	.75 @ 1.00

POTATOES AND ONIONS.

New garlic is appearing in moderate quanties, causing a drop in prices, though old stock is steadily held. Potatoes remain firm at the old prices, while onions are quite easy, Bermudas from the Imperial district being much lower.

(On Wharf, San Francisco)

Potatoes, Oregon, ctl.	$1.75 @ 2.25
Lompoc	2.35 @ 2.50
River Burbanks, ctl.	1.60 @ 2.00
New Potatoes, lb	2 @ 4 c
Sweet Potatoes, ctl.	2.00 @ 2.10
Onions, yellow, sack	65 @ 75 c
Australian, ctl	3.75 @ 4.00
Bermudas, crate	1.00 @ 1.25
Garlic, per lb	10 @ 20 c

POULTRY.

Offerings from the east have been light, and no large amount of local stock has appeared in the last few days, so that prices are fairly firm, though the demand has been very light. Small broilers are the only articles showing any easiness, fryers and young roosters being higher.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	16 @ 18 c
Broilers	23 @ 24 c
Fryers	28 @ 30 c
Hens, extra, per lb	17 @ 18 c
Small Hens, per lb	16 @ 17 c
Smooth Young Roosters, per lb.	24 @ 27 c
Squabs, per doz.	$2.00 @ 3.50
Geese, per pair	2.50 @ 3.00
Ducks, young, lb	16 @ 17 c
Old	15 @ 17 c
Belgian Hares	8 @ 9 c

BUTTER.

The tide of Australian shipments seems to have turned the other way, and 250,000 pounds went out on a steamer for that country this week, with further shipments to go later. This has stiffened the market somewhat, though arrivals have been large, and will probably continue heavy for some time, while speculators are storing very little.

(S. F. Dairy Exchange Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23	23	23	23	23½	23½
Prime	22½	22½	22½	22½	22½	22½
Firsts		22	22	22	22	22

EGGS.

The current local demand shows rather more activity, and with moderate offerings for the last few days prices have been advancing on all grades. Pullets show the greatest jump, being 2½c. higher. There has been little storage movement so far.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	22	22	22½	23	23½
Firsts	21	21	21	21	21	21
Sel. Pul.	19	19	20	20	21	21

CHEESE.

Offerings of flats and Y. A.'s just about balance the demand, keeping prices steady as before. Monterey cheese is a little higher.

(S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy	12½c
Fancy Calif. flats, per lb	11½c
Monterey Cheese	10 @12 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	23	23	24½	23	23	23
Eggs	22	22	22	22	22	22
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

The rain has thrown the local fruit market rather into confusion, tending to limit the demand, while causing a curtailment and deterioration of supplies of berries and cherries, the early crops of which have been largely destroyed. All strawberries are lower and slow of sale, owing to unattractive quality, though supplies are light. Raspberries also are much lower. Some gooseberries have come in, mostly from Oregon. Cherries are rather easy, but may stiffen up with the arrival of better stock. There is still some local demand for apples, prices for good stock being well maintained.

(Wholesale prices, San Francisco)

Strawberries:	
Fresno, crate	85 @90 c
Longworth, chest	$6.00@8.00
Banner, chest	2.50@5.00
Raspberries, crate	1.75@2.25
Gooseberries, lb	6 @10 c
Cherries, per lb.	4 @ 8 c
Apples, Newtown	75c@1.00
do, fancy	1.15@1.30
Other varieties	30 @75 c

DRIED FRUITS.

Little interest is now taken on spot offerings, which in most lines are practically negligible in quantity. In the absence of demand, values show some easiness in most lines. Apples are still offered freely, and at lower prices; while the few scattered lots of apricots still in the country are easier, as holders are anxious to clean up. Figs are practically nominal. Prunes and peaches both show a little more firmness, though there is no large movement. Some packers are now coming out with offers for new fruit in various lines, as quoted below, and some business is being done, though most growers prefer to await further developments. The New York Journal of Commerce says: The situation in California products has never been more uninteresting at this season of the year in the view of leading operators. The flurry in spot Prunes, due to the concessionary prices made by holders in order to escape payment of storage charges, is over and such business as is now reported is of a hand-to-mouth character. But the clearing up of surplus spot stocks at low figures has resulted in a stronger feeling on what is left. Apricots for future shipment do not appear to be wanted by the distributing trade in this section, some reports from the Coast are to the effect that a good deal of business has been done recently on orders from England. The f. o. b. Coast market, however, remains easy with 8⅛c possible on choice Santa Claras, in 25-pound boxes, in some quarters. Peaches remain dull and nominal on both spot and future offerings. Seeded Raisins appear to get little attention, but there is a fair demand for seedless Sultanas from both home and English buyers, and as the stocks of these is concentrated the market has a firm tone.

Evap. Apples, 1914	4½ @5 c
Apricots, 1914	5 @6 c
Figs: White, 1914	3 @3½c
Black	2½ @2¾c
Calimyrna	5 @6 c
Prunes, 4-size basis, '14	4½ @5½c
Peaches	3 3½c
Pears	6 @8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @4½c
Seedless Sultanas	5 c

1915 CROP.

Apricots	6 @6½c
Figs, white	3¾ @4¼c
Black	2¾ @3 c
Prunes	3½ @3¾c
Peaches	3 @3½c
Pears	6 @9 c

CITRUS FRUITS.

The auction markets of the east show continued improvement in demand and prices for California oranges, while lemons are about the same as last week. On the New York auction, Monday, May 10th, 35 cars of navels sold at prices averaging from $1.85 to $3.50 per box, and most of the sales being over $2.50 per box. Valencias brought $3.10 and $3.40; bloods $2.45 to $3.15; seedlings $2.65 to $3.05; sweets $2.50 to $3.15; lemons $2.55 to $3.25. Some other auction points were a little lower than New York. Shipments of oranges from southern California since Nov. 1st to May 9th were 21,597 cars, and of lemons 3059 cars, which shows a loss of about 100 cars to same date last year. Most of the citrus sections have about cleared out all navels; the Valencia season will open about June 1st.

The San Francisco trade in citrus lines has been very quiet most of the week. Prices, however, are firm, in sympathy with primary markets, and navel oranges show some advance, fancy lemons also being higher.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.75@2.75
Tangerines, small box	75c@1.75
Grapefruit, seedless, bx	1.25@1.75
Fancy	2.50@3.00
Lemons, box	1.50@3.25

NUTS.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:	
IXL	11 @13 c
Ne Plus Ultra	11 @13 c
Drakes	8 @11 c
Texas Prolific	8 @11 c
Walnuts, new crop:	
Jumbo, lb	19 c

Walnuts are almost entirely nominal, as desirable California stock is well cleaned up, and the demand for cheap nuts is met with Oriental stock. Almonds also are quiet at present. According to the Almond Growers' Exchange, there are no large lots left in the state.

WRP

?

ALMOND GROWERS

Percentage of European shelled almonds used in the United States, 97%.

Percentage of California shelled almonds used in the United States, 3%.

Can you, without co-operation, and selling individually, obtain your share of the demand for shelled almonds?

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

No. 1 Softshell	16½c
Budded	18 c
Ungraded	8 @10 c
Manchurian	6 @11 c

HONEY.

The movement of honey is increasing a little, and the old crop in some quarters is said to be cleaned up, though there is still a heavy supply on the market, and the new crop will be coming in very soon. The outlook for supplies in some sections has improved greatly in the last week or two.

Water White, comb	10 @12 c
Light Amber	8 @10 c
Water White, extracted	5 @ 6 c
Light Amber	3½ @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

The only change in livestock is a slight advance in light grain-fed hogs. Beef cattle are easy, however, and dressed beef and veal are lower. Dressed lambs are higher. Considerable loss of lambs is reported on account of the storm.

(Prices at Butchertown, S. F.)

Steers, No. 1	6½ @ 6¾c
No. 2	6 @ 6¼c
Cows and Heifers, No. 1	5¾ @ 6 c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
225 to 300 lbs.	8 c
100 to 225 lbs	8½c
Prime Wethers	6½ @ 7 c
Ewes	6 @6½c
Shorn sheep, less by	¾ @ 1 c
Suckling lambs	7¾ @8 c

DRESSED MEATS.

Steers	10½ @11 c
Veal, large	12½ @13 c
Small	14 @15 c
Prime Wethers	13 @14 c
Ewes	11½ @12 c
Suckling Lambs	14½ @15 c
Hogs	13 c

WOOL.

Local buyers are still operating very conservatively, but some purchases are being made at various points in the country, at prices a little below what was expected when shearing started.

Wool, Sacramento Valley, lb	18 @22c
Southern, year's staple	18 @20c

HORSES.

Buyers of heavy stock are taking considerable interest in the sale at Tracy. A fair lot of northern California stock was offered here this week. Buyers here show their usual tendency to discriminate sharply, and horses in any way defective, or of less desirable types, are hard to dispose of.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green Mountain range horses, 950 to 1200 lbs	50@ 90
Farm workers	60@ 75

MULES.

1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

HIDES.

Prices show no change whatever, the local market being very quiet.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @15½c
Medium	15 @15½c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lbs	15 @15½c
Light Cows, 30 to 50 lb.	14½ @15 c
Kip	15½ @16 c
Veal	16 c
Calf	16 c
Dry Hides	25½ @26½c
Dry Kip, 10 to 15	24½ @25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

Publisher's Dep't.

This issue of the Pacific Rural Press is given over largely to telling about those things of interest to farmers exhibited at the Panama-Pacific Exposition. We are glad to give this space for two reasons—first because the Exposition is a big educational show, and second, because we want our readers to learn all they can about it before coming to see it.

The rain during the past three weeks has done considerable damage and some good throughout the State. It has kept our subscription field men from turning in as many new subscribers as usual. However, the list is gaining steadily and this week we print for our regular list 21,900 copies. We want more subscribers and our readers can help us in this work if they would speak a good word for the paper to their neighbors.

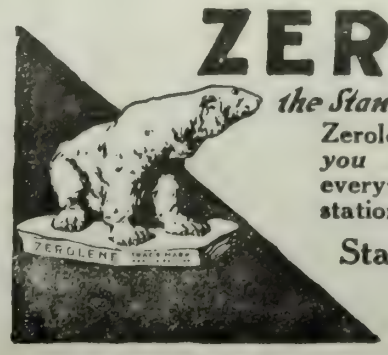
Our book department is ready to serve you when you need a "California Fruits" or "California Vegetables," or "1000 Questions in California Agriculture Answered," a "California Poultry Practice" or "California Garden Flowers." See announcements in other columns.

The Test of Actual Service

Letters from motorists everywhere on the Coast tell of the good service they are getting from Zerolene. All makes and sizes of gas cars are mentioned. All sorts of road and working conditions are recounted.

ZEROLENE

the Standard Oil for Motor Cars



Zerolene is the oil that will give you efficient service. Dealers everywhere and at all service stations or agencies.

Standard Oil Company

(California)

San Francisco

on the side hill whether new or old

In side-hill work the superiority of Yuba Ball Tread Tractor track design is most convincingly demonstrated.

No matter how steep a side hill may be, nor how much side pull a load may exert, the track never comes off.

A curved projection on the inner side of each link in the track forms half of the ball race. By means of this the balls are securely held in place and the tread locked on. When the tractor is running on a side hill the weight-bearing points on the balls are changed from top and bottom to the sides. The balls, by reason of their ability to roll in any direction, are able to take this shift without affecting the operation of the machine or reducing the power delivered in any way.

THE YUBA BALL TREAD TRACTOR

After being in service for a year—or several years—The Yuba Ball Tread Tractor will be as ready to plow on a side hill, work on a levee or haul a load coupled to one corner as on the first day it goes into operation.

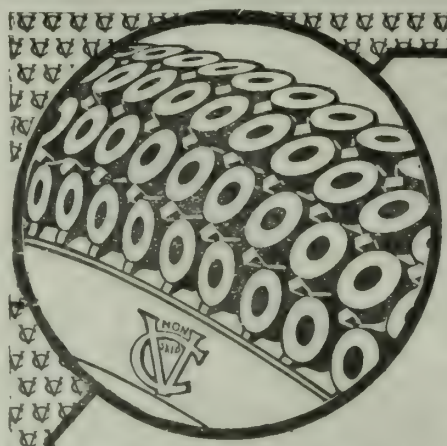
A more complete explanation is given in a booklet entitled "The Yuba Ball Tread Tractor."

THE YUBA CONSTRUCTION CO.

433 California Street San Francisco

Dept. C-20

Works, Marysville



Owners of Light Cars

may expect far greater mileages than the

6,760 Miles

average recorded last year on heavy cars by The Automobile Club of America in official test of Pennsylvania Oilproof

VACUUM CUP TIRES

The light car cannot begin to put the service qualities of these tires to the severe usage they encountered in the A. C. A. tryout.

Besides, 1915 Vacuum Cup Tires embody a new toughening process that adds 50% to the already greatest known wear-resistance.

This mileage economy is made all the more pronounced by our substantial price reductions.

Absolutely oilproof—guaranteed not to skid on wet or greasy pavements or returnable at purchase price after reasonable trial.

FORD TYPE VACUUM CUP TIRES

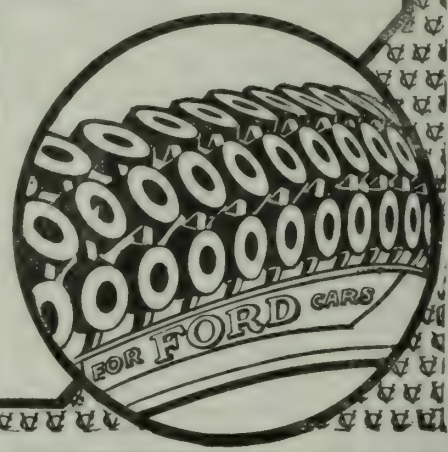
Embodying the V.C. Standard of Quality in smaller sizes and at lower prices. Guaranteed Oilproof. Guaranteed 4,000 miles. Especially recommended for country service.

Pennsylvania Rubber Co.

Jeannette, Pa.

Atlanta	New York
Boston	Omaha
Chicago	Philadelphia
Cleveland	Pittsburgh
Dallas	St. Paul
Detroit	San Francisco
Kansas City, Mo.	Seattle
Minneapolis	

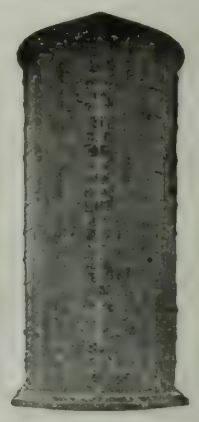
An Independent Company with an Independent Selling Policy



SILOS

BUILT FOR YOUR PARTICULAR NEEDS, EXACTLY AS YOU WANT THEM. ALL SIZES AND DIMENSIONS

16 x 36 Redwood Stave Silo manufactured by us for the Panama-Pacific International Exposition, San Francisco, 1915



TANKS

Built to order, to suit all uses and users. Cheaper than metal tanks, last longer. Won't rust. Can be taken down and re-erected without damage. Capacities, 500 to 500,000 Gallons. Towers included if you want them.

PIPE

MACHINE BANDED OR CONTINUOUS STAVE

For water supply—irrigation or power. Cheaper than any other pipe of equal size or capacity. Longer lived than any metal pipe except cast iron.

All our silos, tanks and pipe are designed by engineers to meet every condition. Made in our big factory from CLEAR, AIR DRIED REDWOOD. Selected from a stock of 40 million feet which we carry at all times.

ASK US FOR PRICES

REDWOOD MANUFACTURERS CO.

1608 Hobart Bldg., San Francisco.

Vol. LXXXIX—No. 21 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, May 22, 1915 LOS ANGELES

CALIFORNIA STATE LIBRARY
7-1-16
State Library

Why California Must Shell Its Almonds.

[Written by T. C. Tucker, Mgr. Calif. Almond Growers' Exchange.]

With an anticipated increase of 500 per cent in the almond crop of California, it is well that the growers at this time look carefully into the subject of future markets for their crops. Heretofore, California almonds have been used almost exclusively as unshelled, the demand having been generally sufficient to care for the output. The Exchange has, since its incorporation, contributed much to the development of the unshelled market, as may be evidenced by comparison of prices received by producers before and after organization, and the fact that California now enjoys more than 50 per cent of the unshelled demand of the United States, although producing probably less than 20 per cent of all almonds consumed in this country.

With shelled almonds, however, it is different. Europe has never supplied less than 97 per cent; the importation of shelled for the calendar year 1913 being $3,739,067, and 1914, $2,970,229. This represents approximately 80 per cent of all the almonds imported. This value is based on prices paid in Europe, and does not include duty, freight, selling, and other expenses.

The sale of California shelled is still confined to the Pacific Coast, due to previous small crops and lack of sales development. Now, however, the California grower must give serious thought to this subject and undertake the creation of more demand for the California shelled. If he does not, his almond investment will most assuredly become a failure; and his trees the value of firewood.

Many California growers feel that a market for California shelled can be established in a short time, because there is a demand for shelled; but to the contrary, I am sure we will find it may take years to secure real results. We must learn trade requirements; we must prepare our nuts by proper sorting, grading, etc., to meet the demand; and we must, above all, prove that California's can be used successfully in the manufacture of products which now demand the imported.

To prove this, you need but call upon the bakers and confectioners in California, who will tell you that nothing is produced here that will fulfill their requirements as the imported almond does.

The faults found by the users of shelled almonds are, in our opinion, largely imaginary. As imported shelled almonds have been used in this country since the days of the Revolution, it can only be expected that the users of these almonds will be slow in trying out new varieties and a new product. By proper development and nursing, we believe that the demand for California shelled can be increased very satisfactorily.

American Imports from Europe Increase.—The almond crops in Europe are annually increasing, as may be evidenced by constant increase in importations as well as by advices received from Europe, which are considered authentic.

In 1900, 5,140,232 pounds were imported; in 1904, 11,745,081; in 1911, 17,231,458; in 1913, 19,348,462 pounds, of which there were 5,767,765 pounds unshelled, valued at $639,707, and 13,580,697 pounds shelled, valued at $3,739,067. In 1914, 4,753,525 pounds unshelled, valued at $494,141 and 10,114,901 pounds shelled, valued at $2,970,229. In 1915 to March 31, 309,809 pounds unshelled, valued at $27,376, and 3,236,815 pounds shelled, valued at $831,150.

This Almond-Shelling Plant was erected at Sacramento in June, 1914. It has a concrete foundation and floor; tile walls; iron and wire glass windows. The only wood in the building is the roof, which is covered with asbestos roofing. The foundations are sufficient to carry a four-story building, and the structure is so built that it contains concrete and steel pilasters, so that additional stories can be added as needed. This plant is the only one in the United States used for almonds exclusively.

The foreigners have been on the alert, and are active today in the increase of sales in this country, for the United States has always been their most profitable field, and will now be evermore so in view of the present deplorable condition of Europe.

Exchange Plant Produced Shelled Almonds Last Season.—Co-operation by all the growers of California, where 98 per cent of all American almonds are produced, is the only solution. Together all growers can solve these questions of market at a minimum of cost and a maximum of benefit. The California Almond Growers' Exchange has made the initial step by the erection of a fire-proof building at Sacramento, where the most modern and up-to-date machinery and appliances will be installed from time to time. The investment is now approximately $11,000 and without considering the advantages of increased price and greater distribution, during the past season, the net profit from operation alone is approximately $2,290.

(Continued on page 615.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. tio insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges
J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., May 18, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.62	42.06	44.02	60°	46°
Red Bluff...	.96	34.54	24.18	76	50
Sacramento.	.90	17.15	19.69	76	48
S. Francisco.	.70	27.40	21.84	74	52
San Jose...	.76	22.68	16.45	74	44
Fresno.....	.68	10.89	9.40	84	48
Ind'p'nd'enc	.00	3.47	9.27	85	41
S. L. Obispo.	.54	28.13	20.02	84	46
L. Angeles..	.02	17.03	15.44	82	50
San Diego..	.06	14.41	9.85	70	54

The Week.

The sun has kept playing hide and seek, and now it is past the middle of the queerest May which any one, except perhaps a weather-observer, can remember in California. But everything except some of the very early fruits and the hay is going to the good, and few are complaining, except for the joy there is in it. From all parts of the State, and the nation also, reports come of trade things getting better—not exactly good yet, but better—which is, in itself, good in its way. Of course, there are lots of bad talkers soiling the wind, and we have allowed our market-reporter to exploit them a little just for the sake of waking our people up and have it over before the time actually comes for selling. There must naturally be expected a lot of bear-monologues liberated by the buying interests at this time of the year, and if they have got a few growers' representatives to join in the chorus, it is unfortunate in a way, and yet it is forty years since a war big enough to interfere with European aspects of California produce has occurred, and war-bears in the produce trade are rare animals, whose snarls are disconcerting even to those who should be hopeful and calm. It is the province of the Rural Press to give readers as faithfully as we can what is doing in the markets and sometimes what is saying also to arouse attention of readers to what they may have to meet. We do not advise readers to hold because of this nor to sell because of that. It is everyone's business to think out for himself what he should do; we would not give advice as to holding or selling, even to a mother-in-law. As for the effect of the war no one knows a thing about that except that, as a rule, a war stiffens prices of staple foods. Those who bear cured-fruit prices because our old way of getting to Germany may be blocked, do not know at all how far that may be true by next fall and later, nor how much hungrier other European fighters may get by that time, nor how glad they all may be to chew dried apricots, peaches and prunes in the trenches, instead of at their old-time family tables. Let readers remember that, no matter what gossip they may see set forth in our columns, this journal prophesies about nothing but the weather, and generally gets beaten at that.

To Millionaires, Etc.

Raise your unbrellas, we are going to scold you good! What are you doing for the good of the State? You have been blowing in your money pretty freely during the last few years on development and sub-division schemes. You have been having swellings in your chests over emotional back-to-the-land movements, which are calculated to unsettle all the perfectly good city clerks and cobblers with the notion that they should be farmers. You have been organizing flossy development outfits to catch these deluded people, and you have been trying to retail land to them at four or five times the wholesale value thereof—giving the purchaser, for this increment on price, some ditches, but more picture books: sometimes you have spent more for overhead ornamentation than you have for underfoot improvements; you have spent more to catch a sucker than to hold a salmon, and you have not accomplished much, because mankind is not mostly fools. Now you own much land, although your bonds are on the bum and your onyx wainscotting and counters on the way to the junk-shop. Probably most of you really thought you were doing a good thing for the State, and you honestly wonder why the back-to-the-land gospel did not bring thousands of people to buy your gilded pottery. We hope you have not lost much, and if you really have title to good land at wholesale values you can still figure that you have made good investments, for you certainly have. You may have lost what you hoped to make, but that should not dishearten brave men. Do not go around wringing your hands and crying, "Oh, my, what a pity; what can we do now?" There is no cause to do that. If you got a lot of good land at a fair price, as an individual or as a member of a syndicate, you are all right. Blow in a lot more money for real improvements and make the land productive. Of course, you have plenty of money, because we are only talking to millioniares. Your investment is good; now you must make it good for something. As soon as you demonstrate that, you can sell your surplus holdings all right. Squeeze the water out of your stocks and bonds and put it on the land; people will buy good land and real water all right!

Millionaires and the Land.

Much of the land which has recently been boomed for small farms will be all right for that in time, but it is too raw now. Much of it is just right now for large farms and splendid producing enterprises, if capital enough is available. We have run over a lot of it and know what we are talking about. It is vastly better for such enterprises now than formerly, because so much better transportation facilities are available and better still are coming, and yet you present millionaire owners are really doing less for real development and improvement than your fathers and grandfathers did. You have been planning to farm a lot of farmers: your ancestors, with the fat wallets, tried to farm the land. They did more for the upbuilding of the State than your are doing, and they got a lot more fun out of it, too, than you have secured or are likely to, unless you change your point of view. There are so many ways in which you could do better, and we know so much about it that we would surely make a book of it if we were not scared that some one would call it funny. We have closed our joke-book factory and are in deadly earnest. Though we cannot cover the subject in a paragraph, we can take a shot at it. Just think of this for a moment: although we have not counted noses, we believe there were more San Francisco millionaires putting money into breeding fine stock on large, rich farms forty years ago than there are now. Of course, we have more breeders of pure-bred stock in the State now than there were then, because we have gained so much through the efforts of ordinary farm owners to get the best stock there is and breed it wisely and well. If we had not gained in this way California would be in a poor way indeed in live stock improvement. But we have surely lost in another way. The younger millionaires who have inherited wads or made them for themselves, know very little of the open-air, free-sky, manly joys of their predecessors. Too many of them are simply sports or grinders, or, in a business way, shell-artists or thimble-riggers. Very few of them know anything of the joys of the week-ends which the old boys of the last generation had on their broad acres in the company of the fine animals they were breeding and feeding, speeding and deeding, that the State might have better stock than the rest of the world.. And the old boys had nothing of the outlook which should stimulate their successors to the same joys wtih as much better terminal facilities in enrichment. They were in the provinces; their successors are in the middle of the world. They had eyes of eagles; their successors have eyes of moles.

Millionaires Old and New.

Now, you measly little millionaire, we are going to jaw you some. Here you are, on a bright Saturday morning, lolling back in the tonneau, wrapped in robes, voiceless, save an occasional grunt at the chauffeur, and sightless, save now and then a blink at the landscape which your father gave you. Your valet tubbed you, rubbed you down, and filled you up with eye-openers before you could even sit up and take notice. What does ownership of five or ten thousand acres of glorious California valley and hillside mean to you? You can answer it better than we can. What did it mean to your father? Oh, well, cannot you remember what happened when, as a kid, you went down to the ranch with the old man thirty or forty years ago? Didn't he nearly roll you off the bed when he jumped out before dawn, be-shirted himself like a lumber-jack, and shot out of the house to pry up the sun, so he could get a look at the stock? And did he not royally row the chink over the bad coffee, so hard that the trembling celestial told you afterwards: "Your daddy heap big man"? And don't you remember how he started out over the ranch with the foreman after breakfast on the old buck-board, to see how everything was getting on, and how picturesque language rolled out of him like the 72nd eruption of Lassen's Peak, when he found a hole in

the fence? And then, when all this had blown out of his system and the heat of the day had come on, how he used to draw you up beside him on the old wagon box under the great oak, whence could be seen the hillslopes gliding down to the broad valley stretches and tell you of his plans: how the hills should be forested, how the stream should be reservoired, the mesas planted with fruits, and the broad flats carpeted with alfalfa—never-ending verdure for the herds and flocks, for which ample barns, corrals and paddocks would be conveniently constructed. And then, throwing his great arm around your shoulders and squeezing you tight, he would say: "Tom, this land will make a duke of you if it is used right. California can beat Scotland on beef-stock, Holland on cows, Kentucky on horses, and Ohio on hogs" (for he spoke of the ideals of forty years ago). "I am putting money into this property for you. Its improvement, planting and stocking will help to make California great, and you must carry on my work." And how did you take it, you little shrimp? You were even then pinching a cigarette in your jacket-pocket, and soon twitched away out of his sight, where you could touch a match to it! And where is the old man now? In heaven, probably, for his swearing was honest—like that which Moses gave out when he found the Israelites worshipping the golden calf and forgetting what the Lord commanded them to do with opportunities in Canaan. And where are you? Lolling in the tonneau; rolling along to the railway station to meet a lot of rat-eyed schemers who will hold out the chances of frenzied finance to dazzle you into forgetfulness of the millionaire's duty to build up California in world-mastering lines of production, such as they only who have command of capital can hopefully enter.

What Millionaires Can Do.

"But," say you, "you preach like sulphur, but what can I do?" It is a good question, but we cannot answer it for you individually. The answer depends upon the land, upon you and upon your honest desire to use money creatively, constructively and patriotically, and upon your ability to find life and joy in such work. If you cannot master any of these requisites, let the land go to some other millionaire who wishes to get good land at wholesale, or to some subdivision scheme which expects to return the owner about a quarter of the sale proceeds. If we cannot interest you in some live improvement enterprise with the land, we do not care what you do with it; we only care for the people who may get trapped by your agents—but, judging by recent experience they are not easy to catch, so why need we worry about them? But if you really do feel even a slight impulse to do something manly with your money and not merely to look on while shysters play football with it, then we have a ray of hope for you; for you may be drawn to use money to make your land better and to help build up the State. The present disposition to subdivide good land for small purchasers is a good thing if done honestly and fairly. Forty years we had to preach about the duty of doing this, but now there is plenty of land to be had in small parcels. Preaching now should be directed to those who have money enough to go into a good business with their land on a larger scale, in such a way that needs and opportunities in production may be amply met; in a way to give owners profit and consciousness of well-doing, and to give the State the proper tax income which every acre capable of production should give it. If this were done the State would be richer and the cost to each worker would be much less than now. We are against idle land—against land kept idle by the greed and gambling of those who hold title to it. Formerly, the cure was subdivision, as already stated; now the cure is a disposition to improve, to equip, to stock—to do business with the land. How shall you do it?

Oh, Buy a Bull!

Did you ever see a millionaire sell a bull to another millionaire for $38,000? We have. Did you ever see one of them sell to another, a cow for $40,600? We have. That was over forty years ago, and though we have heard of higher prices since then we have not seen the transactions. Therefore, we hark back to actual experience to recall the emotion of it. It was a great game surely, and every one present knew it, from voluble auctioneer to silent cow-boy. It was big business in live stock. It was a game at which only millionaires could sit to play, and yet everyone knew two things about it: first, that it would give America a place on the live stock map of the world; second, that it would make every living cow in the civilized nations worth more because it would place her in the foundation of a movement for better animals, which would in time aggregate billions to millions of people, since every one would enquire how it was done, and would try, a little bit, perhaps, to do it. California stock of all kinds is better now than forty years ago, because some of your millionaire fathers bought the materials and set the pace for progress. And now we have come to a time and a situation in the development of California which the elders may have dimly dreamed of but could not surely see. Because of our new transportation relations to the world, and because of the unfolding of the Orient and of the North and South Pacific, California has an outlook for big business in live stock than which there is no other so bright in the world. Everything in the line of higher domestic animals, from a hen to a horse, will be sought in California if we develop the quality and efficiency which our soils and climates make possible. Nature throws early maturity at us in the form of eggs, wool, flesh, speed, strength and fecundity; civilization and commerce place us centrally in a newly awakening world; science is daily demonstrating natural and economic truths about success with live stock which were unknown in the last generation. What joy and what profit the elders would have hewn from the conditions and situations which are lying unnoticed at the feet of the present generation of millionaires! How they would have hastened to double the value of their land by the work they could make it do! What joy they would find in producing new California races of performers with the blood of the old pedigree-builders! What patriotic fervor would have stirred them to make California world-famous in all lines of live stock! Thank God, we have many men and women who are doing nobly in these lines now, but they are, for the most part, handicapped by lack of capital and need of immediate returns. They can neither get nor do all the things which their enterprises need, and yet they are receiving gratifying rewards and are working contentedly toward California's coming day of the finest animals under the skies. They need millionaires with plenty of land and money to buy their surplus pure-breds and put them to their work; they need new blood, which requires long purses to seek, to find and to hold for service in this State. It is big business; it requires much money to make money; much joy in it to enchain the interest; much patriotic emotion to satisfy a noble aspiration!

"But what can I do?" creaks from among the rugs in the tonneau. What can you do? Buy a bull; get something virile into your vicinity. Pay $50,000 for him, if it takes that to get the best of his kind. Absorb something of his nobility, of his lofty lineage, of his purpose in life! He is probably truer to his ancestry than your are; he will wake you up and demonstrate to you the joy of being alive!

Queries and Replies.

Querists must give name and address.

Black Peach-Aphis.

To the Editor: I am sending a twig from a peach tree, with bugs which are appearing on several of my trees, mostly on young growth near the ground. Can you tell me if they are dangerous?—P. B. N., Oleander.

The insects are the black peach-aphis. Like the woolly aphis of the apple, it lives both on the roots and the leaves, and it can be killed above and below by spraying with tobacco extract, 1 part to 70 of water. To reach underground forms the earth should be removed down to the main roots and the earth well-soaked with the spray. The root form can also be discouraged by removing the earth, putting in a half-inch layer of tobacco leaves and replacing the earth. Although this black peach-aphis was heralded on its appearance as a fierce pest, it has hardly proved as destructive as promised, though it certainly does much injury, especially to young trees, and should be fought as suggested. It is checked somewhat by various insect enemies.

Alfalfa Leaf-Spot and Barley Rust.

To the Editor: I enclose sample of alfalfa which has some disease that has destroyed first crop, which promised to be good before this last rain. Have two acres, one four years old and one sown last spring—both appear alike. The soil is a deep sandy loam, no hardpan, good drainage, land-slope towards a creek. This disease has also spread to a patch of barley grown next to it. Kindly advise me the cause and remedy, if any.—P. C., Santa Cruz.

Your alfalfa has the fungus disease commonly called leaf spot (Pseudopeziza). It does not usually do much harm in California, and is more destructive this year because of the excessive aerial moisture. It will be less as heat and dry air come on—unless you are in a spot where these do not prevail. Naturally, more injury from this disease may be expected near the coast than in the interior. Cutting and burning the infested stuff will reduce the spores ready to attack later growth. Your barley has not the same disease. It is "rust" (Puccinia), which is also worse than usual this spring, because the same conditions favor both fungi. If the rust seems increasing cut the barley for hay at once and do not let it go too far.

Citrus Growers' Wholesale Economy.

[Written for Pacific Rural Press.]

If the price of box shook raised one cent a box it would make a difference of $100,000 a year to the citrus growers who are members of the California Fruit Growers' Exchange.

Such a crisis arose about eight years ago when the manufacturers of box shook suddenly advanced the price, not one cent, but about 75 per cent over the normal price. The Fruit Growers' Supply Company was organized in 1907 primarily to meet this crisis by manufacturing or purchasing citrus growers' supplies at wholesale and selling them at cost to the members of the California Fruit Growers' Exchange. That it was a big undertaking may be seen from the fact that its members use a third of the box material used in California for all fruits.

Shortly after the organization of the Fruit Growers' Supply Co., prices fell to normal for everybody, in or out of the Exchange, and they have remained ever since at a level which allows a living profit to the manufacturers, but eliminates middlemen's profits.

The Supply Co. now owns 26,000 acres of pine timber, containing 600,000,000 feet of potential lumber; and they operate a saw mill and box factory, which turned out 24,000,000 board feet last year, employing as many as 400 men at once. Much of the lumber manufactured is too good for box shook; and this is sold to the open trade, some of it going even as far as New York. The amount of lumber produced last year, aside from box material, sold for about $500,000.

Shook supplied last year to members entitled to the benefits of the Supply Company was worth $1,521,000, of which 85 per cent was purchased by the Company from independent mills; for cordial relations now exist between the Supply Co. and its competitors. Its own mill is used simply as a protection for the growers in case of any future attempt at price manipulation.

They now handle not only the boxes for the growers, but "everything used by growers in the packing houses and orchards." They do even more than this, as N. L. Lelean, manager of the Redlands Fruit Association, tells us that one of the members there was negotiating for a water power outfit for his ranch, and quite a large trade in automobile tires and supplies was being carried on through the Supply Company by his Association, besides a large amount of cover crop seed of all kinds, four or five hundred tons of fertilizers per year, all of the wrappers, ready printed, for the Redlands Association, besides all the usual commodities used in citrus growing and packing.

The total purchases made by the Supply Company last year for members of the California Fruit Growers' Exchange amounted to $3,356,000, at an operating cost of 66c per hundred dollars worth of material purchased. The first year after organization, 1907-8, the Company bought and sold to growers $10,000 worth of material besides boxes; the next year it was $50,000; and the next year $75,000; the fiscal year of 1910-11 their purchases for growers, besides boxes, were $400,000; 1911-12, $1,035,000; 1912-13, the year of the freeze, $1,370,000; 1913-14, $1,835,000.

How the Growers Benefit.—Every citrus grower who is a member of the California Fruit Growers' Exchange may buy supplies through the Fruit Growers' Supply Co. at wholesale costs. Only Exchange members may do so and only those whose local associations have stock in the Supply Co. It is entirely optional with each individual whether he shall buy through the company, but the sky-rocket business indicated above shows the tendency of the growers, which, of course, is due to the benefits. Each individual goes to his local association and gives them a list of what he wants whenever he wants it. The Association forwards all such orders to the Supply Company at Los Angeles, and the Supply Company collects all the wants in each line of all its members and buys that much from its wholesale trade connections in each commodity, the material to be shipped directly from wholesaler to the individual; but the price to be charged to the Supply Company. Thus, the Supply Company's credit is used for each individual grower. The wholesaler collects from the Supply Company, which collects from the local associations, which in turn collect from their grower members; and never a dollar has been lost by failure to collect.

In the words of Manager F. B. Hutchins, "The Fruit Growers' Supply Company is a distinct organization owned and controlled exclusively by fruit shipping associations affiliated with the California Fruit Growers' Exchange. It acts as a purchasing agent for members only on a purely co-operative basis, furnishing the supplies at cost."

The actual system is to sell all supplies at a uniform price, above wholesale cost which varies through the year in different wholesale transactions. At the end of the fiscal year, whatever surplus has accumulated is refunded to the growers through their associations in proportion to the purchases made. The capital stock is issued, according to Sec'y A. E. Barnes, to local associations which pay to the Supply Co. for five years three cents a box or less, subject to the call of the directors, for each box of fruit shipped through the Fruit Growers' Exchange, Thus, the stock in the Supply Company is distributed in proportion to the amount of citrus shipping done by each local association. The money thus raised has been used to buy the timber land and install and operate mills, as well as to pay the overhead expenses. It also furnishes a basis for the Company's credit. The same directors act for both the Supply Company and the Exchange.

Distributed Oil During Freeze.—The value of the Company was strikingly shown in the freeze of 1913. Without it, the frantic growers would have swamped some oil refineries with their orders and some growers would have obtained much more oil than they needed to fight the frost, while others would have been unable to get enough. Some refineries would have been unable to fill their orders soon enough, while others would have had oil in plenty waiting orders which would not have come. The Supply Company acted as a clearing house at this emergency, receiving the orders from growers all over the South and placing them with refineries who had wired them how much each could supply. The Company also entered an arrangement by which the railroads gave oil trains the right of way over limited passenger trains. They handled as much as 125 carloads a day, totaling about 1,000 carloads for this one freeze.

Provide Scarce Cyanide. — When the war was on in Europe and the slaughter of destructive insects of the citrus trees in California was vital to the industry, the cyanide supply from Germany was shut off. There was just one American firm making cyanide and the Supply Company got next to this, so they have kept the growers provided with cyanide for fumigation during the scarcity.

BLUE MOLD REDUCED NAVEL PRICES THIS SEASON.

[Returns to orange growers this spring have not been always satisfactory, but the following shows it is not all due to the marketing system.—Ed.]

THE statement that citrus growers of California have lost $50,000 a week from decay, due to rough handling in packing, was made by G. Harold Powell some weeks ago, when a great deal of decay was showing up in shipments. More recently, with dryer weather here and with practically all of the fruit under refrigeration, the decay is much less, but we had quite a period of decay in March. Practically all of this decay in oranges is from blue mold, which can only attack imperfect fruit. It has been particularly difficult to handle this year on account of a good deal of fruit being bruised on the trees by winds and the deadwood that is still in the trees from lack of pruning the last year or so. The continued damp weather we had helped this decay to start even on bruised fruit on the trees. It was difficult to grade all of this out. In addition, a very large percentage of the fruit was washed this year on account of the smut from scale, which is quite heavy in some sections where the growers have not been able to fumigate since the freeze. This washing is necessary on dirty fruit, but is conducive to decay on imperfect fruit. The present dryers do not thoroughly dry the fruit after washing on days when there is much humidity.

With all of these bad conditions, however, some shippers have been able to put their fruit on the market with but very little decay. This has been very difficult, however, as the fruit has been tender; and with the amount of dead brush in the trees it is very hard to get the fruit into the packing houses without the skin of some of it being scratched in getting it out of the tree, or otherwise injured in the handling operations, by gravel in the boxes, clipper cuts, etc. The handling operations, as a whole, have been greatly improved the past few years, and the common injuries, such as clipper cuts, long stems, etc., have been overcome by most houses. Nothing has been found so far, that will kill these bluemold spores without injuring the fruit.

The fact that some houses go through the season with but little, if any decay, leads us to hope and expect that further improvement in the handling in general will be made.

California Fruit Growers' Exchange.—E. G. Dezell

LONGER BLACKBERRY SEASON.

To the Editor: How can blackberries be pruned to produce late fruit?—E. J. McC., Los Altos.

We published a full account August 16, 1913, of how T. B. Cannon of Los Angeles county keeps his Crandall blackberries in bearing six months of the year. For the late crop, he prunes six inches off the canes, which will have grown four feet this season. This forces out laterals from the leaf axils. When these are thirty inches long, the end buds are snipped off and blossoms will form and ripen berries very late in the fall. Next year, the new canes are treated the same way for the late crop, but the canes which have borne the late fall crop produce next year the main crop, which comes early in the season. These same laterals which are bearing the main crop in the season, after having borne the late fall crop, send out new laterals from near their bases about the time the main crop berries are well set. These basal laterals bear a second crop between the main and the late one.—Editors.]

NO ALFALFA DRYING YARD.

"Alfalfa is not good for a drying yard. I tried it two years; cut the grass ten days before drying began, and again just before we laid out the trays, as short as we could, but, Never again! It takes three times as long to dry them. I ran short of trays and had to buy 500 extra at $250, besides having hard work to keep my crew of twelve to fifteen fruit cutters busy. I get better fruit on bare ground, too," says W. A. Harter of Modesto.

"I plow the land now, if not sooner, and harrow it thoroughly, then let it stand. It doesn't need any rolling, and whatever weeds may grow are easily hoed out. There may be a little dust, due to the bare ground, but we do not get that on the fruit. The drying yard is netted with tracks on which we run cars with the fruit almost to the place where the trays are to be laid down.

"We begin laying out the fruit on the northwest corner, because our prevailing wind comes from the north and west. This makes all the dust the men may kick up blow away from the fruit rather than onto it. But that doesn't amount to much, anyway."

"Don't irrigate just before you pick any kind of shipping fruit. You will get lots of cheap weight and sloppy fruit that can't stand the journey," is the advice of a lifelong fruit grower.

Thinning Lake County Fruit.

To the Editor: Your letter to J. W. Kingry has been referred to me, a subscriber to your paper, though not yet in receipt of your letter. I have had 12 years' experience in the fruit business, and thin the following fruit to the following distances and as early as possible. Apricots and peaches, six inches apart. Small spurs and twigs only carry one fruit whatever distance.

Apples, eight inches apart. Take out all except the center fruit of bunch. Both apples and peaches are useless in this section unless thinned, the former having only a local market and the latter, owing to freight charges, do not pay cost of growing unless of best quality. Pears, for which the county is noted, I have never known them set thick enough to need thinning till this year, as the pear seems to respond to cultivation quicker than any fruit, and at picking time will double their size after the large pears are gathered. I think it is unnecessary to thin them, but increase of cultivation will meet the case. Both pears and prunes are an enormous crop with me. Prunes don't pay to thin. It should be done at pruning time. In fact, I have come to the conclusion from experience this year, when we had enormous blossom and ideal weather, that in order to get strong bloom to withstand as far as possible inclement weather, pruning must be very much more severe. This will eliminate a great deal of thinning and consequent expense, and the pruning must be done early. All my early pruned trees have set prolifically. Some trees, large ones, that I hadn't time to prune thoroughly have large quantities of fruit on those boughs which were cut back a half. In every case where no pruning was done on the rest of the tree, no fruit has set. Therefore, prune hard nearly twice as much as is usually done, and get it done before January 1, to utilize the strength that is still in the tree to mature the buds.

Highland Springs. **W. L. B. Hill.**

FERMENTING GREEN OLIVES.

To the Editor: I am very much interested in the article: "Doesn't Skim Curing Olives"—April 24th issue. Kindly tell me how long he leaves them in the lye to take out half of the bitterness. Does he then sweeten them with water before putting in the salt?—T. W. Haugard, Ramona.

[Answered by B. A. Goodwin, Ripon.]

We used 10 lbs. of caustic soda, and 1 qt. of lime to 80 gals. of water. The time must be determined by cutting the olive, when it is easy to see how far the lye has penetrated by the color of the olive; it should be about half way to the pit.

The lye should be drawn off and fresh water put on immediately, the water changed each day until all traces of lye have been removed.

Then put them into a brine, which tests 9 by the instrument, which we should judge to be about 4 oz. of salt to a gal. of water. Then add about 4 lbs of dry salt to each barrel of olives, after standing one week, then continue adding dry salt once a week until the brine tests 20, then leave them to ferment out. They are then supposed to keep without changing the brine.

Now you ask: "What conclusion have you finally come to as to the flavor developed and the desirability of your process for the farmer?"

The flavor seems to be developing all right, but as this is an experiment, we are unable to state what their keeping qualities will be, or what the market will be for them.

PEACH "LITTLE LEAF."

This disease of "little leaf" attacks many different kinds of trees, occurring to a very wide and serious extent in the San Joaquin Valley. Especially on peaches it is the cause of very severe loss. Two very common ideas have been in existence, namely, that the disease is due to gall-forming nematodes upon the roots or that it is the effect of crown gall. Extensive examinations by the University of California Agricultural Experiment Station have shown that while both of these conditions are common in trees or orchards affected with little leaf, still there are many cases where little leaf is not accompanied by either of those troubles. Therefore it must be due primarily to some other condition.

Two facts have been found very pronounced as to the occurrence of this disease, namely, that affected trees are usually located either in streaks of sandy or very light soil running through the orchard, or that they are planted in places where corrals or barnyards were formerly located. The latter condition is very common and striking in the San Joaquin valley. In the investigations thus far conducted little leaf is always accompanied by a lack of available nitrogen in the soil. This may be due to a lack of total nitrogen, or, as in the case of the corrals, to a lack of nitrifying power in the soil.

[Quick acting nitrogen fertilizers, such as nitrate of soda, applied early in the season would thus be indicated as the most probable remedy where "little leaf" appears. — Editors.]

PROCESSING DRIED APRICOTS.

To the Editor: Kindly tell me the method of processing dried apricots before packing in boxes for shipment.—M. H. S., Hayward.

[The dried apricots are first wetted by dipping them into hot, tepid, or cold water just long enough to get them wet on the outside. This may be done by using a hand dipper with a screen bottom, or the apricots may be spread on the floor and sprinkled with a watering pot. They do not need to soak in any of the water, but simply be wet on the outside. Hot water sometimes brings out the color better than cold water.

They are then piled two or three inches deep on trays and run into the sulphuring house. In the California Cured Fruit Exchange sulphur house at Sacramento, they have a capacity for two cars, holding twenty trays each in a 16x20 foot house. They burn one quart of sulphur in the processing of that much fruit in that sized house.

After sulphuring, the apricots are allowed to dry just enough so that when a handful of them are squeezed together in a ball and dropped a few inches, the ball will break apart. They are then pliable enough to pack, and whatever insects or fungus may be in them are prevented from developing.—Editors.]

BY a new system of planting corn in the dry land conditions of Western Kansas, C. C. Cunningham produced yields around 30 bushels per acre while adjoining fields planted the ordinary way yielded only 10 to 12. The corn was planted in rows twice the usual distance apart while the plants were twice as thick in the row. The stand was therefore the same; but as this method seems to preserve the moisture midway between the rows, the supply is often sufficient to maintain the corn in a flourishing condition during temporary periods of drought, while occasionally it may complete the development of the crop.

Home Canning—Fruits and Vegetables II.

[Written for Pacific Rural Press by Prof. W. V. Cruess, University of California Experiment Station.]

Most farm kitchens contain practically all the necessary equipment for the preservation of fruits and vegetables for home use. It is desirable to acquire such useful instruments as a thermometer and a sugar tester, and to make a few minor alterations in some of the utensils used for sterilizing as indicated below. Where the operator wishes to try putting fruits and vegetables up in tin for the market, a factory-made canning-outfit such as those now on the market will be desirable.

Glass Jars Most Satisfactory. — Glass jars are more satisfactory for home use than tin cans because they can be used repeatedly, while cans are good for one season only; the glass is not dissolved by the fruit acids and the articles sterilized in glass have a more attractive appearance and better flavor than in tin. The greater initial cost of glass containers is offset by the advantages enumerated.

Jars differ in the ways in which they are sealed. Jars with screw tops and rubbers such as the screw top Mason jar were formerly used extensively. The principal objections to them are that the caps become corroded and leaky with use, thus permitting yeasts, etc., to enter and spoil the fruit; and a second objection is the action of fruit acids on the metal part of the cap, by which means metallic zinc may be dissolved. These jars have the advantage of cheapness.

An improved jar using the rubber as a seal is equipped with a glass disc that clamps down over the top of the jar and makes an air-tight seal with the rubber. This cap has no metal and lasts indefinitely unless broken. The clamp can be left loose during sterilization to let the steam generated in the jar escape, and can then be clamped down to hold cap and rubber closely together and keep out germs while the jar cools and can then be released. If the sterilization and capping have been successful, the vacuum formed by the condensation of steam in the jar holds the cap in place. Should spoilage set in later, gas is formed which breaks the vacuum and loosens the cap, giving warning that the material has started to spoil. Types of this jar are the Atlas and glass top Mason. Before using any jars, try the rubbers by boiling them in a little water or fruit juice to see if they give a disagreeable taste; this is a common defect of some rubbers and is so marked as to completely spoil the flavor in some cases. New rubbers should be used each year as old rubbers are very apt to leak and cause spoilage.

Another type of jar is fitted with an enameled metal cap. The cap carries on its under side around the outer edge a heavy coating of a composition that softens during heating of the jars and contents and firmly binds the cap to the rim of the jar on cooling. This composition and the vacuum in the can hold the cap in place. These jars give very satisfactory results. Their principal objection is the necessity of renewing the metal caps each year. The Economy jar is of this variety.

What is known as the vacuum seal type of jar is fitted with an enameled metal cover which carries a heavy rubber band. This band can be forced over the top of the jar or glass and makes an air-tight seal. For home use the caps are forced on after the contents of the jar have been heated and are still hot. The vacuum formed by the cooling fruit or vegetable holds the cap in place. Where used in factories the cap is applied by machinery under a high vacuum.

EASY WALNUT MONEY.

"There is nothing to do now on walnuts until picking time," says E. F. Straight of Contra Costa county, who had just finished a shallow plowing and harrowing in the middle of April. The weeds do not grow much; there is no irrigation to bake the ground; the crop will not need thinning; or the trees, summer pruning. When picking time comes, two-thirds of the nuts, which are the Concord variety in all of this section, will drop out of the shells, and all that is necessary will be to pick them up.

KANGAROO MICE EAT GYP.

To the Editor: Kangaroo mice or rats are digging up my Egyptian corn. How can I kill them?—H. M. B., Turlock.

[Without experience in doing this, we would suggest that you soak some Egyptian corn in strychnine with a little molasses, as has been recommended in Pacific Rural Press for gophers and squirrels.—Editors.]

California Garden Flowers

Trees, Shrubs and Vines

By E. J. Wickson, A. M.

The newest, most comprehensive book on California gardening. You need this book every day in your garden work. Every part of growing flowers is given attention and you will be richer and happier by having a copy at your elbow when you need it.

C. H. Shinn of Fresno county, in writing of "California Garden Flowers," says: "But Professor Wickson, toiling slowly, methodically, for a lifetime, has given us in "California Fruits," "California Vegetables," and other books to which list the present volume belongs, as safe, complete trustworthy a review of the entire field as is possible now and here. His name is written across our horticulture, and it is no small literary achievement for him to have done this with his many years of work at the university and as editor of the Pacific Rural Press."

The San Francisco Bulletin says: " 'California Garden Flowers' is the best book of its kind ever published. Prof. Wickson's book concerns flower-growing in this particular state, while the great majority of books are general in their scope and the information they contain is of little benefit to local readers. It is a thoroughly practical book for California gardeners, in which every phase of the subject is discussed in detail."

If you are particularly interested in bulb plants, or roses or lawns, soils, fertilizers, or if you have bacterial or insect troubles, "California Garden Flowers" will assist you. The book contains nearly 300 pages of closely printed text, besides numerous illustrations, is handsomely bound in cloth and will be sent postpaid for $1.50 per copy.

PACIFIC RURAL PRESS,
Publishers.
525 Market Street,
SAN FRANCISCO.

Why California Must Shell Its Almonds.

(Continued from page 601.)

Our present capacity is very small, being about 2,000 pounds per day, but we have a plan for enlargement for this season, and with increased facilities we will probably be able to turn out 6,000 pounds of shelled almonds per day. It is our intention to increase the plant as soon as machinery can be installed so that the output will be easily one car of shelled almonds per day. Whether another story will be built this season is a subject which is now being considered. It is only a question of a short time, however, when the building will be extended the entire length of the lot—160 feet. At the present time the building is 47½x 100 feet.

We do not believe it is likely that there will be other nut-shelling plants erected, as the investment required is considerable, and the Exchange represents the major portion of the crop.

We are determined to give shelled almonds the widest distribution possible. Today there is not a rate on California shelled in bags for transcontinental shipment, or for consolidation with unshelled. On February 5 we made application to the Transcontinental Freight Bureau for a rate, and have not yet been advised of their action. It is needless to say that questions of this nature will be brought to as speedy a conclusion as possible.

What the future results will be from the Exchange efforts to develop the shelled market of the United States will depend very largely upon the support that is given by the growers of California, and permit me to extend a warning: You are facing overproduction unless you find avenues of market for the surplus that California will soon produce.

USES BITTER HONEY.

To the Editor: How can I remove the bitter taste of almond honey?—F. M. P., Esparto.

[Answered by L. J. Nickel, Apiarist, University Farm.]

[We know of no method that could be used. Most people allow their colonies to strengthen up on the almond honey and remove what is left after the almond bloom is gone, to use as winter feed for the bees. The good honey made during the rest of the season may then be removed in the fall.]

SPRAYING MADE PEARS PAY.

[Written for Pacific Rural Press.]

"My ten acres of Bartlett pears pay 10 per cent on $2000 per acre, but they did not pay that much when I got them ten years ago," says W. S. Gilmore of Placer county. The orchard was full of old wood and disease. The pruning for the first years was rather severe, taking out all of the weakened and dead wood, and aiming to leave just enough spurs so that there would be a full crop if all of them set fruit, and enough energy would be left to produce buds for the next crop.

The first year on the place the pears were sprayed six times; the first time with twelve pounds of bluestone and eight pounds of lime per fifty gallons of water. This was the same "strength" as a ratio of 6:4, but it was considerably thicker. After the first two sprayings, which were for fungus diseases, two and a half pounds of arsenate of lead were added to the same spray to control the worms. It was only in the first year, however, that so thick a Bordeaux mixture was used. After that, lime-sulphur was sprayed in the winter time and the second and third sprays in the spring were of 5-5-50 Bordeaux mixture with arsenate of lead added for worms. Then there was no more need of spraying for the rest of the season.

In Vaca valley, Mr. Sharpe has learned by experience to prune back his grafts, for the north wind there has blown the leaves entirely off from some and blown others out. D. C. Pennington pinches back his grafts about the middle of April and again early in May. In Placer county the graft shoots are pruned shortly before the strong winds in the hot part of the summer.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtholdt Co.
Geo. D. Kellog & Son	Pioneer Fruit Co.	Vacaville Fruit Co.

California Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

clean cylinders

Clean cylinders—or dirty ones—depend on the kind of gasoline you use.

Red Crown

the Gasoline of Quality

leaves clean cylinders because it is double-distilled, then carefully purified. It burns up quick and clean.

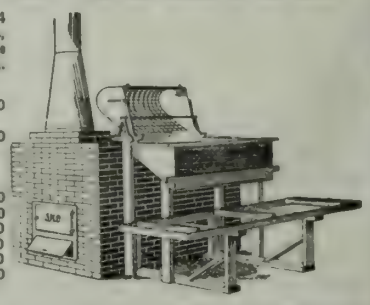
Standard Oil Company
(California)
San Francisco

PRUNE DIPPERS with all the latest improvements, Best and cheapest on the market.

..Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

Hopper and Spreader	$15.00
30 in. Green Grader, 3 grades, suitable for above	85.00
Large Power Dipper and Grader, capacity 75 tons per day.	
24 in. Hand or Power Dry Graders:	
3 grade	$55.00
4 grade	60.00
5 grade	65.00
Field cars, wood or steel frame	6.00
Transfer cars	8.50
Turn Tables	8.50
8-lb. steel rails, 7 cts. per foot.	

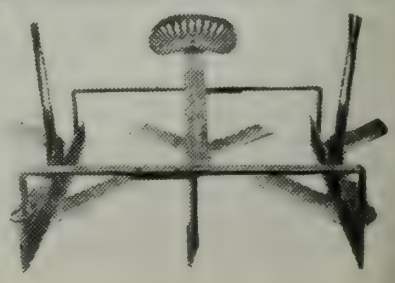


SMITH MFG. COMPANY, 200-224-226 THE ALAMEDA, SAN JOSE, CAL.

GOLDEN GATE WEED CUTTER AND MULCHER

Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.

See them at the Exposition, Block 1, Agricultural Palace.
Write for Circular.
C. G. SIGURD,
CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



Fruit and Grain State Crop Report.

[Written for Pacific Rural Press.]

But little damage seems to have been done to the crops by the recent storms except by splitting cherries, rotting strawberries, and favoring pear scab, aside from the frost in mountain valley districts.

Almonds for the State as a whole are probably reduced about 15 per cent.

Apples frosted in the mountain counties; not reported from Pajaro Valley; considerably reduced for the State as a whole.

Apricots about three-quarters of a crop for the State with some brown rot in Santa Clara county and much shot-hole fungus in the districts west of Sacramento Valley.

Berries all in good condition except strawberries, which are very badly damaged by rain.

All early cherries badly damaged by rain; late cherries still in good shape.

Good crop of figs practically everywhere grown.

Grapes promise about the same tonnage in the Tokay district, but short in Fresno, and all needing resulphuring on account of mildew weather.

Peaches in general less than recently expected for the State as a whole.

Pears badly hurt in various districts by frost, scab, and thrips.

Plums in good condition where grown in large commercial quantities.

Prunes look better than at first, but promise considerably less than a full crop, although quite probably 25 per cent more than last year.

Walnuts good all over the State, with blight showing in Santa Barbara and Los Angeles counties to some extent.

Large acreage alfalfa and grain hay, cut and uncut, damaged by storms.

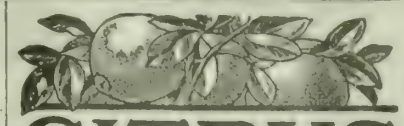
Grain, of which a large proportion was winter sown, benefited by storms, though some of the fall sown was lodged.

Cold weather prevented 60 per cent of Glenn county sorghum coming up, so it is being replanted.

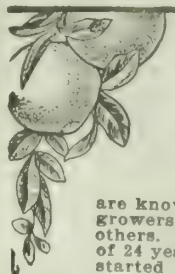
A larger acreage than ever before is to be seeded to lima beans in Carpinteria this year, mostly for the superior seed stock for which the section is known.

BEARING ACREAGE AND PRESENT CONDITION OF CROPS IN PERCENTAGE OF NORMAL.

COUNTIES	Almonds	Per cent	Apples	Per cent	Apricots	Per cent	Cherries	Per cent	Peaches	Per cent	Pears	Per cent	Plums	Per cent	Prunes	Per cent	% Figs	% Walnuts
Alameda	500	50	136	...	5000	65	2000	70	200	...	565	60	75	50	1160	60	...	...
Butte	1800	...	500	...	80	...	75	...	3000	...	400	...	100	...	2000	...	...	...
Colusa	300	100	...	...	30	...	...	...	303	60	30	100	...	100	1000	100	100	100
Contra Costa	1737	...	160	...	500	...	200	...	600	...	800	...	100	...	1100	...	...	...
El Dorado	...	...	350	...	...	...	6	...	300	...	500	...	300	...	...	...	...	...
Fresno	...	100	...	...	2750	80	...	...	43151	90	136	...	343	100	981	...	100	...
Glenn	150	90	78	90	200	70	...	...	93	90	17	95	...	95	201	90	95	90
Humboldt	...	75	1100	...	...	...	...	...	...	75	...	90	...	...	...	...	...	...
Imperial	...	...	...	...	110	90	...	...	32	...	36	...	18	...	...	...	100	...
Inyo	...	...	1000	...	25	...	10	...	450	...	250	...	65	...	50	...	...	...
Kern	...	...	100	40	200	90	...	...	600	95	190	...	50	85	200	100	100	...
Kings	...	...	...	...	1700	110	...	...	7950	100	...	...	...	...	560	100	...	...
Lake	53	...	135	...	27	...	16	...	65	...	360	...	...	...	347	...	...	...
Lassen	...	...	...	75	...	...	...	50	...	75	...	75	...	...	...	...	...	...
Los Angeles	600	...	1400	100	2039	75	...	...	1600	100	350	100	600	75	250	75	50	90
Madera	40	100	200	...	100	100	...	...	650	75	5	...	...	...	60	65	100	...
Mendocino	25	80	948	65	12	...	16	100	55	80	650	65	10	...	320	100	...	100
Merced	400	100	60	...	200	75	5	...	4000	80	75	..	36	...	40	...	...	...
Monterey	20	...	4500	...	395	...	...	...	50	...	40	...	...	...	20	...	...	...
Napa	...	85	...	95	...	90	...	30	...	92	...	75	...	80	...	90	100	90
Nevada	10	100	1500	50	15	100	75	80	350	100	600	90	110	100	110	90	100	100
Orange	...	...	...	80	...	65	...	...	...	100	...	...	...	110	...	...	...	110
Placer	250	...	450	50	420	...	350	50	7000	100	1500	90	5500	100	...	100	...	...
Riverside	818	100	498	75	1995	100	25	...	897	80	235	...	6	...	318	100	...	100
Sacramento	921	...	344	...	470	...	330	...	1650	...	2900	...	1250	...	650	...	...	...
San Benito	125	100	325	100	1500	75	70	...	525	100	250	50	...	...	2400	75	...	...
San Bernardino	...	...	1024	90	1618	95	41	95	5666	95	36	90	8	100	54	100	...	100
San Diego	45	...	1110	...	113	...	18	...	6621	...	...	...	17	...	48	...	...	...
San Joaquin	1500	85	...	...	1000	95	1500	75	4000	100	700	90	300	90	500	85	100	100
Santa Barbara	...	...	400	100	110	50	110	...	75	20	20	...	...	...	...	...	...	100
Santa Clara	321	75	430	...	5701	60	2457	80	6120	90	1321	85	2750	...	52950	85	...	90
Santa Cruz	...	...	15000	...	1200	...	100	...	50	...	...	...	...	...	300	...	...	...
Shasta	50	50	300	55	6.5	75	8	50	300	90	110	20	20	75	750	80	...	...
Siskiyou	...	...	800	...	45	...	40	...	950	...	...	...	36	...	...	...	...	...
Solano	1000	100	...	100	1300	100	700	95	4200	100	1000	20	2521	90	4345	40	100	100
Sonoma	152	75	6968.8	80	408	100	935	25	803	100	1077	75	99	50	7629	65	...	75
Stanislaus	625	100	113	75	525	80	25	85	2520	100	233	85	210	75	45	100	...	...
Sutter	1200	...	200	...	100	...	150	...	3100	...	251	...	250	...	500	...	...	...
Tehama	350	100	500	50	600	75	...	...	3877	90	350	40	100	...	1300	75	75	...
Tulare	...	...	...	90	...	75	...	...	...	100	...	...	...	80	...	70	...	...
Ventura	200	...	...	...	2830	...	...	...	...	...	...	...	...	...	...	...	...	...
Yolo	2250	...	25	...	1850	...	...	...	1900	...	975	...	600	...	1350	...	...	...
Yuba	135	70	430	100	80	70	25	...	765	100	495	100	260	100	280	100	100	50



CITRUS TREES



Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating packing and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries INC
ESTABLISHED 1890 BY R.M. TEAGUE
San Dimas, Cal. U.S.A.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.

Orders Now Being Booked.

Write for prices and particulars.

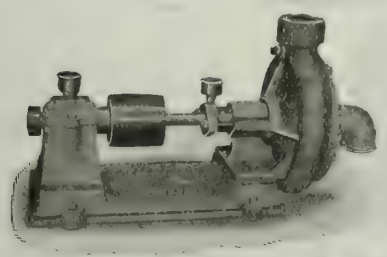
THE RICE CITRUS NURSERIES.
Main Office:
608 Haas Bldg., Los Angeles, Cal.
Phones A 3029; Main 3252.
Nurseries: Lindsay, Cal.
Phone: Farmers 1235.

California Garden Flowers

$1.50 Postpaid, Pacific Rural Press.

THE WINSBY PUMP

Our New 1915 Type Pump



Best Model for Low Lift Pumping

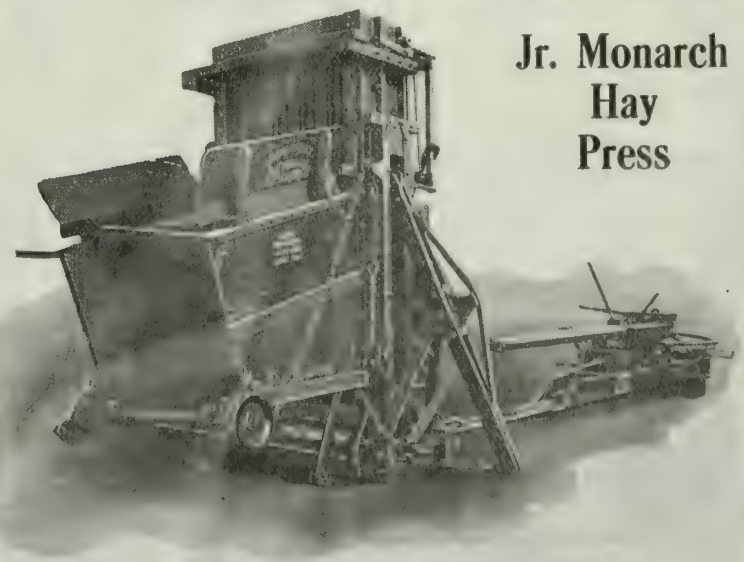
Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars.
Price	$16.00	$20.00	$25.00	$30.00	Oakland

Larger Sizes at Proportionate Prices.
Complete Pumping Plants of Any Size or Type Furnished and Installed.
WE MANUFACTURE
Pumping machinery of all kinds and for all purposes.
Mining, Milling, Concentrating and Rock Crushing Machinery.
Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.
Water Wheels, Dredges and Hydraulic Machinery.
Fire Hydrants and Cast Iron Fittings.
WRITE FOR CATALOGUE AND PRICES.
WE CARRY IN STOCK

Pipe Casing Valves and Fittings	Belting Leather Rubber and Canvass	Pulleys Wood Steel and Cast Iron	Shafting Hangers Collars and Boxes	Boilers Steam Engines and Supplies

UNITED IRON WORKS

Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.
GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.
We are the largest manufacturers of pumping machinery on the Pacific Coast.



Jr. Monarch Hay Press

Horse or Gas Power. Any Size Desired.
Capacity 40 to 100 tons. Guaranteed to excel any Press made.
Bales most of the Hay on the Coast. Now Fed Continuously.

Junior Monarch Hay Press Co.

OFFICE AND FACTORY, SAN LEANDRO, CAL.

Mechanical Power on the Farm.

SMALL TRACTORS INCREASING.

[Written for Pacific Rural Press.]

There is an insistent demand for small sized tractors, perhaps capable of working only as four to eight horses, especially on the orchards which in California are very largely in small tracts. Since the timeliness of plowing and cultivation, as well as furrowing or checking for irrigation are points of urgent importance here, where we have no rainfall in the summer time, our farmers are learning the value of engines which can do the work of several horses and keep it up night and day whether the weather is hot or cold.

While the element of depreciation is an important part of the cost, few farmers stop to think of this, and when leaving it out of consideration, the quite general opinion would be that the tractor is more economical than horse power for places of twenty acres or more, whether growing fruit or grain or field crops such as beets or beans which are raised in large acreages.

Track-laying types seem to have the predominance in this State, on account of the soft land which forms part of many farms. Round wheel types have the advantage in cost of maintenance.

Our California tractor manufacturers are awake to the value of having service men in the field to help tractor users out of any difficulties and to give them whatever information is desired. The manufacturers have local agents in the different districts, and the agents usually take a tractor to the farm and demonstrate its use before the sale is made.

We know of some farmers who have tried out several types before deciding. This, in combination with advertising in the agricultural papers, seems to be the method of selling.

The manufacturing of the machines is done largely in local shops, where everything is done from the foundry work up, and most of the tractors have experimenters devising and testing out new types and new ideas continually.

One company conducts regular schools of two or three weeks' duration both at Stockton, Cal., and Seattle, Wash. The tuition is free for users of its make and the charge for tuition to others is refunded in case of purchase of one of their machines. This is a most valuable feature of their sales policy.

UNIVERSITY POWER ON FARM.

[Written for Pacific Rural Press.]

At last mechanical power on the farm and agricultural machinery has University recognition in California. A department has been formed at the University Farm in charge of Prof. Jay Brownlee Davidson, who has been called from Iowa Agricultural College.

The University Farm, with land on which machinery can be used practically the year round, offers opportunities not possessed by many other agricultural colleges.

Investigations as to the reasons for efficiency in farm machines will be made and all kinds of tests carried out. Prof. Davidson graduated in 1904 from the University of Nebraska, where he was later instructor in farm mechanics. He has been employed by Deere & Co. and the International Harvester Company, but for the past ten years has been in charge of agricultural engineering at the Iowa State College. There is a great field for him to work in, investigating and distributing information in regard to California use of tractors, gas and other engines, and all kinds of cultivating and harvesting machinery.

ENGINE HORSEPOWER CONSTANT.

To the Editor: I have a 20 h. p. automobile engine. Please tell me how to calculate the speed at which it should be run to develop he rated horse power.—W. L., Kingsburg.

[Your engine develops the same amount of power whether running fast or slow, as may be seen in con-

WRP

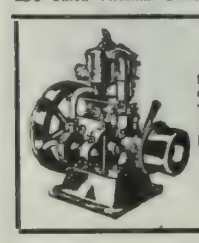
Purest and Surest

Notice to Stockholders.

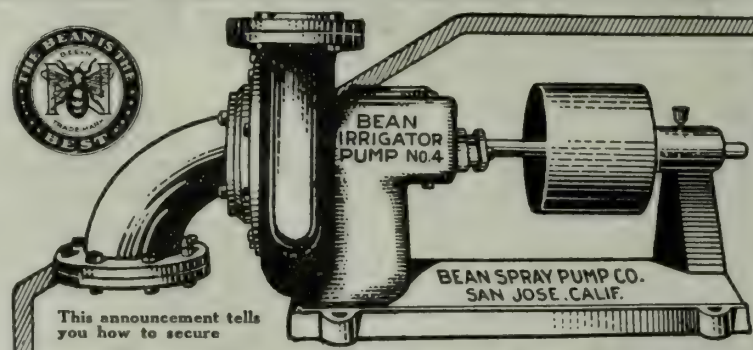
The Regular Annual Meeting of the Stockholders of the GRANGERS' BUSINESS ASSOCIATION will be held at the office of the Company, No. 240 California Street, San Francisco, California, on Tuesday, the eighth day of June, 1915, at 10 o'clock A.M., for the purpose of electing a Board of Directors to serve for the ensuing year, and for the consideration and transaction of any other business that may be brought before the meeting.

F. A. SOMERS, President.
R. H. CHILDS, Secretary.
Dated May 22, 1915.

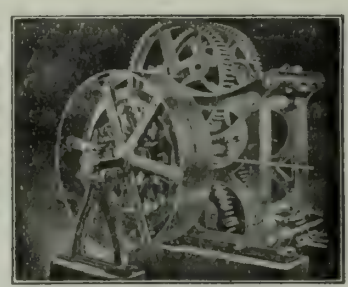
CAMPBELL
IRRIGATION
We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Tubo-Irrigator, and the new Automatic Oscillator for overhead pipes.
J. P. CAMPBELL,
230 Union Terminal Building, Jacksonville, Fla.


CUSHMAN
Gasoline Engine
for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.
Light Weight.
Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

Redwood Tanks
I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.
R. F. WILSON, Stockton, Cal.



This announcement tells you how to secure
Your Water Supply at Small Cost
At last—a high-grade, efficient, dependable centrifugal pump at a low price. The Bean Irrigator introduces a new standard of pump values. Though the price is as low as the lowest—the pump is "Bean quality" through and through. If you're interested in irrigation you should learn about
Bean Centrifugal Pumps
For Downright Good Service They are Absolutely in a Class by Themselves
The Bean Automatic Water Balance eliminates end-thrust, thus saving much trouble.
The Bean Water Sealed Stuffing Box makes excessive tightening of the stuffing box glands unnecessary. The shaft where it enters the pump is entirely surrounded by water, which forms a perfectly air-tight seal with very little friction.
Bean Runners are Enclosed, accurately machined and perfectly balanced. This means greatest possible efficiency.
SEND FOR BEAN CATALOG 28-B
It illustrates and describes the Bean line of Horizontal and Vertical Centrifugal Pumps, Bean Turbines, Direct Connected Outfits, etc. Tell us your pumping requirements. The experience of our irrigation specialists is at your command. For our general line of House, Windmill, and other Pumps, ask for Catalog 28-D. For Bean Opposed Gas Engines ask for Catalog 28-C. A postal will bring any or all of these catalogs by return mail.
BEAN SPRAY PUMP CO.
211 West Julian Street
San Jose - California

Pomona Deep Well Pumps
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.
Write for Catalogue 104,

Do not get oil into the water. Consume less power per unit volume of water pumped.
Write for Catalogue 104, with valuable information on irrigation.
Pomona Mfg. Co., Pomona, Cal.

The KROGH Vertical Pumps

New Type Vertical.
Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.
No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.
Get our Bulletin No. 78 before deciding on a pump.
KROGH MNFG. CO.
SAN FRANCISCO, LOS ANGELES.

If you want the most for your money ask for, insist on, and demand that your dealer furnish you with
TEST SPECIAL RUBBER BELT
Take no other "Just as Good"—It cannot be furnished. Every sale carries with it an unqualified guarantee.
Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives Power Tables, Belt Speeds, List Prices, etc.
New York Belting and Packing Co. of New York
Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

Saves Money in Handling Hay

The problem of quickly and economically handling loose or baled hay is easily solved by using this derrick. No modern farm should be without it. It can be moved from place to place as easily as a farm wagon. Can also be used for hoisting dirt, raising building materials or heavy loads of any description.

If You Write Us

we will explain in detail just how this derrick can save you time, labor and money.

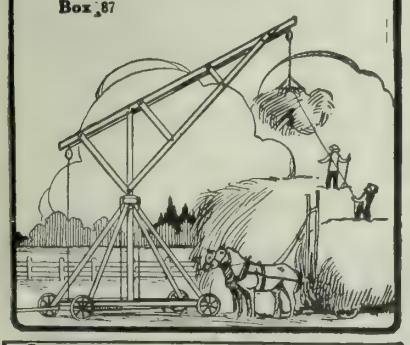
Write us NOW.

Piles up Hay and Piles up Profits.

Schmeiser Manufacturing Co.

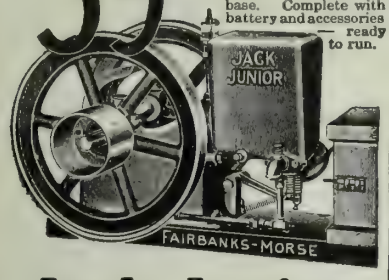
Davis, California

Box 87



$39.00 F.O.B. Beloit, Wis.

Mounted on heavy wood base. Complete with battery and accessories ready to run.



Jack Junior

Gasoline Engine

Will pump over 1800 gallons of water per hour against an 80-foot head.

Will grind 3 bushels of shelled corn or small grain per hour.

Will shell 20 to 30 bushels of dry corn per hour.

Strength, weight, durability, workmanship and fuel economy, all guaranteed by Fairbanks-Morse quality.

Fairbanks, Morse & Co.

Warehouses in 30 large cities, where delivery can be made and car-lot rate of freight only, added.

Luitwieler Pump

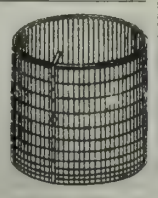
Exhibit at Both Expositions. Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.

Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.



DEWEY, STRONG & CO.
SCIENTIFIC PRESS — PATENTS — PATENT AGENCY
911 Crocker Bldg.

Circular containing 100 mechanical movements mailed free.

sidering the fact that she would pull your automobile slowly over sand or fast on smooth roads with the same engine, the difference in speed being due to the difference in power required to go over the different roads. The State formula for figuring the horse power is: add the bore to the stroke, multiply by the bore and again by the number of cylinders and again by .224.—Editors.]

LIFE OF A LARGE TRACTOR.

The average life of a tractor as estimated by owners in North Dakota for the U. S. Dept. Agr. is about six years, while the average life as estimated by owners in States other than North Dakota is about eight years.

The plowing done with tractors has been little, if any, deeper than that done with horses.

Combination work is not practiced to a great extent and usually is limited to harrows or drags after the gang plow.

The percentage of tractors which are operated at night varies from 11 to 14 per cent, although the tractor's efficiency at night is very good.

No injurious packing of the soil is caused by the tractor's wheels if the soil is in proper condition to be worked.

The tractors which have been operated by kerosene show, as a whole, slightly better average results than those operated by gasoline, indicating that the heavier fuels can be burned at least as satisfactorily as the lighter ones. The amount of kerosene used per unit of work, however, is usually slightly more than for gasoline, which would appear to indicate that the carburetion of the kerosene is generally not as perfect as that of the gasoline. This is partly due to the fact that many owners are burning kerosene in tractors equipped with ordinary gasoline carburetors.

The necessity of a tractor being equipped to operate on either heavy or light fuels is not so great as it was a few years ago. Modern processes of refining make it possible to convert approximately 75 per cent of any crude oil into gasoline or heavier fuels, as desired, and it is stated by an excellent authority that the supply of crude oil available is ample for several generations. Therefore the question of fuel supply need give the tractor owner no concern.

The data apparently show that the tractors with drawbar ratings of 15 horsepower are giving slightly better results than either the larger or smaller sizes.

Rev. G. S. Clark and sons of Downey and Edison recently purchased a new centrifugal pump to go in their well near Arvin. The pump will lift over sixty feet. It was manufactured in Los Angeles by the Layne & Bowler Corporation, who have installed a great many of these pumps in the vicinity of Bakersfield.

"When fruit is plenty East, we must select rigidly what we send," says Pres't H. A. Fairbanks of the Producers' Fruit Co. "It costs as much freight and refrigeration and more handling charges to send poor stuff and they won't pay for it, either."

Profitable Farming

G-E Electric Motors are increasing profits for hundreds of farmers by saving money in running irrigation pumps and doing "chores".

A G-E Motor is always ready to run when you throw in the switch and costs very little to operate. The absence of fire risk is a big advantage of electric power. Some of the other advantages of electric motors are:

Only one moving part and two bearings—run for years without a moment's trouble.

Can be set wherever a wire will go—on the wall, ceiling or floor. They occupy less space and have less weight than any engine of equal power.

Capable of higher and more constant speed than any engine.

Require no attendant and can be stopped and started from miles away if desired.

Are safe and sure—no water to freeze—no inflammable gases—no starting troubles—JUST THROW THE SWITCH.

Let a G-E Motor increase *your* profits.

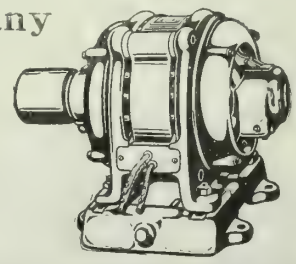
Ask your local power company or our nearest office

General Electric Company

Los Angeles Office:
124 West 4th St.

San Francisco Office:
Rialto Building

The General Electric Company will gladly answer all questions relating to the use of electric power for ranch and market garden irrigation. 5479



Why You Should Buy STILETTO

STILETTO tools are keener and better tempered, STILETTO tools work better and last longer, STILETTO garden and farm implements are longer lived, run easier and more satisfactorily, STILETTO paint goes farther and wears better and that word STILETTO spells quality and confidence, first, last and always.

If you do not know where STILETTO goods are sold write us and we will give you the name of the nearest STILETTO dealer.

Pacific Hardware & Steel Co.
701 Townsend St.
SAN FRANCISCO, CAL.

STILETTO
REG. U.S. PAT. OFF.

General Agricultural Review,

CITRUS AND SEMI-TROPICAL.

Ben Putnam of Dixon will shortly plant 100 acres to lemons, oranges, and pomelos.

The picking of Valencias is well under way in Tulare county. It is estimated that the crop will run 10,000 cars and is one of the best ever picked in Tulare county.

The San Fernando Lemon Association has been formed and will erect a lemon packing house near the Mission. The capital stock of the company is $40,000 and the directors are: M. Morgan, Lamanda Park; F. A. Fletcher, Whittier; R. H. Wilkinson, C. C. Reynolds, W. J. Latchford, Mrs. A. S. Wing, and Dana C. King of Los Angeles.

A meeting of avocado growers, numbering about 100, was held at Los Angeles last week to formulate a plan for marketing the fruit. The acreage devoted to avocadoes is increasing rapidly in California; and as the public is not acquainted with its merits this move seems to be needed at this time. To effect a permanent organization it was decided to fix the fee for charter membership at $5 and a board of directors was named as follows: C. P. Taft, Orange; W. A. Spinks, Duarte; D. W. Coolidge, Pasadena; Joseph Sexton, Santa Barbara; W. L. Rideout, Whittier; Edwin G. Hart, San Marino; Judge Charles Silent, Glendora; Prof. J. Elliott Coit, University of California; F. O. Popenoe, Altadena. V. W. Killick of Los Angeles was named secretary, and the board of directors will meet the 29th inst., at Los Angeles, to elect officers and adopt by-laws.

OLIVES AND NUTS.

W. C. Reveal of San Francisco recently purchased 800 acres near Chico for $40,000. The property will be subdivided and placed on the market in small tracts. Before the subdivision takes place, part of the land will be planted to olives and part to alfalfa.

The annual meeting of the San Joaquin County Almond Growers' Association was held at Lodi on May 14. The following officers were elected for the ensuing year: F. M. Cramlett, president; A. S. Lasell, vice-president; T. A. Botts, secretary and treasurer. A. S. Lasell will represent the local association in the California Almond Growers' Exchange. After the business meeting, Prof. Ralph Smith of the University of California addressed the gathering on "Almond Culture."

GRAPES AND SMALL FRUITS.

The California Viticultural Association will hold a mass meeting at the Phelan Bldg., San Francisco, on May 21.

Some Sonoma county wine grape growers are still waiting for the money from their last year's crop sold to the wineries.

It is estimated that the berry crop of Monterey county will amount to 1,490,000 pounds this season. The early strawberries brought $10 to $12 a chest.

Happy Valley berry growers recently shipped one thousand crates of strawberries to San Francisco, and an order for one thousand more has been received.

California was the largest strawberry producer in 1914, shipping a total of 2,312 cars, according to a survey of berry production made by the U. S. Dept. of Agri.

GRAIN AND FIELD CROPS.

Tomato shipping will commence about June 1 in the vicinity of Dinuba.

Fifteen thousand acres of beans will be planted about Modesto, according to an estimate.

The Nevada City high school agricultural club will have eight members this year, who will vie with one another in a potato contest.

Three thousand acres is being summer fallowed in Tehama county on the Tapscott ranch near Corning, where barley will be planted in the fall.

The Alfalfa Growers' Association of Hanford will ship a large amount of hay to eastern points within the next few weeks. Six hundred tons has been purchased from the Tulare Co-operative Creamery Company and a similar amount from L. Nathan.

Extensive plantings of beans are being made around Orland. This crop is a new one in that section, but the growers who are making the experiments this season feel confident they will harvest immense crops.

A huge rice project opened recently between Colusa and Princeton, embracing 3,000 acres, belonging to Blevins and Mallon. A pumping equipment consisting of four 24-inch pumps has been installed and operations have commenced.

The State Commissioner of Horticulture reports that after careful inspection, the alfalfa fields of California are still free from traces of the work of the alfalfa weevil which is infesting three states of this country and is rapidly spreading.

An interstate cereal conference will be held under the auspices of the livestock division of the Panama-Pacific Exposition beginning May 25, when all phases of the cereal industry will be discussed by various government experts and authorities on cereal research.

DECIDUOUS FRUITS.

The Red Banks orchard of Tulare county shipped what is said to be the first box of peaches from the State on May 17.

What is believed to be the largest Bartlett pear tree in the State stands

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

EUCALYPTUS SEEDS.
Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.
THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

INSURE YOUR SEED
Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with
The Improved German Soil Inoculator, Nobbe-Hiltner Process
NITRAGIN
PURE CULTURE
THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES
Gold Medal St. Louis 1904
In half-acre, 1-acre and 5-acre cans
"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility
Guaranteed for Six Months by the Armour Fertilizer Works.
Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil.
Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN"—the *Original* Pure Culture.
Inoculated ALFALFA Not Inoculated
Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.
Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.
See your seed dealer or write for FREE BOOKLET.
Armour Fertilizer Works, Dept. 137, 803 Central Bldg., Los Angeles 1019 Front Street, Sacramento

BIGGER
THAN THE WORK IT WILL BE PUT TO
AMERICAN
SURFACE IRRIGATION PIPE
PROVES
its worth by the fact that it is outlasting NOW on fields everywhere throughout the West other makes of surface irrigation pipe. Non-riveted. Our double-locked and soldered seam, which cannot leak, takes the place of rivets. You can increase your crops enormously by using a surface irrigation system. Write for catalog and irrigation circular.
American Steel Pipe & Tank Company
354-56 Pacific Electric Bldg., Los Angeles, Calif.
Branch 1228 "H" Street, Fresno.

Cunningham Pulverizer
With this implement you can put your soil in better shape for the conservation of moisture than can be done with any other.
Write for circular and prices.
LUTHER CUNNINGHAM, Morgan Hill, Santa Clara Co., Cal.

PHOSPHORUS Makes FRUIT
Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn out soils and Maintains and Increases the Fertility of good soils.
Write for Our Literature.
United States Phosphate Co.
405 Marsh-Strong Bldg., Los Angeles, Cal.
Our Mines are Located in Utah, Idaho and Wyoming.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Nothing But the Sheet of Metal Itself is Used to Make

Ames - Irvin Irrigation Pipe

Neither solder or rivets are used in its construction. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Such a seam will not break or leak. It is simple, solid and strong, with no holes in the steel.

Ames-Irvin Lock-Seamed irrigation pipe was the first prize-winner against all competitors at the Sacramento State Fair in 1913 and the Fresno and San Jose County Fairs in 1912.

SEND FOR BOOKLET.

It gives full information about irrigation pipe and its construction. Get it—today.

Ames-Irvin Company
8th and Irwin Sts., San Francisco, Cal.

Kill Morning Glory
NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer
624 CALIFORNIA ST.,
San Francisco. California.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

California Vegetables. $2 postpaid. Pacific Rural Press.

in an orchard planted in 1860, owned by A. Herzig in El Dorado county. The tree is 25 inches in diameter three feet from the ground; bears five standard limbs, the largest of which is 13 inches in diameter. Last year 25 boxes of number one pears were picked from it, netting practically $2 per box.

REPORTS OF STORM DAMAGE.

The continued rainy weather is said to have wiped out practically 75 per cent of the Sacramento Valley strawberries and the loss to cherries is estimated at $150,000. Alfalfa ranchers who had their hay cut and down suffered heavily. The uncut grain was not damaged to any great degree. Ranchers and orchardists have been warned against fungus, pear scab, and grape mildew liable to result from damp weather. The strawberry crop of the Pajaro Valley will only be about 55 or 60 per cent of normal. In Fresno county, sulphured vineyards and freshly cut hay were reported somewhat damaged. Tartarian cherries in the vicinity of Penryn have been practically destroyed by splitting. Both cherries and strawberries were damaged in the Petaluma section. Shothole fungus has developed to an alarming degree in the apricot orchards around Winters since the last rain. More damage than was first thought has been done to the cherry crop in Napa county.

MISCELLANEOUS.

Farmers of Madison, Yolo county, recently organized a Farm Bureau Unit.

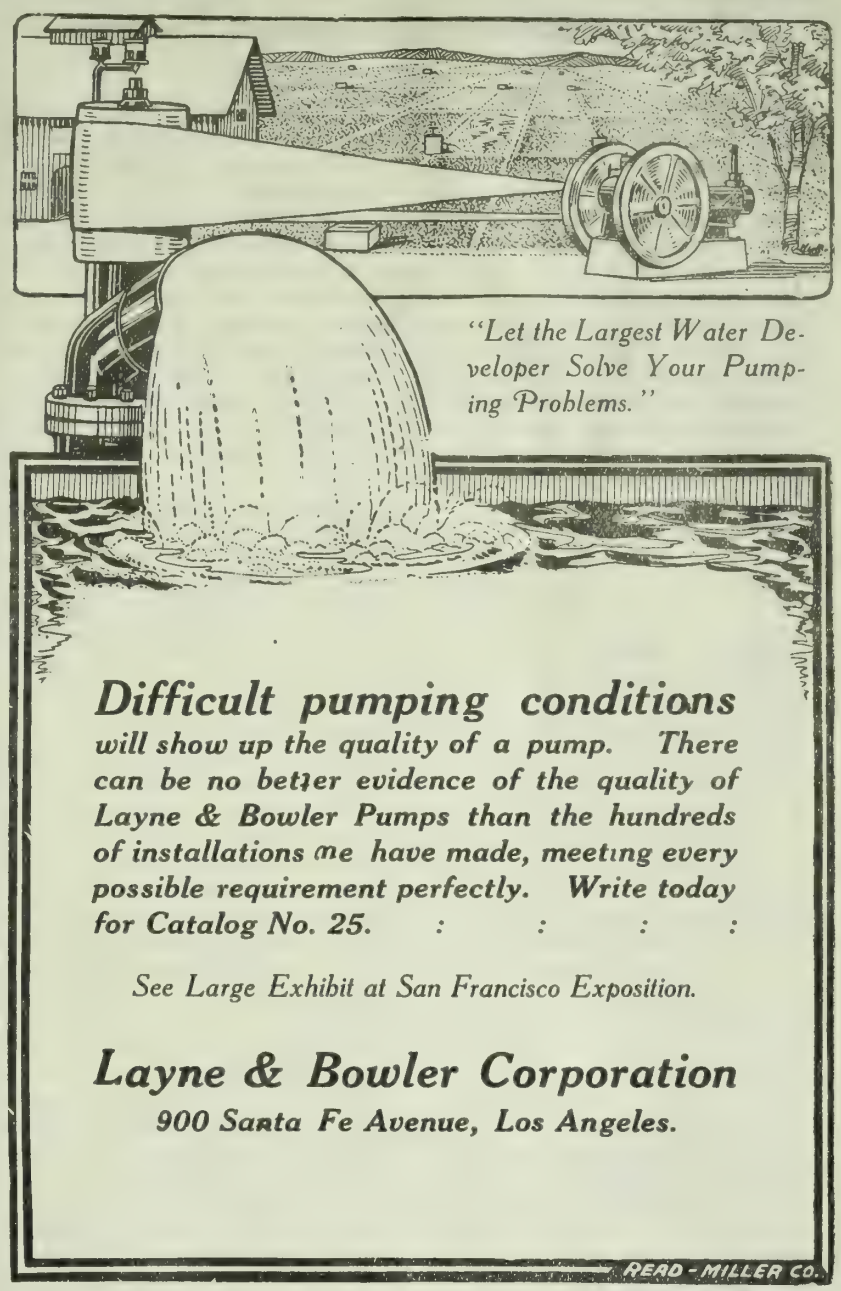
Considerable damage by squirrels to the young vines, trees, and grain in Sutter county have been reported.

Thursday, May 27, will be "Zone Day" at the World's Fair, when a carnival reviving the Portola spirit will be staged.

The Judson bill, approved by Governor Johnson, provides for the combination of Santa Barbara and Ventura counties in State Agricultural District 5. It appropriates $1500 annually for an agricultural fair to be held within the District.

A new professorship, that of Rural Institutions, has been created at the College of Agriculture of the University of California. Dr. Elwood Mead, one of the most distinguished irrigation engineers and agricultural statesmen, has been appointed. For years in both governmental and other positions he has been closely identified with the settlement of the West; and for the past seven years, he has been chairman of the State Rivers and Water Commission of Victoria, Australia, introducing the so-called settlement plan which has done much to develop that state.

The 46th California Fruit Growers' Convention will be held at Stanford University the last week in July. Among the important features of the convention will be a symposium on the outlook of the various fruits grown in the State by men who have made a success of their culture. The women's sessions will be in charge of Miss Lillian D. Clark of Berkeley. An automobile trip through Santa Clara Valley will be made on Thursday, July 29; and on Saturday, the convention will adjourn to meet in a body at the Panama-Pacific Exposition, where "Horticultural Day" will be observed.



"Let the Largest Water Developer Solve Your Pumping Problems."

Difficult pumping conditions *will show up the quality of a pump. There can be no better evidence of the quality of Layne & Bowler Pumps than the hundreds of installations we have made, meeting every possible requirement perfectly. Write today for Catalog No. 25. : : : :*

See Large Exhibit at San Francisco Exposition.

Layne & Bowler Corporation
900 Santa Fe Avenue, Los Angeles.

READ-MILLER CO.

One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,
552-556 SOUTH FIRST STREET, SAN JOSE, CAL.

PIPE

For Every Purpose NEW Threads & Couplings. Hot Asphaltum

Second Hand and NEW

Screw Casings Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. **Main and Howard Sts., San Francisco**

"Campbell" Gates **Anderson Flume Gate Company** Diamond Gates

Redlands, Cal. **Phone Black 96**

"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. **Sample Gate postpaid 10c.**

Alfalfa, 6000 Tons Through Panama.

[Written for Pacific Rural Press.]

A San Francisco steamship company started to haul alfalfa meal through the Panama Canal. About 3,000 hundred-pound sacks were sent, and the war came on. This forced most of the foreign merchant vessels which had been plying between eastern United States and South America to drop that trade and go home. This left an opening so that the San Francisco steamship company put all of its eleven steamers into the South American trade with eastern United States, where they average three times the freight rates they could get from San Francisco to New York and it is a shorter haul, too.

"We will make all we can that way while we can," said a representative of the company. "But these outrageous rates will adjust themselves when the war is over and then we may resume shipment through the canal."

More Ships After War.—This suggests that while only about 1112 tons of alfalfa hay and 4832 tons of alfalfa meal have, to the end of April, been shipped through the Canal, on account of a lack of space in the steamers and consequent high rates, we may hope that after the war is over and foreign steamers enter the trade, there will be enough competition so that the rates will be lowered and a larger amount of California alfalfa shipped to the East.

Hay has been shipped, however, and would be even at this season if there were an abundance of the first-class hay, which is the only kind that will pay the freight and a profit. But naturally the best is all sold and the first cutting of the new crop is of poor quality.

Compressed Hay Not Liked.—The discouraging factor in shipping alfalfa hay is that it must be double compressed, which means that the rate of 50 cents per cwt. in lots of 20,000 pounds or more, is made on the presumption that the hay will be compressed to require only 80 cubic feet per ton. This would be less than one-third of its size in ordinary bales, but one of the principal steamship companies advises us that while the rate is quoted at 80 cubic feet, the dealers never get it compressed that much, but on an average about 160 to 200 cubic feet per ton. It can easily be seen that steamship companies are not going after such bulky freight when they can have all they can haul of more valuable commodities such as canned fruits, which require only 50 cubic feet per ton.

Another discouraging feature in regard to hay is that so far the eastern buyers have objected strenuously to the compressing. Leading hay dealers in San Francisco assert that the hay is not injured by compressing, and there is no spoilage, but that Easterners do not like the smaller packages. Until this prejudice can be overcome, the market for compressed hay in eastern United States is likely to be limited.

Another steamship company points out the immense field to be supplied in the Gulf States with California alfalfa hay for the dairy cows, which are increasing fast in that section; but it will require that our western dealers submit samples and work up the trade. Such work will doubtless be carried on as soon as the second crop of alfalfa is ready for shipment.

A considerable quantity of compressed alfalfa hay has been shipped to the Philippine Islands for the Government, and also to Australia, where a severe drouth the present season has put the stockmen in hard straits for feed. The freight rate to Australia is about double that to Philadelphia, so only urgent necessity would make such shipments profitable.

Alfalfa Meal Liked Better.—But alfalfa meal shows up much better. There is no objection at the buyers' end to the hundred-pound bags in which it is packed and the steamship companies do not object so strenuously to its bulkiness, for it takes uniformly about 120 cubic feet per ton. The rates by way of the Panama Canal are 40 cents per cwt. in lots over 20,000 pounds and 90 cents per cwt. in smaller amounts. None has been shipped from Los Angeles because alfalfa is always higher priced there, according to a large San Francisco hay dealer.

Before Panama was opened to canal shipments in June, 1914, two alfalfa meal shipments of 25 tons and one of 40 tons were sent from San Francisco to New York, according to figures obtained from the San Francisco Chamber of Commerce. During June, 1914, 50 tons were shipped by way of Panama to New York; in July, 70 tons were shipped; in August, the quantity rose to 405 tons; in September, 684 tons were shipped to New York, Philadelphia, and Boston; in October, 271 tons; in November, 1673.5 tons, largely to Boston; in December, 913.5 tons to Boston, Philadelphia, New York, and Charleston, S. C.; in January, 1915, 359 tons were shipped from San Francisco through the Panama Canal; in February, 240 tons; in March, 166 tons, and in April, 52 tons.

The first hay shipment went through the Canal October 24, the total for that month being 28 tons, all to New York; in November, 601 tons of hay were shipped to New York, Boston and Philadelphia, and Charleston; in December, 431 tons were shipped, mostly to Boston, on account of shipments from the Middle West; and in January, 52 tons is the last recorded.

Rail Competition Close.—Rail rates to the sea ports must be added to the ocean rate and this may make the difference in favor of shipping alfalfa by rail to Galveston and thence to New York by water. The rate on alfalfa meal by that route is 60 cents per hundred pounds from California sea ports and from the big central valley. Hay in tightly compressed bales goes at $1.00 per ton. The rate by rail to Chicago is also 60 cents, and if the hay were shipped by rail thence to New York it would probably add 15 or 20 cents to make the total 75 or 80 cents per hundred pounds by rail to New York.

Alfalfa meal sells $22 to $22.50 per ton delivered in New York, according to G. Turner of Modesto, who has made considerable shipments. Freight from Modesto is about $10 per ton, it costs about $5 to grind it, and the remaining $7 to $7.50 per ton must be divided between the farmer, and the dealer, who must make a profit for his risk and investment.

While shipments of California alfalfa to the East are likely to increase considerably, they will scarcely affect California prices to any great extent except to prevent undue slumps; and California farmers must depend more and more on feeding it to stock, especially dairy cows, which are increasing rapidly on account of the plentiful alfalfa.

FOR SALE.
Poland-China and Duroc-Jersey Hogs. The half-ton or medium type. Get our prices on high-class show prospects for the Exposition.
W. H. BURKS, BOLIVER, MO.

SORE SHOULDER INSURANCE

If you could get insurance against your horses becoming sore-shouldered when most needed, you would take it at any reasonable price.
Why not take it FREE by using

W. DAVIS & SONS'
Horse Collars

"Felt-Face" .....each $5.00
"Cushion" Collar, each... 3.00
This "Cushion" Collar is a combination of leather and canvas, guaranteed to cure sore shoulders and "stand the racket."
The "Felt-face" collar is all-leather, first-quality of oak-tannage, hard-thonged throughout. It has a facing of felt under the leather face, producing a soft yet firm surface against which the animal pulls.
It is natural for any manufacturer to say that his collars are "the best," but it is only about "FELTFACE" collars that letters like this are written:

W. DAVIS & SONS, San Francisco.
Gentlemen:—I sold the Red Banks Orchard Co. two Feltface collars about a month ago for two sore-neck mules, which are all healed up now. They came in today and ordered one dozen. Please send me soon as possible 1½ dozen, from 17 to 22-inch.
W. F. INGWERSON,
(Harness-maker) Visalia, Cal.

A selling agent (dealer) in nearly every town. If none in your town, write us.
W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

GRANDSONS OF TILLY ALCARTRA
At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade of pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

Hillcrest Stock Farm
THORNTON S. GLIDE, Prop., Davis, Cal.
Breeder of
Short Horn Cattle
Shropshire and Merino Sheep

ATTENTION, SHEEPMEN
My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.
Shropshires sired by rams imported by me from England in 1911.

Short Horn Bulls
7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately,
H. L. MURPHY, PERKINS, CALIF.

What Eastern Breeders Think of Us.

[Written for Pacific Rural Press.]

"From what I have seen of your State I can truthfully say that it is a wonder, but why on earth don't you folks wake up to the livestock possibilities here and get into the game right?"

Not once but several times since the opening of the exposition have we been asked this, and similar questions by prominent livestock men of the East. To a man, they agree with us that we have the natural conditions to make this the banner livestock State of the union, but let us quote from what they have said.

"Why", said one, "I don't suppose you will believe it, but previous to this trip I had always supposed that the greatness of California's future was entirely dependent upon her fruit industry, and it was a revelation to me to find instead, the nucleus of what can easily be made the greatest livestock section in the world.

"Now remember, my interests are in the east and there will remain, but let me tell you one thing, great as your State may be, broad minded as your people are, you are playing this livestock game in an amateur manner. You are not thinking of it in big enough terms. You are living off here by yourselves, wanting to do big things and really doing a lot of big things along other lines, but you are thinking of livestock in primitive figures.

"Don't quote me as a knocker. I know you have big men here and they are anxious to get into this game right. Show them the way to get in. That's what they want, that's all we have done in the east. In Wisconsin I have a herd of Holstein cattle which represents all I have accumulated of this world's goods. I paid over $20,000 for one my bulls. Why, because I know he is worth it from a breeder's standpoint and that he will repay me many times that amount in calves. Our people want the off-spring from that kind of bulls and are tickled to death to pay good prices for them. Here I am told that when a breeder gets $1000 for a bull his owner thinks he has sold for a long price and the public is apt to think he sold for too much. There is no such thing as paying too much for good cows or bulls. Get them, take care of them, and they will bring you out in the end, no matter if you think that you have been stung. The good cow never stings anybody but the fellow who goes without her."

Thought We Didn't Have Livestock.—That seems like a strong statement, but let us quote what another prominent breeder has to say." I have heard of California wonders since I was knee high to a grasshopper. I have oftentimes thought that I should enjoy a visit here amid your wonderful orange orchards, but really I never thought of you having livestock possibilities of such magnitude.

"Of course I have heard in roundabout ways that you had some livestock here, in fact I have sold at different times a few head to California breeders, but tell me one thing, why do your promotion organizations so persistently feature everything but livestock? Due to sickness in my family, I have sometimes thought of coming to California; but not knowing the fruit business and not wanting to spend my time in idleness, I have studiously avoided the leap because I thought there was no opportunity in the only business I know, that of growing livestock.

"You ask me to be more definite? Well, the most definite think I know of are those thousands of acres of alfalfa I could see from the car windows and the other thousands which I am told are only waiting development. Do you know that in the east we are breaking our necks to learn ways of growing that feed, and that our stock men are willingly paying twice the price that you people think is high?

"Perhaps the best indication that your people are not appreciating what old Mother Nature has so kindly placed here for you, is the low esteem you pay to the highly bred animal. You are thinking in cents when you should be thinking in dollars. What if the right sire does cost twice or three times what you are now paying? He's worth it if you will give him a chance to make good. Even your breeders are slow to recognize this. Only last week I visited a herd of wonderful cows in this State. Their owner was ambitious, but was running the farm under the most adverse conditions I ever saw. Several cows were being officially tested and the mud in the corral was up to their belly. That's not business. Give the cow a chance is my motto. And do you know, that herd was headed by a bull that was of inferior breeding to the cows themselves? Why? Because a good one would cost too much. That's no way to advance; as I pointed out to this breeder. It would be far better for him to sell some of his cows and put the money into the right sire. In that way he will get somewhere, for he really has some remarkable cows. If your breeders themselves can't see this, you must preach it at them in such strong terms that their pride will demand better bulls if nothing else. The agricultural papers are essentially the leaders in new thought. Don't get discouraged. Keep on preaching better sires, no matter how discouraging your task may seem at times. In the East we now look up to your class of men for leading us continually to the better things in livestock breeding."

Space forbids quoting at length the many statements made by others equally of importance to us, but the remark of one who has large inteests in the East and who has been an extensive traveler in various parts of the world should not be omitted.

Says We Are Asleep.—"Perhaps you want me to say something nice about your State. I believe that is the usual thing, but it strikes me that what you people here need above all else is criticism. To put it mildly, you are not yet awake to your livestock possibilities. In other words you are sleeping at the switch.

"In all my travels I have never seen a people who were generally so satisfied without high-grade livestock when the natural conditions were so favorable for that class of farming. Where are your big men exerting their efforts toward a bigger and better agriculture? Surely, not in the direction of livestock; for while I don't pretend to know your State, I have found out already that you don't think along livestock lines as we in the East do. Don't you know that far-sighted men in all parts of the country are pinning their faith and money on the purebred animal? What kind of farming is more fascinating or profitable than livestock raising; and above all, what kind of farming goes further toward conserving fertility? Urge your people to look far enough into the future to see what will be best for the State in the long run.

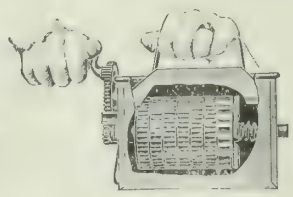
"I know you have some high-class stock here, but not nearly enough. You may think I am talking with a selfish motive in view; but it is a fact, nevertheless, that when the eastern stockman comes to your doors this year with high-class livestock, your people should take advantage of the opportunity and buy everything in sight. I don't mean for you to get reckless and go to plunging. You may think we of the East have done that, but it's not true. For every dollar we have put into high-priced livestock we have drawn down several. What has been done there can be done here with less effort and expense on the part of breeders, due to your climate and soil which certainly is a marvel to me from a stockman's standpoint."

Are these men right in their conclusions? We believe they are and can only add that we Californians should keep our ear close to the ground and not only absorb but act on the advice of our eastern cousins who have been successful in advancing so important an industry as that of livestock raising.

Louis Romi of Modesto has leased the alfalfa ranch belonging to Wesley Richards at Oakdale and will establish a 200-cow dairy there.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States.
Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

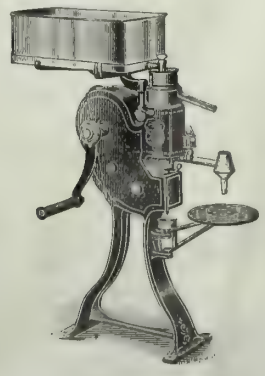
Furnished FREE **A Washer and Sterilizer**
With Every New
UNITED STATES
CREAM SEPARATOR



The U. S. Mechanical Washer is a marvelous **cleaner.** It is a marvelous **sterilizer.** In a year this Washer actually **saves days of time** over the other ways of washing skimming devices.

The U. S. has the only cream separator bowl that can be successfully **washed,** rinsed and sterilized **mechanically,** for the following reasons:

It has the only bowl through which the water can be driven with such tremendous force that its cleaning power is **superior to hand washing,** and lots quicker and **easier.**



The U. S. Separator has the only skimmer built of **solid Nickel Silver sections.** They always remain smooth and non-adhesive.

You could not wash a silver platter any cleaner in the dish pan that you can the Nickel Silver Skimming sections in the **patented Mechanical Washer.**

Mr. Elmer Nixon, Victory, Wis., says, "The new washing device is a dandy. Mrs. Nixon declares that washing the separator is now a pleasure and that with the new Washer the U. S. can be **washed in one-third the time** required to wash any other separator."

Why not buy the **most improved** separator — the U. S.? You will use it twice a day for the next ten years.

Old separators taken in trade.

A demonstration of the new U. S. gladly given at your home, without obligation.

Vermont Farm Machine Co.
Chicago, Salt Lake City — Bellows Falls, Vt. — Portland, Ore., Oakland, Cal.

ALTAVISTA HERD
REGISTERED GUERNSEYS.
Young bulls at very attractive prices.
Also females at all ages.
For particulars and prices address owner,
MRS. CHAS. G. LATHROP,
Stanford University, California.

California Livestock Breeders.

For the last year and a half the Animal Husbandry Division of the College of Agriculture, University Farm, Davis, California, has been attempting to compile a complete list of all the breeders of pure-bred livestock in the State. The following list, although not complete, is as nearly so as it has been possible to get to date.

If every one reading this list will co-operate by making suggestions for additions or corrections, it will be appreciated very much, as it is the wish to have the list as nearly complete as possible. If you are a breeder and your name does not appear below, it will be added by writing to Prof. Gordon H. True, University Farm, Davis, Calif., or Pacific Rural Press, 525 Market St., San Francisco, Calif.

BEEF CATTLE BREEDERS.

Shorthorn.—H. M. Barngrover, C. E. Barnhart, Fred H. Bixby, William Bond, Crowe Cattle Co., Mrs. M. E. Curtiss, Chas. N. Free, Jos. H. Fulstone, T. B. Gibson Estate, T. S. Glide, I. T. Grounds, F. L. Hall, Hopland Stock Farm, Howard Cattle Co., Mrs. Octavia Julien, Jack London, John P. Lynch, Miller & Lux, H. L. Murphy, Newhall Land and Farming Co. A. S. Nichols Co., Oaks Ranch, Paicines Ranch Co., Pacheco Cattle Co., F. Roberts & Son, M. F. Rose, University of California, Jas. A. Walker, Geo. Wingfield.

Hereford—W. J. Bemmerly, Fred H. Bixby, Cornwell Bros., Crowe Cattle Co., Mrs. M. E. Curtiss, Diamond G. Ranch, W. D. Duke, Newhall Land and Farming Co., A. S. Nichols Co., Chas. Rule, Sierra Vista Vineyard Co. Simon Newman Co., University of California, Geo. Watterson, Warner Valley Stock Co., Jas. Whitaker, Whitehall Estates.

Aberdeen Angus.—A. W. Longley, McNair Bros., University of California, Chas. Whitcomb.

HORSE BREEDERS.

Percheron.—Victor Anderson, M. Bassett, Fred H. Bixby, Wm. Bond, O. H. Brandt, Judge E. A. Bridgeford, California Polytechnic School, A. Carlson, W. L. Crawford, Mrs. M. E. Curtiss, A. W. Davis, Ed Dunn, A. Eddlemon, Elliott Brant Rancho, August Freese, F. L. Hall, J. L. & C. F. Harvey, Oliver P. Jenkins, J. C. Johnson, Kern County High School, H. C. King, J. B. King, H. G. Learned, Chas. Llewellyn, E. R. Maier, T. D. McLaughlin, Wm. McLaughlin, J. L. McCracken, L. J. Megerle, Olsen & Nelson, Ed Overhalser, Paicines Ranch Co., C. A. Penniger, Mrs. Francis A. Read, Geo. J. Read, J. L. Ruff, Ruby & Bowers, J. Trewhitt, University of California, Frank S. West & Son, White, Terry & Moddison, Whitehall Estates.

Shires—J. B. Agnew, Fred H. Bixby, Blackhawk Stock Ranch, Judge E. A. Bridgeford, R. M. Cartwright, Dr. R. J. Gregg, H. C. Hinkley Howard Cattle Co., N. H. Locke Co., Jack London, John McCormack, J. W. McCord, S. E. Railsback, V. W. Westgate, Henry Wheatley, George Wingfield.

Clydesdale.—O. H. Brandt, California Polytechnic School, Ed Dunn, Rancho Santa Ana.

Belgians.—T. G. Atkinson, J. S. Gibson Co., A. L. Watson, Frank S. West & Son.

Thoroughbred.—J. S. Gibson Co., Phil Klipstein.

DAIRY CATTLE BREEDERS.

Holstein.—K. W. Abbott, Alameda County Farm, B. F. Anderson, C. L. Bartlett, Montgomery Baggs, G. W. Basher, J. W. Benoit, Smith Benton, Jas. S. Bird Co., Jotham Bixby, H. D. Bollin, California Polytechnic School, Calla Grove Farm, G. U Clark, Ernest A. Clausen, H. B. Coecken, H. E. Cornwall, H. B. Cowan, Crescent Creamery Co., Mrs. W. C. Curtiss, Edgar J. De Pue, Louis Domecq, H. Doyle, Ennis & Williams, Elbert L. Evans, J. G. Fakes, Dr. C. M. Farish, Mrs. Laura J. Frakes & Bros., J. K. Fraser, J. S. Gibson Co., W. M. Gibson, W. H. Ginn & Son, T. J. Gist & Sons, J. H. Guill Jr., R. F. Guerin, J. A. Hall, J. H. Harlan Co., H. F. Harrold, Frank Hatch, Henderson Co., J. H. Hersh, S. K. Herzog & Co., G. S. Hewitt, C. C. Hill, Miss M. M. Holdridge, Hopland Stock Farm, D. W. Horsburgh, Jersey Farm Dairy Co., A. B. Kendall, Robt. H. Krusi, P. M. Lansdale, W. M. Leland, Leland Stanford Jr. University, Linwood Farm, Otis Lockhart, M. A. Maclean, Alex Martin, McAllister & Son, McCloud Lumbeh Co., E. O. McClure, Jas. McGillivery, Merci Ranch, W. L. Merrill, M. H. Mewborn, J. S. Mihib, Millbrae Dairy, Miller & Lux, Minor & Thornton, W. F. Mitchell, H. P. Mohr, L. G. Montgomery, Moorland Farm, A. W. Morris & Sons, Hugh Morrison, C. L. Morse, Napa State Hospital, C. J. Outland, Pac. Portland Cement Co., Allison Peck, J. A. Pelanda, Frank Pellissier, W. W. Phillips, Pure Gold Stock Farm, Ben A. Rhoades, G. C. Roeding, F. D. Ross, D. & H. Rowles, A. Sayre, Bertram D. Scott, H. I. Shaw, Mrs. M. E. Sherman Estate, E. E. Sherwood, B. J. Smith, Geo. A. Smith, J. R. Smith, Ralph Smith, So. Cal. State Hospital, J. M. Spencer, Silas Spryres, A. J. Stalder, F. & H. Stenzel, Dr. Ben Stetson, Sunnybrook Ranch, Allen Thompson, W. E. Tong, Robert Tyrrel, University of California, L. B. Van Blaricon, H. E. Vogel, Ed. M. Walker, Watson Bros., Mrs. Chas. J.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

WANTED—12 to 60 Holstein cows, registered or well-bred grades, in exchange for high-class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. E. H. Whitten, R. D. 5, Box 646, Los Angeles.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa For prices and particulars, address J. B. Agee, Napa, Cal.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule. Breeder and Importer. Duncan Mills, Sonoma Co., Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

THREE FINE REGISTERED HEIFERS and a few bulls near service age for sale. K. W. Abbott, Milpitas, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Young males for sale. O J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED GUERNSEY BULLS for sale. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAllister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

TWENTY GRADE PERCHERON MARES with colts. Weight 1500 lbs. Imported Percheron Stallion, 8 years old. Also other horse stock for sale. S. L. Skaggs, Madera, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Registered Short Horn Bulls L. A. Macomber, Tipton, Cal.

SWINE.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D. McCarty, 201 Sansome St., San Francisco.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sacramento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

CHESTER WHITE PIGS—We offer for immediate delivery choice, well-bred registered Chester White (O. I C.) pigs of either sex We will sell in trios (boar and two sows) not akin, or in any number and registered at from $15.00 to $25.00 each at 8 weeks of age Get busy with the Chester Whites and you will never regret it. F. T. Knewing, 261 Mills Bldg., San Francisco.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

GOLD MEDAL HERD DUROCS—Weaned pigs, either sex, from prize-winning sows and boars State Fair, 1914. I have Grand Champion sow, Champion sow bred by Exhibitor, second prize boar. Pigs of these sows, mother and sisters. Priced right. Elmer Lamb, Ceres, Cal.

STEY-BRAE BERKSHIRE HOGS, headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Address E. B. McFarland, 410 Claus Spreckels Bldg. San Francisco.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc. 919 Hearst Building, San Francisco.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Hobson Co., 819 J St., Sacramento.

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

TAMWORTH BOARS—Nine months old, averaging 250 lbs., $25 each. Bred gilts, $25. Weanling boars, $10. L. J. Archer, R. F. D., Antioch, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale From $15 up. Chas. E. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son Morgan Hill, Cal.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913 Write for pedigrees and price. J. L. Gish, Lawe, Inyo county, Cal

BERKSHIRES—Young boar and sow pigs June to August farrow. Brae Bourne Ranch, R. 3, Box 172 Santa Rosa, Cal.

TWO POLAND-CHINA Tried Brood Sows. Registered $30 each and pigs at $15. F. O. B. N. M. Lester, Gridley, Cal.

BERKSHIRES—Utility and choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

REGISTERED BERKSHIRES for sale. All ages Boars ready for service. Stanislaus Ranch Co., Crows Landing, Cal.

QUALITY BERKSHIRES—Boars, Brood sows. Weanlings $10 F H Wilson Mgr., Allison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows Six months gilts and boars. S. S. Southworth, Napa, Cal

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford

REGISTERED BERKSHIRES—Young stock for sale John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS Prize-winners. Money-makers W Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm W. H. Browning, Woodland, Cal.

POLAND-CHINAS—Prize-winners Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Pedera Ranch, El Cajon, Cal., M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED POLAND-CHINAS—Young stock for sale Hewitt & Hewitt, Hardwick, Cal.

READAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. Conway, Lakeport, Cal.

POLAND CHINA HOGS—Registered. E. J. Miller Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boodier & Son. Napa, Cal.

REGISTERED DUROC-JERSEYS — T. H. Beckman. Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electric car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. E. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. A. T Sayre, Madera, Cal.

FOR SALE 1 to 100 mules from 1 to 7 years old Will trade for cows or heifers. Holsteins preferred C. A. Kelley, R. 3, Box 93, Lodi, Cal.

FOR SALE—Milch Goats—Grade Toggenburg doe kids. Geo. Langlois, Auburn, Cal.

Stock Ranches!

3200 A. open grassy Range. 600 A. level meadows. Water. Good Bldgs. 35 mi. Stockton. Carries 500 cattle. $13.50 per acre.

5000 A. Sonoma Co. Fine range. Water. Bldgs. 200 A. hay land. $10.00 per acre.

Will trade for ALFALFA RANCH.

1280 A. Nearly level. Oak dotted. Deep clover. 15 springs. Bldgs and fence. Close in. $11.00 per acre.

W. W. WILLIAMS, 110 Sutter St., San Francisco

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

Welch, H. L. Weston, C. N. Whitmore Co., Whittier State School, Alex Whaley, John White, A. Emory Wishon, Wood Lumber Co., Fred Yerdi.

Jerseys.—H. Allbee, O. J. Ames, H. M. Barngrover, C. C. Bean, George Belloni, J. M. Bomberfer, Breese & Frasier, A. H. Brinton, J. L. Bruml, C. J. Buchanan, California Polytechnic School, D. F. Conant, J. W. Coppini, J. S. Cox, J. M. Crabb, C. C. Dickson, R. E. Dickson, L. J. Dobler, M. E. Duarte, Eaton & Hughes, Elledge & Andrus, A. Elliott, Wilson E. Elliott, J. G. Fakes, Chas. Fay, Dr. Rae Felt, Porter N. Ferguson, Jas. A. Goodall, A. S. Goode, J. C. Green, Dr. H. C. Gross, W. J. Hackett, John Hansen, C. D. Hayworth, S. T. Harcksen, Jas. Herod, Gerald O. Hillier, B. B. Hinshaw, J. M. Huston, J. H. Hauschildt, A. A. Jenkins, Jerseys Queen Farm, I. B. Jessup, J. C. Johnson, Geo. F. Kendall, Kern County High School, H. H. Knowles, U. S. Kuffle, Chas L. Leonard, J. N. Lester, N. H. Locke, Co., Jack London, C. A. McGan, Frank B. Marks, W. H. McKittrick, Merkeley Ranch, Guy W. Miller, Moorland Farm, Jas. Miller, C. G. McFarland, Chas. N. Odell, H. R. Peacock, Edgar L. Peterson, T. B. Purvine, Rancho Dos Rios, G. P. Reeves, N. Reynolds, Royal Jersey Herd, Roy Dairy, Shepherd Dairy, C. C. Skewes, W. M. Snidigar, J. F. Snover, H. P. Smith & Sons, C. R. Sortor, J. G. Stahl, Stanley A. Stetson, Chas. N. Taylor, J. E. & J. B. Thorp, E. L. Turner, University of California, F. H. Vander Pool, D. T. Wieland, J. H. Wilkins, S. F. Williams, O. T. Willsie, Fred B. Wulff.

Guernsey.—L. H. Albertson, Joel Anderson, T. J. Baltimore, S. A. W. Carver, Fred Cummings, Walter Dupee, Elliott Brant Rancho, J. G. Fakes, E. R. Frey, Heil & Piatt, Dr. J. W. Henderson, W. J. Higdon, A. B. Humphrey, Ed E. Johnson, W. O. Johnson, Chas. G. Lathrop Estate, Lawrence & Cox, W. M. Leland, J. H. Mackenzie, C. W. Main, Wm. H. Saylor, T. J. Scott, Shore Acres Dairy & Land Co., Geo. W. Thomas, University of California, R. J. Van Tiger, Geo. W. Wilder, D. V. Wilson.

Ayrshires.—Rob S. Brown, Judge R. B. Canfield, F. H. Howell, H. C. Melone Co., E. B. McFarland, Nelson Ranch, Oak Knoll Stock Farm, Santa Maria Ranch Co., University of California.

Dutch Belted.—A. M. Draper, A. M. Mitchell, H. P. Mohr, Dr. P. H. Shirley, Mrs. Jennie Strader, U. G. Strader.

Brown Swiss.—S. Euer, M. J. Pedrotti, Anton Storneths, Westcott Bros.

Devon.—Murdock Land Co.

GOAT BREEDERS.

Milch Goats.—L. A. Bridlinger, L. C. Buhl, Mrs. Agnes Dickman, Ernest Enderlin, Rev. H. P. Espey, J. T. Gordon Jr., Dr. R. J. Gregg, Mrs. Mary S. Grimer, Jas. H. Hester, Winthrop Howland, Geo. Langlois, Mrs. M. B. Lindley, Dr. Geo. Martyn, T. J. Maynard, A. Pellissier, Burton C. Platt, E. W. Pritchett, Irmagarde Richards, Dr. S. L. Roberts, Mrs. A. J. Rutherford, Philip Sanger, J. Courtland Scott, H. W. Shepherd, Mrs. M. L. Shriver, Beatrice Stocher, Dr. W. M. Swett, Stewart & Sons, Will Te Walt, Bertha Thompson, University of California, Miss A. L. Wheeler, Gordon F. White, Miss Jane White, Miss H. A. Wood.

Angora.—C. P. Bailey & Sons, Conklin Bros., Geo. W. Jordan, Melbourne Lawry, John Mahnke, N. C. Mathers, Porter H. Pleasants, S. D. Pruden, J. T. Spaulding, D. W. Thorne, W. W. Wright.

SHEEP BREEDERS.

Shropshire.—C. E. Barnhart, Bishop Bros., G. H. Caldwell, H. P. Eakle Jr., Elliott Brant Rancho, J. H. Glide, T. S. Glide, B. B. Hinshaw, Howard Cattle Co., Kaupke Bros., Frank Meacham, G. P. Reeves, G. K. Swingle, University of California, G. W. Watson, Yolo Orchard Co.

Merino.—Bullard Bros., T. S. Glide, Geo. Hood, J. N. Howell Co., Frank Meacham.

Rambouillet.— Bullard Bros., and Frank Meacham.

Persian.—C. P. Bailey & Sons, W. W. Wright.

Dorset.—T. S. Glide.

Cotswold.—University of California.

Southdown.—University of Calinia.

SWINE BREEDERS.

Berkshire.—Ana-Mac Ranch, H. M. Barngrover, F. M. Barrows, F. O. Bohnett, Brae Bourne Ranch, A. H. Brinton,California Poly. School, Calla Grove Farm, Ernest A. Clausen, Mrs. M. E. Curtiss, S. S. Day, Elliott Brant Rancho, Four Oaks Stock Farm, Norman Gage, J. S. Gibson Co., J. L. Gish, Harold Gist, J. L. Goatley, Jas. A. Goodall, Chas, Goodman, Jay W. Griffin, I. T. Grounds, F. L. Hall, Homer Hewins Jr., H. C. Hinckley, Hopland Stock Farm, Howard Cattle Co.,A. B. Humphrey, Robt. R. Hinshaw, H. C. Melone Co., R. J. Merrill & Son, G. A. Murphy, H. L. Murphy, Napa State Hospital, Oak Grove Dairy Farm, Geo. McC. Oswill, Pacific Portland Cement Co., Pure Gold Stock Farm, G. P. Reeves, Riccomi Bros., Wm. H. Saylor, Geo. R. Shuey, D. B. Stadtmuller, Frank B. Stetson, Twede Ranch & Land Co., C. H. Thompson, University of California, Frank Vancial, E. Walling, David B. Walls, R. L. Washburn, F. White , Whitehall Estates, W. R. Whittier, Wilson Ranch, S. B. Wright.

Duroc Jersey.—M. C. Allen, Paul W. Avery, Barker & Stone, C. E. Barnhart, F. M. Barrows, H. E. Boudier, D. S. Brothers, E. Curtis, John P. Daggs, H. P. Eakle Jr., Paul C. Erb, J. K. Fraser, L. J. Gamble, H. F. Harrold, Huston Farms Co., I. H. Jacobs Estate Co., Ed E. Johnson, R. D. & J. M. Jones, John Kincaid, Elmer Lamb, C. F. Lamberson, Guthrie Large, Lindquist Bros., Jack London, B. D. Mason, J. W. McCord, S. L. McCrory, D. N. Morgan, Miller & Lux, J. W. Mowrer, Newhall Land and Farming Co., Peters & Lamson, Roeber Co., Maurice Rucker J. L. Ruff, H. P. Slocum & Sons, H. H. Smith, Sonoma State Home, S. S. Southworth, C. R. Sortor, Dr. Ben Stetson, Tagus Farm & Dairy Co., Allen Thompson, J. E. & J. B. Thorp, University of California, H. Webb, Whitehall Estates, G. D. Willoby & Son, A. Emory Wishon.

Poland China.—C. J. Anlodf, N. M. Baker M. Bassett Geo. V. Beckman, Wm. Bernstein, Browning Stock Farm, J. A. Boekenoogen, Cal. Poly. School, C. C. Casey, C. A. Covell, Mrs. M. E. Curtiss, A. W. Davis, A. Dobrowsky, Fred Fickett,. Four Oaks Stock Farm, Chas. Fowler, H. H. Fowler, T. B. Gibson Estate, T. J. Gilkerson, H. F. Harrold, J. H. Hauschildt, A. M. Henry, Frank D. Hudson, I, H. Jacobs Estate Co., Thos. Jacobs & Son, N. Jauck, R. D. & J. M. Jones, Miller & Lux, Frank Miller, Chas. N. Odell, C. P. Penn, F. D. Ross, N. E. Sanders, Geo. A. Smith, A. W. Thresher, University of California, Frank Vancial, Louis K. Webb, W. R. Whittier, S. F. Williams, W. A. Young.

Chester White.—W. A. Biddleman, B. C. Burger, Bruce Cornwall, C. B. Cunningham, M. T. Donahue, J. E. Eichelberger, Geo. M. Frazer, G. P. Hatcher & Sons, Frederick T. Knewing, Jack London, H. C. Melone Co., Frank Miller, H. D. Phillips, N. Reynolds, University of California, W. R. Whitier, Geo. Wilson.

Tamworth.—Acacia Ranch, H. E. Betts, F. F. Carlson,. Cottle & Hobson Co., Elliott Brant Rancho, W. J. Robertson, Dr. J. C. Schneider, University of California, Veterans' Home.

Hampshire.—Eaton & Hughes, Dr. J. W. Henderson, Kaupke Bros., University of California.

Yorkshire.—Otis Lockhart, Frank Miller, University of California.

Mulefoot.— River Garden Farms Co.

VISIT

The World's Greatest Exposition

The Panama Pacific International Exposition

and the Greatest Exhibit of the Exposition

The Carnation Stock Farm

where there are on display and for sale a great herd of

Registered Holstein

Cows, Heifers and Bulls

Including

Dutchland Governor

Sir Colantha 9.0477, son of Colantha Johanna Lad and 20 of his daughters.

All splendid individuals, mostly out of A. R. O. dams

Prices Reasonable

For further Information address

The Carnation Stock Farms Dairy Stables

EXPOSITION GROUNDS

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

[In sending in questions to this department be sure to give all symptoms and findings. Do not overlook the little things, as it is often these which determine the diagnosis and treatment. Such symptoms as temperature, appetite, character of body discharges, respiration, and general appearance and behavior are of vital importance. In describing post-mortem findings, minutely describe all organs and tissues which do not look normal to you. Descriptions should include color, consistency and size. —Editors.]

HEIFER'S HEAD, NECK AND SHOULDER SWOLLEN.

To the Editor: I have a cow that will not eat. Her head, neck and shoulders are swollen. She is a heifer with first calf. What is the trouble and what can we do?—H., Modesto.

[This appears to be the result of a poisonous bite. Paint swellings with tincture of iodine. Give internally the following: Fluid extract nux vomica, eight drachms; alcohol enough to make one pint. Give two ounces three times a day until gone.]

MARE'S JOINT INJURED.

To the Editor: I have a valuable brood mare that got cut with a barb wire on the hock joint, and was laid up the last of February. She kept lame and soon did not put her foot down to the ground. Her hip is losing its flesh and the joint is large. The doctor said the joint water was leaking out. I blistered it, but it does not help it. Can you tell me what to do for her?—Mrs. P. C. H., Modesto.

[Your animal has a wound in one of the worst places on the body to heal properly. Keep her tied up and as quiet as possible to prevent movement of the joint. Clean up wound with hydrogen peroxide, then paint it twice daily with the following mixture: Turpentine, four ounces; raw linseed oil, four ounces; tincture aloes, two ounces; nitric acid, one ounce; sulphuric acid, one ounce. It will require several months to heal this wound. The shrinking of the hip is due to the fact that she is not using that leg.]

BOAR WEAK IN LEGS.

To the Editor: Have a boar 14 months old that has been weak in the legs for the past three weeks. He recently had a fight with some other boars which made him worse. We feed skim milk, steamed barley, middlings, charcoal. What can I do for him?—E. M., St. Vincent.

[Your boar's trouble is digestive. Give him four ounces epsom salts. Have the following put up and made in twelve powders; give him one powder three times daily: Dried iron sulphate, one drachm; quinine sulphate, one-half drachm; nux vomica, one and one-half drachms; gentian root, three drachms; potassium nitrate, one and one-half drachms.]

WARTS ON COWS' TEATS.

To the Editor: Will you kindly give me some prescription that will remove warts from cows' teats?—F. A. R., Turlock.

[Our Nevada subscriber, whom we referred to the Index last week, is one of so many asking about warts that we again repeat the prescription.—Ed.]

[Get a stick of lunar caustic, moisten warts and rub caustic stick over them once daily until they disappear. If warts are large, tie a thread tightly around their base and they will fall off in a few days, or they may be clipped off with scissors and the wound touched up once with caustic stick. If teats become very sore, apply some zinc ointment before and after milking.]

PONY LAME.

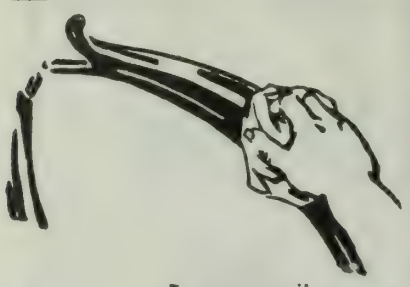
To the Editor: I have a Welsh pony about 14 years old, in best of condition, that has gone lame in front and seems stiff all over. Has been in that condition about two months. We have poulticed her feet, but does not seem to improve her condition any. I am also using a good liniment on her joints. What would you advise us to do?—F. M., Corning.

[As the lameness may be due to one of a hundred causes, it is impossible to diagnose the case without an examination. Get a qualified veterinarian to do this. The apparent stiffness in the other limbs is probably due to the fact that they are doing the work of the lame leg and, therefore, cannot set normally.]

PIG COUGHS AND WON'T EAT.

To the Editor: I bought two Chester White pigs March 11. They were then about eight weeks old and weighed 33 pounds apiece. Now the average weight is 85 pounds, and they were in splendid condition until last Friday, when one of them refused to eat. She sat on her haunches and tried to cough; acted as if she had something in her throat, and breathed heavily. Gave her a dose of Epsom salts and a pinch of saltpetre (size of a bean). Monday she seemed a little better, but still walks slowly, and has no ambition whatever in regard to moving around. Drinks a little fresh milk. Bowels were not in good order, so I gave her a dose of oil last night. Have been feeding skim milk, alfalfa meal, potatoes, and soaked dried peaches right along, also green grass. They have a fine boarded pen, with fine, dry, sleeping quarters. Plenty of salt and charcoal at all times. Kindly tell me what to do for her and I shall be greatly obliged to you.—Mrs. W. K. B., Santa Rosa.

[Your pig has caught cold. Use prescription appearing under "Pig Caught Cold," January 16 issue of this paper. Also see that bowels are regular.]



It pays to oil your harness — makes it last longer. Harness costs money. The longer service it gives, the more money in your pocket.

EUREKA HARNESS OIL

is a scientific preparation for preserving harness. It fills the thousands of pores in leather, resisting the attacks of sweat, dust, moisture and heat. It preserves the original life, strength and black color of your harness. Have your harness dealer dip your harness in Eureka Harness Oil occasionally, or buy a can and apply it yourself. Dealers everywhere.

Standard Oil Company (California) San Francisco

Ask Your Dealer for

El Dorado Cocoanut Oil Cake

for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,

149 California Street, San Francisco

Is your cream can being ROBBED?

Is your separator the thief?

SUPPOSE you found that some one was stealing even a little of your cream every day. You wouldn't rest easy until you had put a stop to it.

If you are using an old or inferior cream separator, the chances are ten to one that each time you use it you lose some cream. Your cream can is being robbed just as surely as if some one were stealing cream from it.

Some people go on using their old separator even if they know that it is not working right. They fail to realize that if the separator doesn't run right it can't possibly skim clean. They overlook the fact that a De Laval will soon pay for itself just from what it saves over an inferior or half worn-out machine.

If your present cream separator is not skimming as close as two one hundredths of one per cent it will easily pay you to

trade in your old separator on account of a new

DE LAVAL

68,000 users did so last year
34,873 in the U. S. and Canada

You can never get your money back by continuing to use a worn-out or inferior cream separator. The longer you keep it, the greater your loss.

The quickest and best way to satisfy yourself as to the comparative merits of the De Laval and your old machine is to ask the local De Laval agent to bring a machine right out to your place.

He will be glad to let you have a free trial alongside your present machine; and, if you decide to purchase, will make you an exchange allowance on your old machine, whether it be an old De Laval or some other make.

If you don't know the De Laval agent, write to the nearest De Laval office below, giving make, number and size of your present machine and full information will be sent you.

Why not take this up at once? Stop your cream losses and have the satisfaction of knowing that you have a separator that you can depend upon.

DE LAVAL DAIRY SUPPLY CO.

101 Drumm St., San Francisco 1016 Western Ave., Seattle

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

With the Live Stock Men.

DAIRYING.

Kings county dairymen received $140,000 for cream delivered during the past month.

The firm of A. W. Morris & Sons of Woodland will hold an auction sale of Holstein cattle this fall, the first sale of this kind to be held in that county.

The Sacramento-Yolo Cow Testing Association reports that out of 907 cows tested during April, 46 produced over 45 pounds of butter fat in thirty days.

Woodland has turned down the proposition of the Blue Ribbon Milk Company to locate a condensary plant there, which will be established in Yolo instead.

Plans for the Los Banos Co-operative Creamery are progressing. Dos Palos has promised 3500 cows and 7000 are forthcoming from Los Banos—the desired number being 12,000.

Dairymen in Tulare county received $82,068.88 for cream delivered during April, a considerable gain over the amount received in March of this year and April of last year.

The report of the Yolo Cow Testing Association for the past month shows that out of the more than five hundred cows tested, fifteen produced more than 50 pounds of butter during the month. A. B. Welch, owner of five of the high testing cows, carried off the honors for the month.

Unless two hundred cows more can be added to the number already being tested, the Yolo Cow Testing Association will be forced to break up on account of lack of financial support. The Association which was formed by Farm Adviser Searles has done much for the dairying of the county and a strong effort is being made to secure the necessary number of cows.

CATTLE AND SHEEP.

Andrew Torrelli of Elko recently sold his spring wool clip of 25,000 pounds at 18 cents per pound.

Six carloads of lambs were shipped to the Chicago market by F. L. Mendoza of Colusa recently.

Twenty cents a pound for wool was the price recently paid F. J. Mendoza of Colusa by a Stockton firm for a shipment of sixty bales of wool, weighing approximately 354 pounds to the bale.

The Government is advertising for sealed proposals of 200 head of Durham shorthorn heifers and ten bulls to be put on the Tule Indian Reservation in Tulare county, in order to increase the quality of the stock on the reservation.

The U. S. Dept. of Agri. recently shipped 83 head of Corriedale sheep to Wyoming where the Government will use them in experimental work. The herd was imported from New Zealand and has been held at the Ed. Bullard ranch at Woodland until becoming acclimated.

HORSES AND SWINE.

A number of farmers of Antioch recently formed a company and purchased a fine imported Percheron stallion from the Durham-McLaughlin company.

John P. Daggs of Modesto reports the following sales of Duroc-Jersey swine: Fifteen sows and one boar to Spreckels Sugar Co., Spreckels; six bred gilts to R. R. Houston, Byron; ten bred gilts to S. M. Griffith, Selma; three bred gilts to C. C. Wood, Oakdale; two bred gilts to R. B. Benjamin, Riverbank; tree-bred gilts to Elmer Lamb, Ceres; one bred gilt to F. M. Barney, Hanford; two bred gilts to L. W. Adams, Modesto; and three gilts unbred and one boar to J. F. Morehead, Chico.

RECORD HOLSTEIN SALE

The Schumacher Dispersion Sale demonstrated the fact that buyers and those looking for the better class of registered Holsteins appreciate quality. It is doubtful if ever before that such a grand array of catt e were led into the auction ring in the West. The average of $414 per head is the highest average that has ever been obtained on the Pacific Coast. It not only speaks well for the quality of the cattle sold, the management, and the auctioneer; but also for the future of the breed in this State. Doubtless the most deciding factor in making this sale the success that it proved to be, was the fact that two dozen cows and heifers were bred tto the famous young bull Tilly Alcartra Son, son of the famous Tilly A cartra, junior herd sire of the herd of McAlister & Son. Females in calf to him were snapped up eagerly by discriminating buyers. Two head sold for over $1000 each, the highest priced cow, Alba Sadie Cornucopia, going to Mrs. Anita Baldwin for $1500. Mrs. Baldwin also purchased the 18-ib. heifer, Dora Abbekerk Johanna, paying $1075 for her.

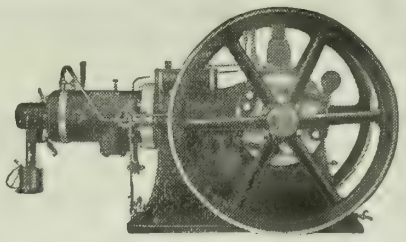
The highest-priced bull, a son of King Segis Pontiac Emperor, sold for $655, going to Xelix Gephart, of Los Angeles. The a erages for the sa e were as follows: 26 cows, $555 each; 9 bred heifers, $493 each; 12 unbred heifers, $336 etch; and 8 heifer calves, $225 each. The total receipts were over $17,000.

C. E. Barrows and A. L. Stevenson of Los Mo inos have recently sold to the Butte City Ranch at Butte City a very fine lot of pigs sired by Panama Lee, the boar at the head of the Barrows' Berkshire herd. Panama Lee is an exceptionally long, thick-bodied hog, very even from end to end, with a straight rump well carried out to the tail head, and with a ham that is filled wel down to the hock. He is siring big litters and is proving ery prepotent in transmitting his good qualities. Butte City Ranch has also bought breeding animals from the A. B. Humphrey's herd at Mayhews and from F. W. White at Elk Grove. Their aim is to have as good a herd of Berkshires as there is on the Coast.

Hopland Shorthorns
Hopland Berkshires
All Stock Registered.
Bulls of Highest Quality
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
Hopland Stock Farm
HOPLAND, CAL.

Alpha Engines
BUILT UP TO A STANDARD, NOT DOWN TO A PRICE.
BUILT LIKE A WATCH, BUT RUGGED AS A BATTLESHIP.

No Batteries — No Coil — No Troubles



A Big Hot Spark — A Quick Start — Results

THE MASTER ENGINE OF THEM ALL.
What other Engine Manufacturers are still striving for, we give you in the ALPHA. There are over 500 different makes of engines today, but only in the ALPHA ENGINES will you find all of these glowing triumphs.

SUSTAINED POWER EVEN AFTER YEARS OF USE.—This engine, like the trained athlete, grows better by action. Its uniformly exposed valves are not affected by the cylinder heat. So there is no warping, no leaking, no power wasted. Think of the years of extra service this master engine will give you.

NO VIBRATION: SMOOTH RUNNING AND LONG LIFE.—Each fly-wheel is perfectly balanced and machined all over excepting spokes, which make them absolutely true. This does away with any unnecessary strain and adds years to the life of your engine.

SPECIAL GEAR DRIVEN MAGNETO AND NO BATTERIES.—All Alpha Engines are equipped with special built-in, gear-driven magneto which is guaranteed for the life of the engine. Batteries such as are commonly used are not necessary with Alpha Engines. A big saving in time and money.

FUEL ECONOMY.—Alpha Gasoline Engines combine great fuel economy with maximum power production. According to Government Tests will soon pay for themselves in saving of fuel over other American makes.

An Engine that lacks these features may cost less. But it will cost more to operate and keep up.

When once you know the years of extra service these features add, you will have no other than an ALPHA.

Built in sizes from 2½ H. P. to 100 H. P., hopper or tank cooled, portable or stationary type. We also handle complete line of Viking Pumps. Self-Priming, high efficiency, and especially designed for irrigation work.

WRITE FOR SPECIAL ENGINE CIRCULAR 2-B.
De Laval Dairy Supply Co.
SAN FRANCISCO. Everything for the Dairy. SEATTLE.

$1.50 Per Acre
For Rental of Fertile Farm Lands
5,000 Acres can be rented for a term of years at $1.50 per acre per year, and up.

Located 11 miles from Dixon, "the Dairy City" in Solano County. Excellent transportation facilities are afforded by the O. A. & E. Ry. Electric freight and passenger service to all parts of the United States.

Other lands in Solano County, splendidly located, can be leased or rented for various terms of years at low prices.

FULL INFORMATION WILL BE FURNISHED ON REQUEST.
Oakland, Antioch & Eastern Railway
Address L. H. RODEBAUGH, Traffic Manager,
40th and Shafter Ave., Oakland, Calif.

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland
FAMWORTHS, DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

HON. ELLIOTT W. MAJOR, Governor of the State of Missouri, when he visited the Exposition the first week in May, brought a very important message to the poultry keepers, the Legislature, and the Governor of the State of California, and he delivered the message by incorporating in his speech on "Missouri Day," May 3, a brief description of the present magnitude of the poultry industry of that state.

What Did the Governor of Missouri Say to the Governor of California?

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Association of California.]

In our estimation Governor Major in his speech at the Panama-Pacific Exposition advised Governor Johnson of California to sign Assembly Bill 1539 providing for a State Poultry Commissioner.

It has only been a short time since the total annual value of the poultry products of Missouri was approximately $17,000,000, which about equals the yearly production of poultry and eggs in California at the present time. Twelve years ago, a young man who was interested in poultry breeding and who lived in a remote village in Missouri realized that enormous loss was being sustained by the poultry keepers and the State at large, owing to the lack of a practical means to properly instruct the breeders in the production and preparation of poultry products and the need of advice and system for the marketing handlers in regard to assembling and distribution of this class of produce.

After a period of painful self-urging, he plucked up sufficient courage to visit the State Capitol to lay his plan before the State Legislature. With much apprehension and quaking of knees, he entered the State House, and not knowing how to proceed with his undertaking, he "stood around" until some one inquired his errand. He was told to first arrange for a hearing before the Appropriation Committee, but how was an unknown country boy to do that?

However, notwithstanding a lack of experience in such matters, he was determined to succeed and to that end posted himself outside the door of the committee room until eleven o'clock p. m., when the care-burdened chairman opened the door; and noticing the expression of inquiry on the young man's face, said, "Well, what do you want?" He briefly told the nature of his errand —the conversation was also heard by the Committee—when the chairman turned to his fellow members and said: "Well, what do you think of that? Next it will be white mice and white rats and canary birds! However, stay around out here and we will give you a five minute hearing after a while." After midnight the door again opened and from the inside came the query, "What, you here yet! Well, come in; but we can give you only five minutes."

This was the beginning of the effort for state aid for poultry in Missouri, which has resulted in the creation of the most famous seat of learning in poultry culture in the world today, that has added hundreds of millions of dollars to the wealth of that state—and that country boy was T. E. Quisenberry, now director of this State's Poultry Department, an officer whose duties correspond to those of a Poultry Commissioner in California.

The above is only a brief history of this achievement, but those poultry keepers of California or the Pacific Coast who are interested may hear more of this from first hands because the Governor of Missouri has granted Mr. Quisenberry a leave of absence until Jaunary, 1916, in order that he may act as Superintendent of Poultry at the Panama-Pacific Exposition, where he is now working to make the Universal Poultry Show, to be held at the Exposition grounds Nov. 18 to 28, the most complete educational congress of poultry interests that has ever been held.

Exhibitors and visitors to this show will find Mr. Quisenberry the same earnest, approachable country boy that he was twelve years ago when he opened the eyes of the Legislature and the Governor of Missouri to the great possibilities of properly aided poultry culture, only he is more grown up and experienced than at that period of his existence.

By the way, the whole of Missouri is still laughing because of his efforts to establish a state poultry department, but this laughter has long since lost its flavor of ridicule.

In the panel below is a portion of Governor Major's speech in reference to Missouri's poultry industry and it speaks volumes in endorsing the establishment of a similar institution in California.

GOVERNOR MAJOR said in part: "The surplus poultry products of Missouri amount to more than $50,000,000 per annum. * * * This exceeds the value of the great wheat crops of the State of Kansas; is more than the value of the cotton crops of Florida, Louisiana, and Tennessee, and outstrips the value of all the gold produced in Arizona, Colorado, and California."

SALT FOR TOE PICKING.

Could you enlighten me as to the cause and cure of "toe-pecking" among chickens? They commenced when about two weeks old and are at it still. They are now six weeks old. They get the very best of chick-food-bran, greens, etc., also liver, boiled a little, and run through the meat chopper, and all the range they care for.—W. K. I., San Bernardino.

[Answered by Mrs. M. Schack.]

[As I have had lots of toe picking troubles and tried all the remedies Mrs. Swaysgood mentions, and several more, without relief or cure, I want to state one simple remedy which takes all the bloodthirstiness out of the chicks, and that is salt. I had once 400 white Leghorn chicks that picked and tore the toes of one another from the day they were hatched. I tried to keep them busy and entertained, boiled liver for them (later on), darkened the brooder windows, etc., all without help. I then thought of putting some salt into their drinking water (one teaspoonful to a quart) and from the day I started that, the plague reduced and finally stopped entirely.

Since then, I always put salt into the water for newly hatched chicks, and continue until they are ten days to four weeks old. Hen-hatched chicks are less inclined to it than

Classified Advertisements.

Rates 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

WANTED.

POSITION WANTED as WORKING RANCH FOREMAN OR SUPERINTENDENT. 42, active, sober, intelligent. Grain, Fruit, Horses, Dairy, Poultry. Box 58, Rural Press.

GERMAN wants position as milker and butter-maker, or as cook on dairy ranch for six or eight men. Experienced. References. Box 57, Pacific Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

BEEKEEPING instruction book free for dime to pay printing, etc., which we will refund with your first order. Explains care bees, profits, size packages we ship, with prices supplies, bees, etc. Spencer Apiaries, Gloss Ave., Nordhoff, Cal.

MISCELLANEOUS.

FOR EXCHANGE—Absolutely pure, reliable Sudan Grass Seed. The grass you read so much about. The dependable and profitable hay crop. Relished and good for all stock. Here is your chance. Will trade pure Dollar Sudan Seed, for Cows, Hogs, Turkeys, Chickens, Ducks, Guineas, Pigeons, or Rabbits. Anything can use on farm. Try a few pounds, you will never regret it. Booklet sent on request. Will also furnish Seed on Shares, small or large acreage. Address, Sudan Farm, Route 7, Box 53-A, Los Angeles.

SHARPLES MECHANICAL MILKER OPERATORS are in demand. We offer complete course in modern dairying on our own farm. Further particulars, write: The Sharples Demonstration Farm, Geo. W. Lucy, Superintendent, Stockton, Cal.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. R. 8, Fresno, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W London.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK.

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field-grown, two-year-old budded trees of standard frost resistant variety, from four to seven feet high, $2 Write for literature. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties. Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

ONLY 300 LBS. Sudan Grass Seed left, grown Santa Clara Co. without irrigation, miles from any Johnson Grass. 50 lbs., freight paid Cal., $13; 100, $24; 200, $45. G. W. Lane, Morganhill.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

MELON SEED—from selected Melons. Black Seeded Chilian, 85 cents; Red Seeded Chilian, $1.10; Klondyke, 90 cents; Tip Top Muskmelon, 90 cents; Pineapple, 90 cents; per pound postpaid. Send for our Price List. West Coast (Cut Rate) Seed House, 116 E 7th St., Los Angeles, Calif.

BURBANK SPINELESS CACTUS—$6 per 100; $50 per 1000. Thos. Cathers, R. 24, Morgan Hill, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

LAND FOR SALE.

FOR SALE—15 acres improved land 1½ miles from Sonoma. House, barn, windmill, family orchard. Fully equipped for chickens. Finest of soil and no irrigation required. Owing to death, will sell for $5000, half cash, balance terms. Full information furnished Mrs. J. E. Smith, R. F. D., Box 57, Sonoma, Sonoma Co., Cal.

FOR SALE OR RENT—Ideal dairy ranch. Two hundred and ten acres bordering on Sacramento river. One mile from station. Four miles from city of four thousand. About one hundred and fifty acres in alfalfa. Can be irrigated from river. New dairy barn stanchions for sixty-six cows. Concrete creamery. Terms given. Address Strain Bros., Red Bluff, Cal.

FOR SALE—107 acres of irrigated and bottom land at $250. Good terms. 8 acres in bearing olives and apricots, 12 in woodlot, the rest in alfalfa. Water, $1 per acre per year. Fine barn for 85 head of cows, house, separator house, house barn. Crossfenced. Address George Thresher, R. F. D., Gridley, Cal.

CALIFORNIA LAND—Money-making little farms High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co. 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—Highly productive small fruit ranch Well located edge of small city in Sacramento valley Fine buildings, excellent modern home, good income from property. I want to retire on account old age For particulars address Box 387, Corning, Cal.

GOVERNMENT AND STATE LAND County Sectional Maps, showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Jose Clark, Sacramento.

WANTED—about 20-acre irrigated ranch, part improved, near school, in exchange for San Francisco 7-room cottage, nearly new. Value $3,500. All clear. Will assume. No agents. Box 58, Rural Press.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit. Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR SALE—Santa Clara Valley Ranch. 90 acres all level; 40 acres in alfalfa. Improved. Address owner for circular. F. E. Romie, Edenvale, Cal.

WANTED GOOD FARM, or unimproved land from owner. H. L. Downing, 145 Palace Bldg., Minneapolis, Minn.

Copro

Cocoanut Oil Cake Meal In Its Purest Form

Be Sure the Copro Brand Is Stamped on Every Sack

Copro contains 16.4% Protein, practically all digestible, consequently the percentage of waste in assimilation is small. Because of this fact it is the most economical food to buy for Dairy Cows, Hogs and Poultry. Place your order now.

PRICES

	20 Tons	10 Tons	5 Tons	Less Quantity
Per Ton	$25	$25	$25.50	$26

f.o.b. Southern Pacific cars in 20-ton lots.

Cartage in less than car lots: 1 Ton or more, 75c per ton; Half to 1 ton 75c; Half ton 50c; 1 or 2 sacks 25c.

Terms: Net cash, immediate payment. Prices subject to change without notice.

When Ordering Address Dept. B-1

Free Sample Sent on Request

PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street, San Francisco, Cal.

incubator chicks, because the hen keeps them busy. I have had more trouble with white Leghorns than with Plymouth Rocks, although the tendency to toe-picking is there. Recently I hatched several settings of Plymouth Rocks and gave them the salt from start until one week old. Then I took it away from two flocks, but let the rest still get it. The day after I found about a dozen of them with bleeding toes, while exerything was all right in the other chick yards where they had salt. The second day, half of the chicks were picked and bleeding, but when I put some salt into the fountains and they had had several drinks, everything went straight again. After three weeks, I took it entirely away. I have had many hen-hatched chicks, going with the mothers on free range, and I have never had a toe-picking case with any of them.]

Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

Need Tom for Each Clutch of Eggs.—After all my turkey hens had gone to setting on their first clutch of eggs my Tom died. Will the second clutch be fertile or will I have to get another Tom before the hens begin to lay again.—Mrs. E. J. S.

It is generally supposed that a turkey hen needs the attention of the male once for the season; I know that once will fertilize the one clutch of eggs, but when the hens sit a month on the nest, then perhaps some time with the poults, it is almost like a new season and I would not want to risk it because in the end the gobbler would cost no more than the loss of the eggs in case they should prove infertile.

Yellow Watery Eyes and Throat.—What is the matter with little chicks four or five weeks old that get little scabs around the eyes? The eye bulges and clear water runs out, later it forms a big yellow scab like a wart and in the last stage the throat has yellow around the wind passage, then they die. Please give me a remedy for it, also for the fleas that stick tight to the chicks heads.—T. L. S.

This is some affliction for the poor little chicks, and one can hardly blame them for dying to get away from it. Now the first thing is to get rid of the fleas, for they are the cause of the chicks being in such a weakened condition as to get chicken pox; for that is what they have. Fleas, chicken pox, and canker, a trio of the worse enemies to chicks! Clean up and spray your yards, houses, and pens; first to get rid of the fleas, and second to get rid of the insanitary conditions.

Get a big can of sheep dip, and borrow or buy a spray pump, and go after them in all your buildings, around the yard and in all outhouses, then anoint the chicks' heads with Conkey's flea salve, any feed store sells it. Rub carbolated vaseline on the little chicks' heads, or rather eyes where the scabs are. When it attacks the throat you may just as well bury your chick because a small chick is not able to fight for its life against canker in the throat.

Get rid of the fleas and put a little Tincture of Iron from the drug store in the water—the chicks drink about ten drops to a pint of water. Give this a few days to tone them up.

Turkeys Sit on Knees and Die.—My little turkeys get weak in the back and legs; sit on their knees with their feet off the ground. It comes on very quickly. They have a good appetite but always die.

Wet, damp ground brings on cramps and general debility. Unless you can shelter them until the weather clears, there is little else to be done.

Color of Eggs.—Can you tell me the true color of legs of white Minorca chicks a week old. I received a shipment of chicks supposed to be white Minorcas and legs are bright yellow.

The legs and down of all chicks vary. No one can judge what any chick is by these signs. The color of legs changes gradually up to maturity. Sometimes Orpington chicks come with yellow legs, but they always turn out a light pink or pinkish white, and that is the true color of the adult white Minorca. Wait, they will turn out all right in time.

Bad Odor and Taste of Eggs.—A subscriber having R. I. Reds, thinks them fine in all other ways, but complains of getting eggs that smell and taste bad. Neighbors have said the same things, that they get some of these bad eggs that are perfectly fresh, yet smell and taste stale and all come from Reds. Wants to know if it is the breed at fault. I am inclined to think the fault lies either in the feed or in the individual hen. Sometimes, a hen is found that retains an egg so long before laying that decomposition sets in. If you happened to breed from that particular hen, you would of course get more than one in your flock and this is the most likely supposition. Look well to your feed and if you are not feeding anything that is likely to cause the trouble get a trapnest or two and find the culprits. Some brands of beef scrap or fish meal will make bad eggs. Get Croley's, then you are sure to get a brand that is sweet and wholesome.

Duck Egg Markets Scarce.—Is it true that duck eggs bring a better price than hen eggs?—Mrs. J. B.

Not that I know of. I have read some such yarns but I don't know that they are true, in fact I believe that unless you make a market, you will not get as much for them. Bakers and confectioners like duck eggs to use in their business, and if there is a bakery of any size in your town you might work up a good trade for your duck eggs. But when we consider that bakers and restaurants have been in the habit of using cold storage eggs, yes and even Chinese eggs, it does not look very promising for you to get a bigger price for your duck eggs from that source. I believe the profit from ducks is made, not from the eggs, but from the green ducks sold for table purposes, or in keeping stock breeders and selling eggs for hatching. In your locality, during the winter and early spring months you would have to keep a good bed of straw for nests or the eggs would get almost too dirty for sale as food. Duck eggs, like hen eggs, absorb any bad ordor that may be near them, and a duck is not cleanly in its habits unless you force it to be so.

Hens Die Suddenly.—I have lost six hens. They all look well and are sick only a few hours. Post mortem shows lots of eggs in them When they die they are wet around the vent. I feed mostly rolled barley.—R. L. S.

I think the trouble is in the rolled barley; it has set up an irritation in the crop or intestines and runs a quick course. I prefer rolled barley soaked a few hours to take the sting out of the beards. Complaints are always numerous when a good deal of rolled barley is fed and I have known of many losses. The soaking softens the beard.

RABBITS DIE AFTER EATING WET GREEN FEED.

To the Editor: Why do I lose my weanling rabbits? Every morning I find one or two dead, though they were practically well the night before. The trouble seemed to occur after feeding green alfalfa.—B. L. G., San Jose.

[Several queries have come lately asking about the same question, and all saying that green feed has been given the rabbits. We have answered this query two or three times in the Pacific Rural Press, and would again warn rabbit growers to avoid the use of wet feed. If, as is usually desirable, green feed is given to the rabbits, be sure that they are accustomed to it by gradual introduction of the green feed; and always be sure that no dew or water is on the outside of the grass or alfalfa. The safest way is to wilt your green feed in the sun a little while and keep it under cover, but not in large piles, for it might sweat. —Editors.]

WANTS TO BUY FEATHERS.

To the Editor: I am making over my feather pillows and find I need a number of pounds of new, first-class feathers. I wrote to a feather company in the city and was not given a reply. I wrote to a furniture house and they quoted me 95 cents per pound or $1.00 delivered. That is more than I can pay; and it seems to me that good feathers should be purchased at a little less price than that. Can you give me the slightest advice or aid in this matter?—Mrs. W. W. W., Vallejo.

[We fear that you will be unable to buy feathers at a lower price in the city, and our best advice would be to reach most of the feather producers of the State by inserting a want ad in our classified columns. —Editors.]

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks, Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

BABY CHICKS—Varieties, Pullets and Hatching Eggs from our Santa Clara Valley Farm. Birds, Incubators, Brooders and Poultry Supplies. Globe Hatchery & Feed Co., 1378 Market St., San Francisco, California.

HICKS JUBILEE HATCHERY—36,000 capacity this season. New booking orders. White Leghorns and Black Minorcas our specialty. Instructions in caring for young chicks free. W. J. Hicks, R. 2, Petaluma, Cal.

S. C. RHODE ISLAND REDS—Eggs from prize-winning Eastern stock, $1 per 15, $4 per 100. Mammoth Bronze Turkey eggs, 30c apiece. Won first at California State Fair. N. Mulick, Willows, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, E. D., Box 71, West Berkeley.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St. San Francisco.

THE EVERLASTING LAYERS—"BROWN LEGHORNS"—My strain matures early, grow like weeds—and hardy. Give them feed and exercise, and the egg basket will pay the bills. Baby chicks, delivered, $9.50 hundred. I send only A1 chicks. Guarantee safe arrival. J. H. Stubbe, Campbell, Cal.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beagle & Cullen, Empire, Cal.

SINGLE COMB WHITE LEGHORN Pullets two months old, also breeding cockerels and yearling hens at reasonable prices. Model Poultry Farm, Corning, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons. Susan Swaysgood, Route 2, Pomona, Calif.

PETALUMA HATCHERY—We have chicks every Monday. Five varieties. Send for May and June price-list. L. W. Clark, Petaluma, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded Toms recently from East. Inquire today, John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL, Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHEASANTS.

WHILE THEY LAST—Plymouth Rock Homer Pigeons for $3 per dozen. Very fine. Geo. M. Bosworth, Geyserville, Cal.

PHEASANT EGGS—Golden, Silver, Chinese and Amherst. L. R. McCoy, R. 1, Box 205, Stockton, Cal.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

RIPON RABBITRY—Rich, racy Belgians. Prices reasonable. Howard C. Jones, Ripon, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

WRP

Purest and Surest

NOW is the Time to Feed
Coulson's Egg Food
to your pullets as well as your hens, commencing at the age of three months.
Write for free book "Chickens" from shell to market.
Coulson Co.
Petaluma, Cal.

1000 White Orpington Chicks
in lots of 100 or more.
H. F. PIXLEY,
Corte Madera, Calif.

The Home Circle.

TO MY OWN.

The squirrel lies in his hollow tree,
All wrapped in his long, soft tail,
The rabbit is snuggled as snug can be
In his home 'neath the old fence rail;
The partridge is only a bunch of down
Where thickest the arching brush,
They in the forest and we in the town,
Hush, my honey-boy, hush.

The field-mouse curls in a velvet ball
Far under the dead swamp-grass;
In his hole by the frozen waterfall
The mink dreams oft of the bass;
And every chick of the ground and air
Is cuddled in haven deep,—
So here, in the glow of the firelight fair,
Sleep, my honey-boy, sleep.

The North Wind romps with the whirling snow;
Sly Jack Frost noses about;
But wood and field are abed,—for no,
Not even the owl is out.
And here, where the motherkin's breast is warm,
And motherkin's arms are tight,
Safe from the snow and the frost and storm,
Good night, honey-boy good-night.

—E. L. Sabin, in Saturday Evening Post.

WHEN REPAPERING AND PAINTING.

[Prepared for Pacific Rural Press by Nellie E. Maxwell, of the University of Wisconsin.]

'It is not a light matter, the way we spend our time, our strength, our intelligence. The higher duties of womanhood, the higher evolution of humanity through her, of society through the household, demand a more healthful condition of household economics than this present shows. Our households are surcharged with waste matter, and our lives are spent in its arrangement and removal. Soul, mind and body are limited by the dust pan," says Helen Campbell.

At the time of house cleaning the wise woman weeds out the useless and worse than useless truck that litters the house, holds dust and causes needless work of dusting and arranging. It takes courage often to do away with things which are dear because of the giver, but one's time, strength and health are of much more moment than an assemblage of worthless bric-a-bric.

Bedrooms should be especially free from dust-catching draperies and useless articles. When draperies are used they should be light and washable, and often washed.

For the housekeeper who has to economize (as a large majority of our housekeepers do, which makes life interesting) and who finds it necessary to repaper because the walls are faded, calsomine may be used with good effect. It is very satisfactory even over cheap paper if it is firmly attached to the wall. If there are any loose portions they should be carefully pasted and dried before putting on the calsomine. Put the calsomine on the ceiling first, of course, to save spattering the side walls. A long stroke down the length of the paper makes a smoother finish than it put on with a side stroke. This is a saving of time as well as money and one need not tear up the house, as a careful worker will do no spattering. Cover a green paper with a green calsomine and the walls will look fresh and new. Usually one coat is sufficient to cover; but two may make a better finish.

In this day of rugs, which are easily removed, the floors need to be kept in good condition. An economical way when using a large rug in the center of the floor is to grain the floor a few feet around the edge, the only part which shows. This, if well done, will look nearly as well as a hard-wood floor. Varnish the linoleum covered floor spring and fall to keep the colors bright and insure its wearing longer.

An easy way to keep the kitchen cupboards looking well is to paint the shelves spring and fall with a good white paint. If one cares to incur the expense, an enamel makes a fine hard finish which is easily wiped off. The shelves are then ready for the dishes without any paper or other covering. When the shelves get dusty, they are easily wiped off and the cupboard is always clear. A good method to use is to clean one shelf at a time when washing dishes, this will not be much of a burden and in this way they are always dustless and fresh looking.

In rooms that have only north light a paper with a good deal of yellow will add the desired sunlight color to the room. A paper should be tried in the room in which it is to be used, in both daylight and with artificial light. Some colors so absorb the light that a cheerful room at night is impossible. An oil cloth wall covering is good in the bathroom or the kitchen where a more expensive covering cannot be afforded. This can be wiped and cleaned as easily as a dish.

To remove paint spatters which

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

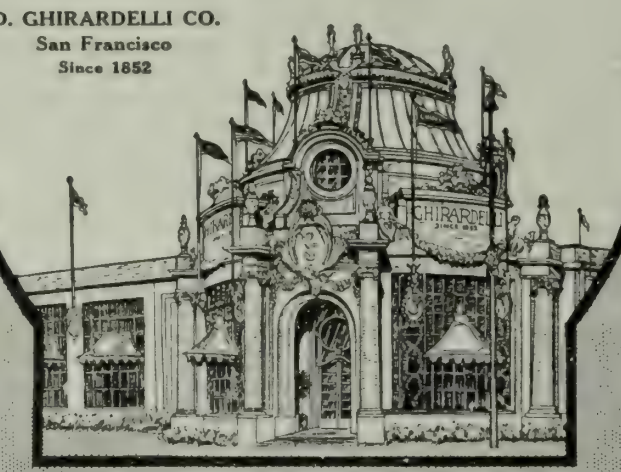
In a Building of Its Own

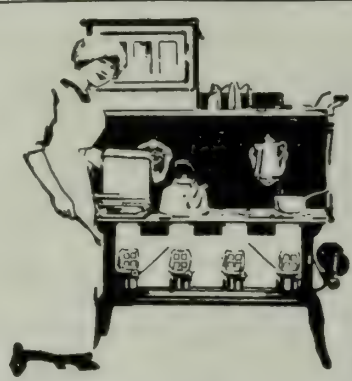
To see how Ghirardelli's Chocolate and Cocoa products are made visit the Ghirardelli Building at the P. P. I. E.

In this model plant you will marvel at powerful machines in operation—the absolute cleanliness observed and the purity of ingredients used in the making of these famous products.

Hot Chocolate made from Ghirardelli's Ground Chocolate is served day and evening. Don't fail to try a cup.

D. GHIRARDELLI CO.
San Francisco
Since 1852





Gas Stove Convenience with Kerosene

Kitchen Economy

With wood or coal—waste heat. Too much or too little for best cooking. In hot weather too much heat coming out into the room.

With a good oil-stove—no waste heat or fuel. One burner or four—low flame or high—a slow fire or a hot one. All the convenience of gas for *every* home, all the year round.

New Perfection
Oil Cook-Stove

For Best Results Use Pearl Oil

Better cooking,—flame adjustable to just the degree needed for roasts, for bread, for pastry. No odor. Does not taint the food. A cool cook and a clean kitchen. Ask your dealer. See demonstration, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

CALIFORNIA POULTRY PRACTICE
By Mrs. Susan Swaysgood.

PACIFIC RURAL PRESS, Publishers.
525 MARKET STREET, SAN FRANCISCO, CAL.

have dried on windows, scrape with a penny.

The ancient habit of tearing up the entire house so that there was no place to sit or have one's meals in comfort has happily passed away. Unless extensive repairing is to be done there is no need to make the family uncomfortable, each cleaning season.

THE GARBANZO BEAN AND HOW TO COOK IT.

To the Editor: The correct name of the "chick-pea" in Spanish is garbanzo, not garbanza. It is a national dish in Castilla, which is often called "la tierra de los garbanzos." The name of chick-pea probably was derived from the Spanish word "chichard," meaning properly a pea; of course, it is well-known that the garbanzo belongs to the family of the pea, for which the name in Latin was "cicer."

Of more interest to your readers will be the information that it constitutes an excellent dish, the taste being a combination between that of the bean and that of the chestnut. They should be soaked overnight in water, then put in fresh water with a small chunk of pork or bacon, brought slowly to a boil, and maintained there until they are thoroughly cooked. That is the main point, that of being thoroughly cooked; it may take from one to three hours, depending on the state of freshness of the garbanzo. They are thoroughly cooked when they can be crushed between the tongue and the palate; if on dumping them on a plate you can hear the distinct thuds of the individual peas, they must be cooked further. They can be eaten thus, but their flavor is much increased by adding to them, about a quarter of an hour before they are done, a sauce made in the following way: fry some sliced onions in butter (or in good lard) until they are brown, then sprinkle with a little flour, add the contents of a tomato can, and cook for about ten minutes more, taking care to add water if the sauce gets too thick.

It is a pity that this legume is not better known in this country, for it has great nutritive value and is much more palatable than the bean. **Jaime de Angulo.**

Palo Alto, Cal.

APPETIZERS IMPORTANT IN THE SPRING DIET.

Appetizers are an important part of the menu in the spring days when one is inclined to dally with food and the appetite needs coaxing. And the fresh vegetables with their abundant cellulose, furnishing a bulky diet instead of the more concentrated fare of winter days, are very welcome. But toning up is not the only need of the system in spring time. It is well for the housewife to know the tissue building and energy giving properties of the various foods she serves.

Dried peas and beans rank highest among the tissue building vegetables, according to a correspondence study course in home economics offered by the University of Wisconsin Extension division. Dried peas contain as much as 24 per cent of protein. Other heat and energy giving vegetables, cereals and fruits are: sweet potatoes, lima beans, potatoes, parsnips, peas, corn, squash, beets, carrots, turnips, rices, rye meal, cornmeal, buckwheat flour, wheat flour, pearl barley, oat meal, tapicoa, hominy, macaroni, dates, raisins, figs, prunes, bananas, plums, grapes, huckleberries, pears and apples.

INHERENT INCLINATION.

"Why does that darned old hen always want to roost on a letter box?"

"She was hatched from a parcel-post egg."—Louisville Courier-Journal.

"My dear," said Mrs. Snaggs to her husband, "what is a canard?" "Don't you know what a canard is?" queried Snaggs. "Why, the word itself conveys its own meaning." "Does it? Well, really, what does it mean, dear?" "Why, a canard is something one canardly believe, of course." "Oh, to be sure! Why couldn't I think of that?"

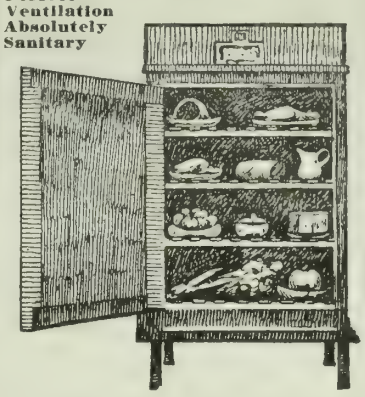
First Urchin — "Say, Chimmie, wot's dis stratergy t'ing dey talk about?"

Second Urchin—Well, it's like dis: Supposin' yer run out of ammunition an' yer don't want de enemy ter know it, den it's stratergy ter keep on firin'."—Boston Transcript.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary



Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

No More Ants.

How One House Was Rid Of This Household Pest

Every woman who is troubled with a house overrun with ants will be interested in the experience of a housekeeper in Oakland, California, who suffered terribly from this pest. Not only was the kitchen and pantry alive with ants, but the insects appeared to be increasing in number at an alarming rate.

Learning of a paste prepared by a baker in Los Angeles—who had a similar experience with ants—the Oakland housewife obtained some of the preparation, with the result that in three days she was unable to find an ant in the entire house.

Everyone will be interested to know that this remedy can be obtained at any drug store. It is put up under the name of Kellogg's Ant Paste. This paste appears to have almost supernatural powers as far as ants are concerned.

Get a package today; follow instructions closely, and your ant troubles will be a thing of the past.

Blake, Moffitt & Towne

Dealers	37 FIRST STREET,	SAN FRANCISCO
In	Blake, Moffit & Towne,	Los Angeles
PAPER	Blake, McFall & Co.,	Portland, Oregon

"I always find just what I need at the lowest price in WHITING-MEAD'S BUILDING MATERIAL Catalog" You can do the same! Don't Delay Send Coupon Today and receive this Valuable Book FREE

Buy direct - - at rock-bottom pricee - - and save 25% to 40% on every order of building material you place. Clip the coupon, fill it out and send it in TODAY. You will receive the big, comprehensive Whiting-Mead complete Building Material catalog by return mail. It is saving money for thousands of ranchers. Why not for you?

26 Guage Corrugated Iron $2.60 Per 100 sq. ft.

A big special purchase that's another proof of our great buying power, as this price is really less than ordinary wholesale cost.

26 guage, 95 lbs. to 100 sq. ft., best annealed sheet steel thoroughly coated with a specially prepared paint and for many uses, even more satisfactory than galvanized.

Place your orders for this early, as even the great quantity that we have secured will not last us for very long, and it will not be possible to get more to sell at this price until after the war.

Regular widths in 7 ft., 8 ft. and 8½ ft. lengths.

Galvanized Screen Wire—14 mesh, per square foot in full rolls, 2¼c; less than full rolls, 2½c.

Galvanized Conductor Pipe 3 in., 6c per foot in 10 ft. lengths; 4 in., 8c per foot in 10 ft. lengths.

Irrigation Pipe—of galvanized steel for surface use, made of 24 guage steel, 10 ft. lengths only; 4 in., per 100 ft., $14.40; 5 in., $18, and 6 in., $21.60.

These prices will give you some idea of the wonderful savings possible through ordering from us by mail. If you have not a copy of our wonderful new 1915 Catalog of Building Materials, use the coupon and send for it NOW. Everything that you need for building, fencing, tools, piping, etc., at "lower prices."

TOOLS for All Uses

10 in., Victor Brace, 75c.
10 in., Stanley N. P. ball-bearing brace, $1.90.
Stanley Levels, 12 to 18 in., 50c.
26 in., Disston saws, $1.50 and $2.
Buck saws, blade 30x1¾ in., 75c.
Pruning shears, 50c; saws, 45c.
Fence pliers, 75c; will drive and draw staples, cut, splice, straighten and stretch wire, 10 in. size.
6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay Forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Coes' knife handle monkey wrenches, 6 in. size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares, both sides, 35c.
4½ in., try squares, 20c.
Gem soldering sets, complete, 40c.
12 oz. claw hammers, 25c

Builders Hardware

Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.

Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single, $1.40; double, $2.10.

Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.

Drop handle drawer pulls, same finishes as above, 20c each.

Flush sash lift, antique copper or dull brass, 7c; sand blast, 8c each.

Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.

Store door lock, very serviceable, cylinder lock, bolts and night latch with three bit keys, any of above finishes $5.75, complete with brass escutcheon.

French window locks, any of above finishes, $1.30 complete, a $1.50 value.

Genuine Yale night latches with three German silver keys, $1.50.

Pressed steel butterfly hinges, 10c pair, all finishes.

Pressed steel screen door hinges, japanned, 12c pair; antique copper or dull brass, 20c pair.

Standard House and Floor Paints, $1.50 per gal.

Standard makes of varnishes at 25% off regular prices.

Black Graphite Roof—per gal., 50c.

Standard Roof Paints— red, green, gray—per gal., 85c.

Shingle Stain, made from pure ground colors per gal., 50c.

Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.

Dutch Kalsomine, 4½c per lb.

BEST PAINT

WHITING-MEAD COMPANY, 9th and Maple, Los Angeles, Calif. P.R.P.
Please send me your 1915 Catalog of Building Material.
Name .....
City .....
State .....

WHITING-MEAD COMPANY

9th and Maple Avenue LOS ANGELES

OUR readers are objecting to the statements in regard to dried fruit markets made in our issue of May 8. This was expected because it is not good reading. We are sorry, but we would scarcely be true to our mission if we did not advise our readers of the current discussions regarding market conditions.

These statements were gathered from marketing organizations, both independent and for the growers. The reasons for the points made are given in the article, and we see no reason to revise it except perhaps in the first line, which applies to peaches particularly.

In the issue of May 5 were two paragraphs which will sound much better to the growers. These were forecasted in the May 8 article in its first paragraph, and the careful reader would not be so disheartened. But we would ask our readers to notice that the "short" selling of the packers does not put the packers at the mercy of the growers, unless the growers are thoroughly organized and will stand together in holding for better prices than the packers expect to offer at first. We want letters from our subscribers telling what offers are being made.

Growers' Meeting Resolves 5c Prunes.

[Written for Pacific Rural Press by Leroy Anderson.]

Two hundred and fifty or more fruit growers met at the Chamber of Commerce, San Jose, May 15, to discuss crop and market conditions. They came from all parts of the Santa Clara Valley in answer to a call issued by the Cupertino Improvement Club only a few days before. That the growers so quickly and so numerously responded to the call is an indication that they appreciate its importance.

For some weeks fruit packers and buyers have been quietly going about trying to purchase prunes at a price below a 4-cent base. The reason for so low a price is given by them as being the poor market conditions in the East, where a goodly tonnage of the 1915 crop has already been sold at a 3½-cent base. They further state that this low offering was necessitated by the large California crop in conjunction with the demoralized financial conditions. The grower to whom Mr. Packer happens at the moment to be speaking knows his crop is not large; in fact, no more than last year, and so informs the buyer.

"Oh, yes," says Mr. Packer, "your crop may be light, but on the other side of the valley there is an immense crop"; or, "In the north there is a big crop"; or, "In the south of the valley is a big crop."

It is this playing of one portion of the valley against another in the attempt to bear prices that led the Cupertino Improvement Club to call last Saturday's meeting, and also led many growers to answer the call.

All sections of the valley responded by one or more representatives stating the crop prospects. The 1914 crop was adopted as the basis of comparison because every one could remember what that crop was. As the chairman stated, "It has been so long since we have had a full crop that probably most of us can't remember what one looks like." Reports from prunes on the west side of the valley ran: "Same as last year"; "Not more than one-fourth to one-half of last year's crop"; "Forty per cent of last year"; "Trifle better than last year"; One-fourth more than last year"; "Same as last year, or one-half a crop"; One-half crop last year, this year 35 per cent of last"; One-half crop last year, this year 25 per cent more"; Last year three tons per acre, green, this year two and a half"; "Last year three tons per acre, this year three and a half."

From the east side of the valley reports ran: "Last year one-half crop, this year the same"; "Last year half crop, this year one-third crop"; "Last year one-half crop, this year ninety per cent of crop"; "Last year three-fourths of crop, this year the same"; "Last year four green tons per acre, this year the same."

From the south end of the valley Morgan Hill reported a light crop; or, "Last year thirty-five per cent of a crop, this year the same"; "Last year two and one-third tons per acre, green, this year one and a half tons." From Gilroy region: "Last year sixty per cent of a crop, this year ten per cent less than last."

On apricots reports from the west side of the valley ran: "Same as last year"; "Full crop"; "Sixty to seventy-five per cent of last year"; "Last year fine, better this year"; "Twenty-five per cent of full crop" (this came from a large section; "Last year full crop, this year forty per cent of last"; "Last year ten tons per acre, this year five to six tons"; "Last year twenty-six tons on one hundred trees, this year four tons."

From the east side reports ran: "Seventy-five per cent of last year"; "Moorparks last year very light, this year full crop" "Twice the crop of last year"; "Last year eighty per cent of a crop, this year twenty per cent"; "Last year 200 per cent of a crop, this year 100 per cent"; "Last year full crop, this year half crop." From south end of valley one report was 90 per cent of a crop last year, and ten per cent less this year. One report, given in all seriousness by a young orchardist, created much amusement: "My crop is fine this year; last year the trees had nothing on, but this year there are three times as many."

To estimate exactly the present crop conditions the reports should have been given in green tonnage per acre, but the majority favored the percentage basis, which renders difficult an otherwise easy calculation. However, the evident impression from all the reports is that the 1915 crop of prunes is slightly, if any, larger than the 1914 crop; also that the apricot crop is much lighter than in 1914. The estimates at this meeting correspond closely with those made by the Pomona Grange of Santa Clara county in session at the same time in Campbell. They included all fruits in their figures, and thus all are given here. The estimate is on the basis of a normal crop:

Prunes, 60 per cent; apricots, 63 per cent; apples, 70 per cent; peaches, 85 per cent; cherries, 40 per cent; pears, 57 per cent.

Following the reports several growers addressed the meeting upon the meaning of the crop estimates to the grower when visited by a buyer, and upon the general principles involved in the statements and actions of packers concerning the prune crop. The buyer says, in persuasive altruism, that his interests are identical with the grower's; that he has done the grower a great service by early opening the Eastern market with sales are 3½ cents, and that the grower should heartily embrace the opportunity to dispose of his crop so the buyer can sell at that figure. The manner in which the packers are handling the Eastern market was illustrated in a clipping read from the New York Commercial of May 11: "California has the biggest prune, peach, and apricot crop in her history."

Packers are evidently still selling prunes on the basis of the wonderful bloom borne by the trees in March. So evident was it that buyers have been attempting to mislead the growers that a motion was adopted by a large majority "that it is the sense of this meeting that growers do not accept present prices nor sell for less than a five-cent base."

The work of the meeting is to be continued by a committee consisting of one grower from each section of the valley, this committee to gather information on markets and on current crop conditions, and report frequently to the growers. The committee has organized and will meet fortnightly.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, May 19, 1915.

WHEAT.

There is still a great deal of wheat in the north, which holders are anxious to sell, and as shipping facilities are poor prices still tend downward. Local values in all grades are lower.

Cal. Club Ctl.	$2.15	@2.20
Forty-fold	2.25	@2.30
Northern Bluestem	2.30	@2.35
Northern Club	2.15	@2.20
Northern Red	2.00	@2.30

BARLEY.

Current demand for feed is moderate, and with the export movement limited prices are easy at a further decline.

Choice Feed, ctl. ..$1.17½ @1.20

OATS.

White oats are quoted a little below the recent high level, but offerings are not excessive and the market remains fairly steady.

Red Feed	$1.55@1.60
White	1.80@1.85

CORN.

Values show no change in any line. The demand for feed is hardly as strong as it was a few months ago, while cheap imported stock tends to prevent any firmness in the market.

California Yellow	$1.75@1.80
Eastern Yellow	1.80@1.85
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80
Manchurian	1.40@1.60

BEANS.

A little more interest has been taken in beans for the last week or so, and a renewal of export demand is reported in some lines, especially colored beans. Pinks and bayos have developed some firmness, and prices in other lines are steadily held, though there is a rather easy feeling in whites in some quarters. The outlook is very uncertain, depending largely on additional foreign business, and to some extent on the possibility of supplies coming from foreign sources.

(On Wharf.)

Bayos, Cal., per ctl.	$4.75@4.90
Blackeyes	5.50@5.65
Cranberry Beans	4.25@4.50
Horse Beans	3.50@4.00
Small Whites	4.65@4.75
Large Whites	4.50@4.65
Pink	3.50@3.85
Limas	4.85@5.00
Red Kidneys	5.75
Mexican Reds	4.75@4.90
Garbanza	7.00

SEEDS.

A large lot of hemp seed has recently arrived on the Coast from the Orient, but caused no change in values. There is no longer any demand for alfalfa, which is practically nominal.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

Arrivals have fallen off quite sharply this week, which has enabled the trade to clean up the large accumulation on the local tracks. The market remains quiet and easy, with a very slack demand in the consuming trade around the Bay, and while the general range of quotations stands as before a good deal of hay has been sold at concessionary prices. Unfavorable weather, and an export demand, have tended to sustain the market a little, but the effect of the late rains is not yet accurately known.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50@11.00
do No. 2	7.00@ 9.00
Barley	5.00@ 8.00
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.30@ .45

FEEDSTUFFS.

The general demand is rather light. Alfalfa meal is again lower, with prospects of a heavy output; and rolled barley also shows a slight decline. The top figure on middlings is higher.

(Wholesale prices per ton, carload lots, San Francisco.

Alfalfa Meal, ton	$14.00@15.00
Alfalfa Molasses Meal per ton	18.00@19.00
Bran, per ton	25.00@28.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	32.00@35.00
Rolled Barley	26.00@27.00
Rolled Oats	33.00@34.00

VEGETABLES.

The market is filled with artichokes, and prices are too irregular to warrant definite quotations. Asparagus is coming in more freely again, prices remaining about the same, while rhubarb is easier. Peas and beans show a wider range, especially the latter, as a good deal of the stock coming in has been unsalable at any price, and good stock is scarce. Celery is unchanged, while lettuce shows a wide range, with large arrivals from the south. Summer squash and eggplant are lower, and some okra is appearing.

(Wholesale prices, San Francisco.)

Asparagus, box	$1.50@2.25
Peas, lb	2 @ 4 c
String Beans, lb	3 @ 6 c
Peppers, bell, lb	20 @35 c
Tomatoes, Mex.	2.00@3.40
Celery, crate	50 @1.25
Lettuce, crate	50c@1.25
Rhubarb, box	40 @75 c
Cucumbers, Southern, bx	25@40 c
Eggplant, lb.	8 @12 c
Summer Squash, crate	40 @50 c
Okra, lb	15 @20 c

POTATOES AND ONIONS.

Potatoes continue scarce and firm, with supplies coming from distant points, though new potatoes are lower. Onions are weak, with Australian stock moving slowly at lower prices. Garlic is easier, though new stock is not very plentiful yet.

(On Wharf, San Francisco)

Potatoes, Oregon, ctl.	$1.75@2.25
Lompoc	2.35@2.50
River Burbanks, ctl.	1.60@2.00
New Potatoes, lb	2 @ 2¾c
Sweet Potatoes, ctl.	2.00@2.10
Onions, yellow, sack	65 @75 c
Australian, ctl.	3.00@3.25
Bermudas, crate	1.00@1.25
Garlic, per lb	10 @20 c

POULTRY.

The local demand is hardly as active as has been expected, though values are steadily held, as offerings from the east have been rather light and no excessive shipments are appearing from nearby points. Old hens and roosters, however, are rather easy.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	16 @18 c
Broilers	23 @24 c
Fryers	28 @30 c
Hens, extra, per lb	17 @18 c
Small Hens, per lb	16 @17 c
Smooth Young Roosters, per lb.	24 @27 c
Squabs, per doz.	$2.00@3.50
Geese, per pair	2.50@3.00
Ducks, young, lb	16 @17 c
Old	15 @17 c
Belgian Hares	8 @ 9 c

BUTTER.

A little extra demand for shipment caused a slight advance on extras for a few days, but the price is now back to the old level. Lower grades are ½c higher. Local trading is fairly active, but offerings from many sources are heavy.

(S. F. Dairy Exchange Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23½	24	24	24	23½	23½
Prime	23	23	23	23	23	23
Firsts	22	22	22	22	22½	22½

EGGS.

Supplies from nearby points for the last few days have been rather

light, and while a good deal of stock is coming from the north the tendency of the market is upward, all grades being higher than last week.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	23½	23½	23	23	23½	24
Firsts	21	21	22	22	22	22
Sel. Pul.	21	20½	20	20	20½	21½

CHEESE.

Cheese receives only limited attention, and with ample supplies the market shows little strength. Flats and Monterey cheese are both lower.

(S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy 12½c
Fancy Calif. flats, per lb . 11 c
Monterey Cheese ..... 9 @11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	23	23	23	23	23	23
Eggs	22	22	22	22	22	22
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

Fancy storage apples are firmer, with diminishing supplies. A few apricots are appearing, and larger shipments are expected soon, prices being so far satisfactory. Cherries show quite a wide range in price. Fancy bulk stock sells up to 8c per lb., and in boxes up to $1.10, offerings of desirable quality being unusually light for this season; while there is a good deal of inferior fruit that is hard to sell. Blackberries are beginning to appear, and gooseberries are easier. Raspberries have also dropped, and most varieties of strawberries are much lower, though offerings have been rather light. Banners show a little advance.

(Wholesale prices, San Francisco)

Strawberries:
Fresno, crate .....50 @75 c
Longworth, chest ....$4.00@7.00
Banner, chest ..... 3.50@6.00
Raspberries, crate ..... 1.25@1.50
Gooseberries, lb ..... 6 @ 8 c
Blackberries, crate 1.50
Apricots, box ..... 1.00@1.50
Cherries, per lb, fancy. 6 @ 8 c
Apples, Newtown ..... 75c@1.00
do, fancy ..... 1.25@1.50
Other varieties .....30 @75 c
Peaches, crate ..... 2.00@2.25

DRIED FRUITS.

The situation in spot dried fruits is uncertain and rather unsatisfactory. In most lines stock is in light supply and somewhat scattered, while the demand is light. The result is that any special inquiry is apt to cause a spasmodic advance, with a drop as soon as much stock is offered, and prices are unsettled. Some packers still quote as high as 9c on apricots, but it is doubtful if much could be sold on that basis. Prunes on the spot show a little more firmness, and there has also been a slightly stronger feeling in regard to new crop, though the eastern trade so far has not taken hold very strongly. Peaches stand about as before, with a little spasmodic demand but no large buying, and general indications of a rather large output this year. The New York Journal of Commerce says:

There is no interest shown in future prunes, according to statements made by prominent brokers, except at prices which none of the packers is at present willing to consider. The lowest quotations named are based on 3¼c f. o. b. four-size bulk basis for 40s to 70s and 3½c for 40s to 60s, while the smaller sizes are nominal. Brokers say that they could, no doubt, do a large business at slightly less than current f. o. b. quotations, but are unable to interest local buyers at full asking prices. On the spot the market for California is steadier as a result of increased demand of late from interior markets, but prices are not quotably higher.

The market for new crop peaches is dull and weak. Nominal quotations on the basis of 3½c f. o. b for choice are made, but even such figures appear to be above the ideas of local buyers and no business to speak of is reported. Apricots are inactive and easy both on the spot and for future shipment, but prices are without quotable change. In fancy seeded California raisins the market is fairly steady, though buying is on the hand-to-mouth order. Choice are dull and nominal.

Evap. Apples, 1914 .....4½ @5 c
Apricots, 1914 .....5 @9 c
Figs: White, 1914 .....3 @3½c
Black .....2½ @2¾c
Calimyrna .....5 @6 c
Prunes, 4-size basis, '14 4½ @5½c
Peaches 3 3½c
Pears .....6 @8 c
Raisins (in sweatbox):
Loose Muscatels .....4 @4½c
Seedless Sultanas ..... 5 c

1915 CROP.

Apricots .....6 @6½c
Figs, white .....3¾ @4¼c
Black .....2¾ @3 c
Prunes .....3½ @3¾c
Peaches .....3 @3½c
Pears .....6 @9 c

CITRUS FRUITS.

Prices for citrus fruits continue to advance on eastern auctions. At New York, Monday, May 17th, navel oranges averaged from $2.20 up to $3.35 per box. Seedlings sold for a little higher than navels, the top being $3.50. Valencias went for $2.85 up to $3.55, and St. Michaels brought as good prices. Lemons brought $2.15 to $2.90. Other auction points were a trifle lower than the above.

At most shipping points in southern California the navels are about all shipped, and now Valencias are beginning to move. Shipments are going east at the rate of over 200 cars of oranges and 40 cars of lemons daily. So far this season prices have been low, but growers hope that the increased prices for the balance of the crop will show nearly a $1 per box net to the grower.

Local values in the citrus line show no change from last week, but the local demand is picking up a little, and with other markets in better shape the feeling is quite firm.

(Wholesale prices, San Francisco.)

Oranges, navel, box ..$1.75@2.75
Tangerines, small box ...75c@1.75
Grapefruit, seedless, bx 1.25@1.75
Fancy .....2.50@3.00
Lemons, box ..... 1.50@3.25

NUTS.

Spot business is quiet, the local trade being fairly well supplied for the present, though a few scattered lots are finding a market. More interest is being taken in futures. Independent buyers are getting into the field around Stockton, but so far little has been done. Apparently an effort is being made in the trade to get growers' ideas down to a lower basis. Walnuts promise a large crop, but the situation in France is expected to give strength to the market.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:
IXL .....11 @13 c
Ne Plus Ultra .....11 @13 c
Drakes ..... 8 @11 c
Texas Prolific ..... 8 @11 c
Walnuts, new crop:
Jumbo, lb ..... 19 c
No. 1 Softshell 16½c
Budded ..... 18 c
Ungraded ..... 8 @10 c
Manchurian ..... 6 @11 c

HONEY.

The honey situation is very puzzling at present. A little stronger feeling is noted, possibly owing to the high price of sugar, and a few carloads have lately been disposed of. However, with old stocks still rather large and a large crop coming on, the outlook is too uncertain to warrant any predictions, and there is no telling whether the recent demand will continue.

Water White, comb...10 @12 c
Light Amber ..... 8 @10 c
Water White, extracted 5 @ 6 c
Light Amber ..... 3½ @ 4 c
Dark ..... 2 @ 3 c

LIVE STOCK.

The local market shows little change. Hogs are coming in more freely again, and prices have eased off. There is not much strength in the cattle market, though values remain steady, and sheep and lambs are firmly held.

(Prices at Butchertown, S. F.)

Steers, No. 1 ..... 6½ @ 6¾c
No. 2 ..... 6 @ 6¼c
Cows and Heifers, No. 1 5¾ @ 6 c
No. 2 ..... 5½ @ 5¾c
Bulls and stags ..... 4 @ 5 c

ALMOND GROWERS

Percentage of European shelled almonds used in the United States, 97%.

Percentage of California shelled almonds used in the United States, 3%.

Can you, without co-operation, and selling individually, obtain your share of the demand for shelled almonds?

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

Calves: Light ..... 9 c
Medium ..... 8 @ 8½c
Heavy ..... 6 @ 7 c
Hogs: Grain-fed:
225 to 300 lbs. ... 7¾c
100 to 225 lbs. .... 8¼ @ 8½c
Prime Wethers ..... 6½ @ 7 c
Ewes ..... 6 @6½c
Shorn sheep, less by .. ¾ @ 1 c
Suckling lambs ..... 7¾ @8 c

DRESSED MEATS.

Steers .....10½ @11 c
Veal, large .....12½ @13 c
Small .....14 @15 c
Prime Wethers .....13 @14 c
Ewes .....11½ @12 c
Suckling Lambs .....14½ @15 c
Hogs ..... 13 c

WOOL.

The California wool market remains rather quiet, though a few scattered sales are being put through, at irregular prices. A sale was made a few days ago at Red Bluff at 20c.

Wool, Sacramento Valley, lb 18@22c
Southern, year's staple ....16@20c
Six months .....14@17c

HORSES.

The local market is rather uninteresting this week, comparatively little stock being offered, and much of that being of a rather nondescript nature, while local buyers manifest only slight interest.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up .....$275@300
Light drafters, 1550 to 1650 lbs. ..... 175@200
Chunks 1350 to 1500 lbs 150@175
Wagon horses, 1050 to 1350 lbs. ..... 100@140
Green Mountain range horses, 950 to 1200 lbs 50@ 90
Farm workers ..... 60@ 75

MULES.

1200 lbs. and up .....$225@250
1100 lbs. ..... 200@225
1000 lbs. ..... 150@175
900 lbs. ..... 125@150

HIDES.

The hide situation is uninteresting at present, as there is very little demand and values are held at the former level, with only moderate offerings.

HIDES.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs .....15 @15½c
Medium .....15 @15½c
Light Steers, under 48 lb. 15 c
H'vy Cows, over 50 lbs 15 @15½c
Light Cows, 30 to 50 lb.14½ @15 c
Kip .....15½ @16 c
Veal ..... 16 c
Calf ..... 16 c
Dry Hides .....25½ @26½c
Dry Kip, 10 to 15...24½ @25½c
Dry Veal, 5 to 10 .... 29½c
Dry Calf, 7 down 29½c
Horse Hides—
Salt: Large $3.00
Medium 2.50
Small 1.00

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Sacramento, Cal., May 17, 1915.

The recent rains have seriously affected the Tartarian cherry crop in nearly all districts, and in some sections of the State Oregons and Royal Anns have been likewise damaged.

Aside from pear scab, which is prevalent in a good many districts, the balance of the crop is unaffected, but on account of excessive rains at this late date, peach trees in low places are showing sour sap and curled leaf is also quite noticeable. Young stock and nurseries have been benefiting greatly by the rains and we doubt very much if the damage to the fruit industry will exceed two hundred cars.

The latest reports from the East indicate that there has been some change in the crop situation. Colorado has been affected to the extent of 75 per cent. This applies principally to peaches and pears. Georgia will market approximately 4500 cars. Texas will probably ship 5000 cars of peaches, 3000 of which will originate from points that last season shipped only 100 cars. In addition to the above there will be about 2000 cars of peaches from Oklahoma and 7000 to 8000 cars from Arkansas. Maryland, Delaware and New Jersey all report full crops, likewise New York State. Reports regarding the condition of the crop in Michigan are at present conflicting.

The following prices have ruled for the week:

Chicago — Tartarians, from $1.70 to $2.40; Rockports, $1.25; Chapmans, $1.70; Purple Guigne, 75c; Advance, 85c.

Philadelphia—Tartarians, average $2.50; other varieties range from $1.50 to $2.25.

St. Louis — Tartarians, $2.00; other varieties from $1.35 to $1.75.

New York — Tartarians, $1.75 to $2.50; other varieties from $1.50 to $3.00.

Demand active at prevailing prices all markets for sound arrivals, but many shipments are showing the effect of recent rains.

Publisher's Dep't.

Our subscription work has been somewhat held up by the recent rains, but now that the rainy season is over we expect to receive more new subscribers each week than during the average of the past six months, which ran about 200 weekly.

Have you read our crop and market columns of late? We are doing what we can to keep our readers posted as to the condition of the fruit crops as well as the market side. Our special crop report, the special deciduous market report and the report of the fruit growers' meeting at San Jose last Saturday will be found in this issue.

Our book sales have slowed up a bit during the past few days, but from past experience we know that it is only temporary. We want to supply all of our readers with their farm literature. The five books which we have already published cover fruit, vegetables, flowers, agricultural questions, and poultry. We expect soon to issue a book on Swine Raising in California, which is much needed at this time. Look up the advertisements of books in other columns and send us your orders.

Best Milk at Minimum Cost.

(*Continued From Page 613.*)

drainage, and this was provided by laying a well-drained concrete floor. With the installing of ten steel stanchions and the applying of a few coats of white paint, the expense of the milking quarters was completed, and at a very moderate cost.

As there was already a well-drained cement floor in the older barn, on one side, no alterations were made, except to add a cement floor to the other side and to install water pipes throughout the two buildings for cleaning purposes.

The reason for even this small expense was that, while Mr. Newman did not agree with all of the provisions laid down by the medical commissioner, he readily agreed that one of the fundamentals of pure milk production was to milk in a building separate from where the feeding was done and to wash the dirt from the cows before milking. All of this work was done in a somewhat crude way, mechanics having of necessity been eliminated on account of the cost; but the home-made buildings are still being used, without change from the first plan, except for the enlargement of the feeding and washing barn for a larger herd.

At the milk-house the same ideas of economy and simplicity were practiced, the former pump-house being used for housing the boiler, motor, and ice machine. This house had been built of 1 by 12 rough pine lumber, for economy; and further additions to accommodate the refrigerator, bottling machine, and sterilizing vat were made of the same material. A cement floor was laid, having good drainage, and one partition erected between the bottle-washing room and the bottling-room.

Even by economizing in every possible manner, the cost of machinery and lumber ran into a total of over $2,000, and—to again quote Mr. Newman: "That meant disaster to us, with our badly bent pocketbook, unless we found a ready market for our milk at prices somewhat higher than ordinary milk was sold for, which was and still is $2.50 per quart per month." An added expense which had been indulged in before, but nevertheless an investment to be charged against the product, was the cost of testing the herd for tuberculosis, and of weeding out the reactors—a task which has been regularly performed since then and one on which much emphasis is placed, even though neither the intradermal nor the subcutaneous tests have always proved reliable. By testing every animal before she comes on the ranch, and immediately disposing of any that react, the herd, which is of mixed breeds in order that a high-test milk may be secured, is as free from tuberculosis as any herd may be with modern methods.

With a healthy herd and a sanitary outfit, the only question was a market, and here great difficulties were encountered, for the medical commission refused to certify the plant, and, anyway, it was only planned to sell the milk for $3.50 per quart per month, instead of $4.50 as desired by the commission. On the other hand, the wholesale dealers did not offer any encouragement, as the best they were willing to pay was 12 cents per gallon, and that was impossible from the Newman brothers' standpoint. Finally, things got so desperate that, as a last chance, it was decided to put that pure, sweet milk into the hands of the consumers in spite of the middle dictators, and with that end in view an attractive little pamphlet explaining the aims, quality, etc., of Newman Brothers' guaranteed milk, was sent to each of some 600 families in Sacramento who would be the most likely customers. It will be noticed that the word guaranteed was used—well, that was, and still is, exactly what was meant. If for any reason the milk is not satisfactory, the customers' money is refunded—a thing which has never yet been necessary. After these circulars had been mailed, the orders soon started to come, and have increased to such an extent that, even with 60 cows instead of 20, which was the number milked at first, the trade cannot be supplied; and a waiting list has been made. The delivery problem has been solved by hauling the milk to town in an auto-truck, which makes but one delivery a day. Two one-horse wagons distribute the milk in one trip daily. Perhaps the reader will be surprised at the above statement regarding the one delivery a day, but only one is necessary on account of the purity of the product handled. To show how badly tradition was treated in this respect, Mr. Newman told us of a number of his newly made customers who at first did not like his

DANGEROUS
as well as painful
Backache Neuralgia
Lumbago Rheumatism
Stiff Joints Sprains
Combault's Caustic Balsam
WILL RELIEVE YOU.
It is penetrating, soothing and healing and for all Sores or Wounds, Felons, Exterior Cancers, Burns, Boils, Carbuncles and all Swellings where an outward application is required CAUSTIC BALSAM HAS NO EQUAL. Removes the soreness strengthens the muscles. Price $1.50 per bottle. Sold by druggists or sent by us express prepaid. Write for Booklet L.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

Divide By 2

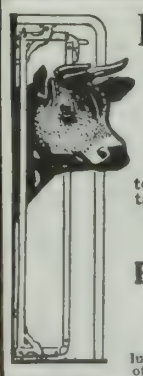



FIGURE barn-work costs in wages, hard work, time, energy, for *one year!* Divide it by two! That's what happens when you put Star Barn Equipment on the job. It's going to pay you to look this up. All it will cost you is the trouble of writing. Send this coupon to-day for all the facts pertaining to labor-saving
STAR
Barn Equipment
Stalls, Stanchions and Litter Carriers
Star Barn Equipment is absolutely in a class by itself because of patented time and labor-saving features not found elsewhere.
Star Stalls and Stanchions are built in Units—stalls grow with herds. Keeps animals lined up to gutter by new and vastly more practical method—instantly adjustable to all cow-sizes—more comfort for cows—less work for men.
Star Litter and Feed Carriers are speediest, easiest raising and lowering and most durable labor savers on market. Proved by hundreds of tests. Roller Bearing throughout. Swinging Room clears barnyard of all obstructions.
FREE— Our instructive catalog explaining all. Let us send it.
Write your name here.
Name .....
Address .....
Clip out and send today.
PACIFIC DAIRY MACHINERY CO.
Dairy Outfitters
56-58 Clay St., San Francisco

Hillcrest Stock Farm
THORNTON S. GLIDE, Prop., DAVIS, CAL.

"Hillcrest Lad"—First Prize Ram at State Fair, 1911.
Breeder of
Short-Horn Cattle, Shorpshire and Merino Sheep
Offers for Season of 1914 an exceptionally fine lot of Purebred and Registered Shropshire and Merino Rams, yearlings and two-year-olds.

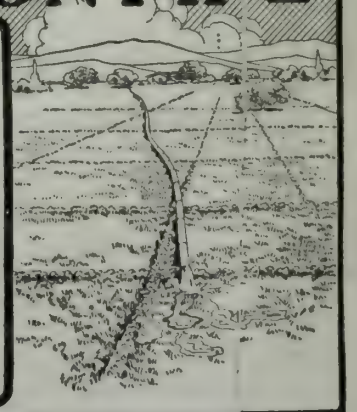
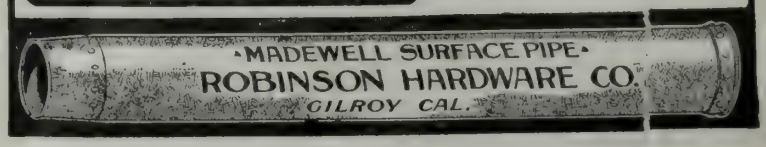
San Ramon Shropshire Flock
Purebred and Registered Rams and Ewes For Sale. Individual or Carload Lots.
PRIZES WON BY FLOCK IN 1912.
CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.
OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.
INTER-STATE FAIR, SPOKANE, WASHINGTON—Five firsts, three seconds, champion ewe.
INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.
BISHOP BROS., San Ramon, Contra Costa Co., Cal.

America's Leading Horse Importers
PERCHERONS

"Our recent importation arrived at our Oakland stables March 1st. This shipment comprises the best lot of stallions ever shipped to the Pacific Coast. Every horse in the lot is sound, young, stylish and of the best conformation.
AT the INTERNATIONAL LIVE STOCK EXPOSITION, Chicago, December, 1913, our stallions won two Gold Medals, two Championship ribbons, two Second Prize ribbons, and other honors.
If you want the BEST let us hear from you.
McLaughlin Percheron Company
Kansas City, Mo. Oakland, California.

Fills Your Silo Quickly With Less Power and Labor
You can operate this machine with a 4 h. p. gasoline engine. It's the lightest running blower type of ensilage cutter made—The *throwing, blowing, lifting force* carries the ensilage in a steady full stream rapidly up into the highest silo without waste of power. The ensilage packs perfectly and keeps sweet and succulent. The
PAPEC ENSILAGE CUTTER
is easy to set up and take down. Simple in construction, not easy to get out of order. The entire frame is one solid piece of semi-steel. The bearings are always in line, run smoothly and will not heat. The feeding mechanism is geared to the main shaft—always gives you the desired length of cut. The *Papec Ensilage Cutter* is not chain driven, but has heavy gears which transmit *all* the power. It cuts ensilage perfectly and swiftly—as fast as you can bring the corn to the machine.
Write for Illustrated Catalog. Send today for this book. It shows how The "Wonderful Papec" cuts ensilage with less power, time and labor. 25 convenient distributing points in the U. S.

PAPEC MACHINE COMPANY
Box 17 Shortsville, New York
Sold by Delta Construction Co., Sacramento, California.

SURFACE IRRIGATION PIPE
When land and water were cheap, ditch irrigation was good enough. But now this wasteful method is being rapidly abandoned. Instead, irrigators are using
Madewell
Surface Irrigation Pipe
One piece 10 ft. lengths with 6 in. tapered sleeves. Heavy wide lock seam made by special powerful machinery. Four thicknesses of metal where the strain comes; made doubly sure by soldering. No rivets to be knocked loose. Total collapse of the pipe will not break this indestructible "Madewell" seam. The smooth sleeves and collars with counter-sunk seams make water-tight joints without driving and pounding. This, too, is important.
Send for Free MADEWELL catalogue B
Robinson Hardware Co. Gilroy, Cal.



manner of distribution; for they said: "You deliver us yesterday's milk today, about 11 or 12 o'clock, and we don't use it until tomorrow, so it is over 48 hours old before we use it. We do not believe that it is possible for such milk to keep sweet such a long time." Seeing is believing, however, and now all of the customers have implicit faith in any milk brought from Mr. Newman's wagon.

To further show the keeping quality of the milk, the manager told us of a more recent case where one of the baby customers moved to Placerville for three weeks and requested that her milk be shipped by express. For the three weeks of her visit, four bottles of milk were sent every fourth day, thus making the milk five days old before it was used, when it was found perfectly sweet and all right, even though it had not been on ice since its delivery to the express office.

This and similar experiences seem to bear out Mr. Newman's theory that there really is no souring possible in pure milk. So long as the bacterial content is kept below 1500 per cubic centimetre, as it has been most of the time since the selling of whole milk was started, it makes little difference whether the buildings are things of beauty and expenditure.

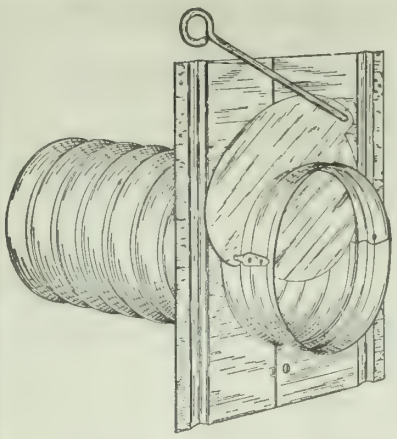
To the average dairyman the bacterial test of his milk cuts little or no figure, but not so here; in fact, this test is in reality the barometer of all work done; for it is through this test that any flaw in the workmanship is discovered, and a high count means much investigation all along the line, as well as considerable gloom on the part of everyone, from the boss to the fellow who pulls the teats. The idea that hired milkers would take such a deep interest in the quality of the product may seem like an exaggeration, but the fact is that the boys (as we were taught to call them, instead of "hands") form a large part of the conscience and individuality of the plant, which would without them be a flat failure so far as pure milk is concerned. The secret of this success with the boys is that they are well paid, fed, and housed, and treated with respect. A new house is to be erected this year for these men, who are the custodians of the bacteria count, since the city customers have demanded practically all of the owners' time and attention.

Having said so much of these milkers, and having told of the equipment with which they do the work, the question naturally arises, "What do they really do so different from others?" Now, as a matter of fact, they do about the same things that are done in many of our city milk dairies: First, the cows are hosed off in the feeding barn and any remaining dirt scrubbed; their tails are kept docked all of the time, as otherwise they would switch small particles of dirt at milking time; their udders are clipped of the fine hairs, although "this is done more to satisfy the whim of the inspectors than for the real good that comes therefrom." It is Mr. Newman's opinion that, no matter how much washing is done, more dried particles of skin and other dirt fall during milking time when there is no hair on the udder to catch it, than when the animal is unclipped.

After washing, they are driven into the milking barn, which is thoroughly cleaned out by flushing after each string of ten is milked. The milkers wear white overalls and jumpers, and use a no-seam bucket having a heavy grade of cheesecloth for a strainer, which is changed after each bucket of milk is carried to the milk-house. These cloths are sterilized after using and kept in an enclosed pail until used again. The milkers wash their hands after milking each cow and thoroughly dry them on clean towels. Each bucketful of milk is carried directly to the milk-house, where it is poured through the outside wall into a small metal tank inside of the bottling room. From the small tank it is run over an enclosed milk cooler in which brine from the refrigerator is circulated, and goes from there to the bottling machine. This machine fills a number of bottles at one operation, the bottles being taken directly from the crate and put under the capping machine which hermetically seals them with a metal cap. After this the bottles are put into galvanized-iron cases and set into the refrigerator, where the temperature is kept at or near freezing, until the next morning, when they are iced and put on the auto-truck for town.

It is the care exercised in handling the milk that enables the Newman family and the boys to smile when the bacteria tests of Sacramento dairies are published. Their milk has shown as low a count as 280, a product that, the city chemist added in his report, "was surgically pure." Now we saw the reason for so much stress being laid on the milkers, for it is not so much what they do that is different, but the way they do it.

"Does it pay?" was our parting question, and we were immediately informed that it does. "Pays a bigger interest on the investment than we could ever hope for by selling either certified milk or butter-fat. Besides, there is much satisfaction in knowing that we are really benefiting others as well as ourselves through the production of a pure foodstuff."



4-C IRRIGATION GATE

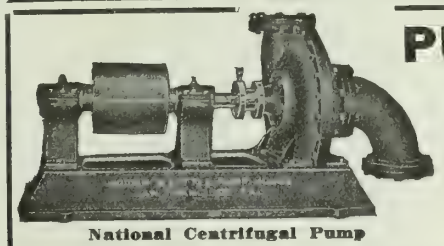
Reduces labor of irrigating.
Easy and quick to install or move to new locations.
Does not wash out.
Saves water and stops scalding of crops.
Can be removed, ditches cleaned with teams, and gates replaced without loss.

DURABLE because made from RUST RESISTING
AMERICAN INGOT IRON

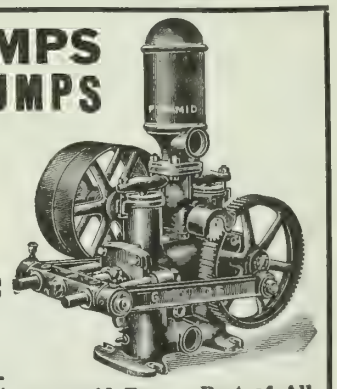
Five other types of Gates, Culverts, Siphons, Flumes, Stock and Water Troughs.
WRITE US

California Corrugated Culvert Company
417 Leroy St., Los Angeles. 406 Parker St., Berkeley.

PUMPS PUMPS



National Centrifugal Pump

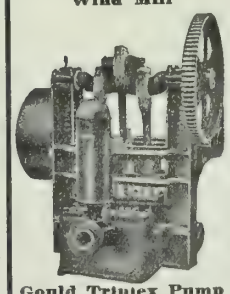


Pyramid Pump—Best of All

Red Cross Wind Mill

For Every Service and Use

Is the LARGEST in the Country

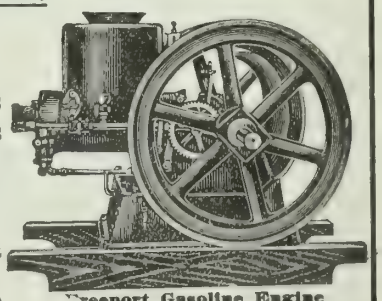


Gould Triplex Pump

Gasoline Engines
All Sizes
Wind Mills, Tanks
Pipe, Pipe Fittings

WOODIN & LITTLE
PUMP HOUSE
33-41 Fremont Street
San Francisco

Catalogue Mailed Free.



Freeport Gasoline Engine

Water! Water!!
Irrigation! Irrigation!!

Don't worry about a dry season. Insure against a failure of crops by boring wells, thereby securing a bountiful supply of pure water.

W.W.Montague & Co.
Established 1858

PIONEER MANUFACTURERS OF
WELL CASING

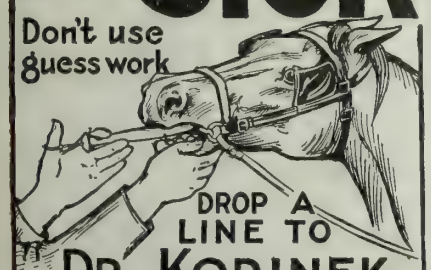
Double or Single, Black or Red Steel and Galvanized.

56 years' experience; employment of skilled mechanics, operating modern machinery, using best quality of steel specially rolled for casing, enables them to produce a superior quality, to meet the requirements of well-borers who pronounce Montague's Casing the Best.

Montague casing put in wells in Santa Clara County 50 years ago giving good service today.

557 Market St., San Francisco

When any of your STOCK are SICK
Don't use guess work



DROP A LINE TO
DR. KORINEK
IMMEDIATE ADVICE GIVEN ABSOLUTELY FREE

In the meantime write for Dr. Korinek's List of Remedies for all the known ailments of Horses, Cows, Pigs, Sheep, Dogs, Cats and Poultry, its free.

Dr. Korinek is a Veterinarian of National reputation. He has served four years as president of Oregon State Veterinary Board and State Veterinarian under two governors.

Don't wait—write today for FREE literature, and a sample of Dr. Korinek's Gall Powder.

KORINEK VETERINARY REMEDY CO.
MEDFORD, OREGON, U. S. A.

HOWARD CATTLE COMPANY
BREEDERS AND IMPORTERS OF SHORT-HORN CATTLE.
55 New Montgomery Street, San Francisco.

Blake, Moffitt & Towne
Dealers in PAPER
37 FIRST ST., SAN FRANCISCO
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Ore.

With the Live Stock Men.

The Tulare County Cow Testing Association have just finished their second year's work and have met with such marked success that plans are being made to either start a second association or provide an assistant tester to work in connection with Alex Rousseau, the tester for the present association.

The Adams-McGill company, of Ely, Nevada, have shipped the last of their spring wool clip, which weighed about 240,000 pounds and was valued at $40,000. The quality of the wool is said to have equaled that of the Montana clip and to have brought an equally good price.

John Daggs, the Duroc-Jersey hog breeder of Modesto, writes that he will show at the Sacramento fair this year, where he will have a strong representation of the red hog. He is also planning on showing a good bunch at the Panama-Pacific Exposition in 1915.

Thornton S. Glide, the well known Shropshire sheep and Short-horn cattle breeder, states that during the past season he has sold over 150 bulls and that the demand for Shropshire bucks has been especially good also.

Work on the new milk-canning establishment which is to be built at Newman, Stanislaus county, by the Central California Creameries, will be started at an early date and present plans are for a larger factory than had at first been hoped for.

The pure-bred Swiss Toggenburg goats which are being raised at the University Farm at Davis are doing exceptionally well. One of them is now giving 70 pounds of milk a week which tests 4.2 per cent and experimental work is being carried on to see if goats are as economical as dairy cows.

John Arfman, of Middletown, N. Y., is reported to have sold a half interest in the Holstein bull King Segis Pontiac Acarta for $25,000 to the Lawson Holding company, of New York. This is said to be the highest price ever paid for a dairy animal.

Several cases of anthrax have been reported near Dinuba, among dairy cattle, and as a result six head have been killed by veterinarians.

Messrs. Dougherty and Sinai, of Lodi, recently shipped six well bred, heavy horses to Yokohama, Japan. The purchasers are a wealthy firm of that city and it is thought that quite a trade will be built up if the shipment proves satisfactory.

A cable dispatch states that recent rains in Australia have insured abundant food for live stock for a number of months, and that sheepmen are undecided whether to raise sheep for their fleeces or for food purposes.

K. H. Dorsey and C. D. Wright, who recently purchased the 189-acre ranch of George Marting, near Perris, Riverside county, are expecting to further improve it and start a first-class dairy.

A meeting has been called at Washington, D. C., June 2, 3, and 4, for persons interested in the sheep and wool industry. Among the topics to be discussed will be the improvement of farm and ranch methods of handling wool; the possible adaptation of foreign methods to American conditions; the standardization of the wool clip; and the prevention of damage by dogs and predatory animals.

The Churchill creamery, at Fallon, Nevada, churned during the month of April 18,200 pounds of butter which was sold to markets in that State. A report from Gardnerville states that the creamery at that place has been closed after disbursing over one million dollars to dairymen in the Carson valley.

Reports are to the effect that the Government is finding it difficult to purchase a sufficient number of horses for its present needs, and that as a result, stations will be established in California, Arizona, and Nevada, because horses from these States are fitted for the work better than those from other States.

C. C. Potter, of Stratford, Kings county, recently purchased 28 head of fine grade dairy cattle from Joe Morrison, of Tulare. The price paid was said to be high.

Cattle prices at the Portland Union Stock Yards for the past week were steadier and further declines were not registered. Best light hay-fed steers sold for $7.50 to $7.75; good cows, $6.50 to $6.75; all other cattle prices being equally steady. Grain-fed steers at 8c featured the early week's market.

Live Stock Directory

Rate in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

SWINE.

REG. POLAND-CHINA PIGS for sale from our prize-winning stock—the prolific kind. Both LARGE AND MEDIUM TYPE. Either sex. Price $12.50 up. Guaranteed as represented or money refunded. W. A. Young, Lodi, Cal.

REGISTERED DUROC-JERSEYS — No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. P. Daggs, Modesto, Cal.

BERKSHIRES—Utility and Choice Registered Pedigreed Stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REG. BERKSHIRE SWINE, all ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop.

REGISTERED POLAND-CHINA SWINE —Prize winners, finest stock in State. $30 p. M. Bassett, Hanford.

REG. POLAND-CHINA SWINE. Every hog carries guarantee. Cooley Bros., Durham, Cal.

DUROCS from first-prize winners State Fair, $15.00 up. Ed E. Johnson, Turlock, Cal.

REGISTERED O. I. C. SWINE—All from premium stock. C. D. Conway, Lakeport, Cal.

TAMWORTHS. The finest bacon hog. All ages for sale. Cottle & Hobson Co., Amsterdam, Cal.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

REGISTERED DUROC-JERSEY SWINE —Las Paderes Ranch, El Cajon, Cal. M. C. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry Farmington.

DUROC-JERSEY BOARS—Weanlings. Lindquist Bros., Turlock, Cal.

CHAS. GOODMAN, Breeder of High-Class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE. C. B. Cunningham, Millis, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

DAIRY CATTLE.

REG. HOLSTEINS — We offer choice grandsons of King Segis, also grandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. & H. Stenzel, San Lorenzo, Cal.

AYRSHIRE—THE PERFECT COW—Steybrae Ayrshires. Have for sale fine young bulls from imported dams and sires. Large for their age. Fine color. For particulars, address E. B. McFarland, San Mateo.

REGISTERED AND GRADE HOLSTEIN BULLS, from one to eighteen months old. Herd headed by Hartog Pontiac 48823-Rowena Maid Mutual 46304. Address Superintendent Whittier State School, Whittier, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

FRANK MECHAM, Petaluma, California—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop.

FOR SALE—50 very high-bred grade Holstein heifers, from 18 to 24 months old; all bred to pure-bred sire. E. J. Weldon, Box 962, Sacramento.

I have to offer a limited number of young Holstein bulls. Write for particulars, J. W. Benoit, Route 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED AND GRADE HOLSTEINS. K. W. Abbott, Moorland Farm, Milpitas, Cal.

ELDER CREEK JERSEY FARM—Reg. Jersey Bulls for sale. R. 4, Sacramento, Cal.

TWO HOLSTEIN BULL CALVES—Prices very reasonable. Cooley Bros., Durham, Cal.

HOLSTEINS — Registered exclusively, Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REG. HOLSTEINS—Bull calves, Juliana-King of Riverside breeding. B. F. Anderson, R. 2, Modesto.

REGISTERED HOLSTEINS — A. W. Morris & Sons Corp., Importers and Breeders, Woodland, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED JERSEY CATTLE — Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain, Petaluma, Cal.

REGISTERED JERSEY BULLS for sale. D. F. Conant, R. 5, Box 64, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM. Pure-bred Holstein cattle. Los Banos, Cal.

J. S. GIBSON CO., Williams, Cal.—Registered Holstein bulls for sale.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

HEREFORDS — Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

HORSES AND MULES.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three years old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

SHIRE HORSES—Stallions, mares and colts of the best breeding, both imported and home-bred, for sale at reasonable prices. Henry Wheatly, Salvador Stock Farm, Napa.

SHEEP.

FRANK MECHAM, Petaluma, California—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal. Breeder of French Merinos and Shropshire sheep. Stock for sale at all times.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS.

FOR SALE—30 head of coming four-year-old mules, also 80 head of yearling Shropshire bucks. Inquire of J. R. Bloom, Dixon, Cal.

WAUKEEN STOCK FARM—Reg. Jersey cattle and Poland-China hogs. Chas. N. Odell, Modesto.

PAICINES RANCH CO.—Breeders of Registered Percherons and Short-horns. Paicines, Cal.

S. B. WRIGHT, Santa Rosa.—Registered Berkshire hogs and Jersey cattle.

RHOADES & RHOADES
EXPERT LIVE STOCK AUCTIONEERS
Sales conducted in all parts of California and adjoining States. Write for dates and terms. Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles.

Quality Berkshires
Oak Grove Berkshires are now better than ever. We have five herd boars and can offer you almost any breeding you want.
You may buy cheaper Berkshires than ours, but you will not get better ones.
Oak Grove Dairy Farm
Woodland, California

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen, because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Cutter's Blackleg Pill Injector 1.50
Discounts: 250 doses, 10 p. ct.; 500 doses, 20 p. ct.
Use any injector, but Cutter's simplest and strongest. Every package dated, unused pill exchangeable for fresh after date on package. Do not use old vaccine (ours or any other), as it affords less protection than fresh.
Insist on Cutter's. If unobtainable, order direct. Send check or M. O., we pay charges and ship promptly.
THE CUTTER LABORATORY, Berkeley, California.

DON'T FORGET
Geo. A. Smith's First Sale of Registered Holsteins.
Corcoran, Cal., Tuesday, June 16, 1914.

PLANT THE SEED OF GREAT PRODUCERS and RAISE A CROP OF GREAT PRODUCERS. A GOLDEN OPPORTUNITY to secure some of the best blood the breed affords at BIDDER'S PRICES. Head your Herd with a Grandson of KING SEGIS—83 A.R.O. Daughters—the first sire to sell for $10,000, and sire of more Jr. 2-yr.-old 20-lb. daughters than any other one sire; Grandsons of PONTIAC KORNDYKE, 81 A.R.O. Daughters, 3 of which have made WORLD'S RECORDS, sire of more 30-lb. daughters than any other one sire and grandsire of the WORLD'S CHAMPION, K. P. Pontiac, 44.18 lbs. Butter in 7 days; Grandsons of HENGERVELD DE KOL, 116 A.R.O. Daughters—8 above 30 lbs., 78 above 20 lbs. of Butter each in 7 days.

COWS with Official Records—COWS now on Year's Semi-Official Test and making good records—HEIFERS BRED to one of the best bulls in the West who sold for $1250 when a calf—HEIFERS not bred—HEIFER CALVES and BULLS of all ages from 4 months to 4 years.

HOLSTEINS WITH TYPE—GREAT PRODUCTION and PREPOTENT BLOOD. WHY RAISE SCRUBS when the cost of raising pure-breds is no more? Will scrubs pay at the present prices of butter-fat? THERE IS MONEY IN HOLSTEINS FOR YOU—they are going higher all the time. You can START RIGHT with a young bull and some heifers or a few bred heifers that will not cost much and within a year they will be cows worth double what you paid for them. GET A FEW MONEY MAKERS. This is your chance to secure Blood that has produced WORLD'S CHAMPIONS. WRITE at once for SALE CATALOGUE and read all about them.

GEO. A. SMITH, Corcoran, Cal.

Although there was a liberal run of swine, prices held steady, the best grades of light hogs selling at $8.25 for tops. Mutton receipts were smaller, best grade valley yearlings selling for $5. Spring lambs sold at $6.60, but showed a decline from this price later in the week. The firmest class in the sheep division were ewes, which sold steadily at $4 to $4.25.

Ideas of a City Draft Horse User.

One of the most interesting as well as the most instructive addresses made before the recent meeting of the Draft Horse Breeders' Association, at Davis, was that by Mr. James McNab, of the firm of McNab and Smith of San Francisco.

Although this firm is perhaps the largest user of heavy horses in the city of San Francisco, through their extensive business of heavy draying, they have used the horse for their heavy hauling almost to the exclusion of other forms of power, and in giving his opinion on the future of the heavy horse and the motor truck Mr. McNab had the following to say: "While the motor truck is a convenience and a great help in doing particular kinds of work it will never allow us to dispense with the services of the horse. In special work, where long distance or a heavy grade cuts a figure, the motor truck has advantages over horse power, but in the ordinary work of the trucking business conducted in a general way, which is the hauling of freight between railroad depots, stores, and wharfs, the motor vehicle has never been a success alongside of the horse-drawn vehicle, and we look to a continued need for an extended use of horses in our business."

Mr. McNab also stated that his firm have had to import carloads of heavy horses from Illinois and Iowa in recent years, on account of the shortage of horses in California which have the size, bone, conformation, and general type of draft animals. He further continued: "It is a common saying among horsemen on the farms that a 1400 or a 1500 pound horse is big enough for anybody and that the bigger they get after those weights the poorer the quality. If this is the case the fault lies with the kind of horses that are being bred. A good big horse should be just as good as a good little horse, provided he is an animal of the breed suitable for the work that he is intended for. Breed for the big horse, you will always get plenty of little ones."

In regard to the best breed, Mr. McNab related how he had made a trip to Europe some years ago and stated that in those countries he found the Shire, Clydesdale, and Belgians mostly used for heavy work; but one noticeable feature was their good bone and conformation as well as size. In judging work-horses there, he did not find the preference for solid colors that exists in this State. He stated his reason for this preference of solid colors was the appearance, telling how a well fleshed, solid color made a good impression, while a well fleshed spotted animal was apt to look rough and poorly kept. "The difference in the breeds at this time," he continued, "in my opinion is more in the individual animals than in any great dstinction in the breeding. You cannot have a good specimen of a draft horse, no matter how much he may weigh, unless the bone coupling and girth is in proportion to the size of the animal."

The first mares brought over the plains by the early settlers were sold, largely, to ranchers in the Sonoma, Livermore, and Santa Clara valleys. The first imported stallions were of the Clydesdale breeding, followed closely by a Shire stallion, which was taken to the Santa Clara valley. This was in 1861 and the cross of these horses with American mares gave wonderful progeny, there being a number of them scattered over several sections of the State by 1866. This cross turned out draft horses just about as good though not so large as we have at the present time.

"As soon as the colts from this stock were big enough," he continued, "they were supposed to be old enough and were put in general use in San Francisco, many of them too young. The bigger the horse is to be the longer he takes to mature; and for our use we do not put a horse down to his hardest work until he is six or seven years old. Those colts being big and apparently fit, at three or four years of age, were at once put to work upon the streets of San Francisco; and being immature did not give good satisfaction."

The continued breeding of this stock seemed to develop a coarse, hairy, undesirable animal so a number of farmers in Sonoma county purchased a fine specimen of the gray, heavy boned Norman horse; and this, crossed with the mares above referred to, resulted in the foals being probably as fine specimens of draft workhorse types as we have ever been able to get.

The success with this cross led to a great importation of Norman and Percheron stallions; and while the result for some time was very gratifying, the continuous breeding and carelessness in the selection of a number of the horses imported, resulted in the horses beginning to lose bone. The colts developed into horses of all the weight required; but there was a defect in the lightness of bone in the limbs that made many of them useless for the city work.

Since that time more or less success has been made in the breeding of heavy horses, this being more noticeable on high dry lands, rather than upon low irrigated sections, for in the latter places they did not have feet that would carry them on the city streets.

Mr. McNab stated that his firm was glad to see of late years an evident desire on the part of farmers to raise good draft stock. There have been many importations of first class stallions and a little attention should soon restore the breeding of work horses to the place it once occupied. He also said that "a good draft horse is always saleable at a good price, but you must never forget that a draft colt is a big, soft boned, helpless animal when young and cannot stand the hardship of the small type of horse. It is absolutely necessary that a draft colt have plenty to eat the first two winters of his growth. It doesn't have to be expensive feed; if they can run to a straw stack they will make out on it—but if stunted at that age, they can never recover."

In closing his remarks Mr. McNab stated that he has often wondered why farmers do not take the interest in heavy horses that they have taken in fine trotters; showing that the trotter or thoroughbred animal requires the services of a number of trainers and extra help, while all that the well bred draft animal needs is plenty to eat while he is growing; and a ranch hand or other laborer to put a halter on him when grown, at which time he is, after an hour or two, ready to be put to work and be a faithful help and servant from that time on.

Seeing the Difference Between the DE LAVAL and other Cream Separators

IT DOESN'T TAKE AN EXPERT KNOWLEDGE OF mechanics or a long working test to tell the difference between the De Laval and other cream separators.

ON THE CONTRARY, WITH A 1914 DE LAVAL MAchine placed beside any other separator the difference is apparent at first sight to the man who never saw a separator beforee.

IF HE WILL THEN TAKE FIVE minutes to compare the separating bowl construction; the size, material and finish of the working parts, particularly those subject to wear and requiring to be occasionally taken apart and put together; the manner of oiling, and everything which enters into the design and construction of a separator as a simple durable machine, he will still further *see the difference.*

IF HE WILL GO A step farther and turn the cranks of the two machines side by side for half an hour, particularly running milk or water through the bowl, he will see still more difference.

AND IF HE WILL take the two machines home, as every De Laval agent will be glad to have him do, and run them side by side in practical use, the De Laval one day and the other machine the next, for a couple of weeks, he will see still greater difference in everything that enters into cream separator practicability and usefulness.

THE MAN WHO TAKES EVEN THE FIRST STEP INDIcated in seeing for himself the difference between the De Laval and other cream separators doesn't put his money into any other machine one time in a thousand.

THE COMPARATIVELY FEW BUYERS OF OTHER SEParators are those who merely read printed matter claims or listen to the argument of some dealer working for a commission, and who do not think it worth while to *see the difference* for themselves.

THE WISE BUYER OF A CREAM SEPARATOR TODAY does see this difference when buying his *first* separator, while the unwise or careless one usually finds it worth while to do so when he comes to buy a *second* separator a year or two later.

EVERY DE LAVAL AGENT CONSIDERS IT A PRIVilege to show the difference between the De Laval and other separators, and to afford every prospective buyer the opportunity to try out and prove the difference to his own satisfaction, if on first examination he feels the slightest doubt about it.

THAT'S THE REASON WHY FOUR BUYERS OUT OF five are buying De Laval Cream Separators in 1914 and why the use of De Laval machines will, before long, be nearly as universal on the farm as already is the creamery and milk plant use of power or factory separators.

DE LAVAL DAIRY SUPPLY COMPANY

165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE

50,000 Branches and Local Agencies the World Over.

Making Apple Trees Bear Young.

[Written for Pacific Rural Press by Miss Vida R. French, El Nido Orchards, Sebastopol.]

Summer pruning is a special practice which should be employed only with the greatest care. There are two classes of summer pruning based upon the age of the tree; first, that used on young trees before maturity, and second, that applied to trees of a bearing age.

Summer Pruning Develops Spurs.—All young trees, from one to five years, should receive care, at least once during the growing season. In June, each tree in the young orchard should be gone over carefully and all side shoots, not desired as scaffold limbs, should be pinched back leaving a short stub with two or three buds. (See Fig. I.) If these shoots are cut off close to the main limbs, as is commonly practiced, the bearing age of the tree is postponed from three to five years. If these shoots are allowed to grow all season and cut to stubs or entirely removed in the dormant period, it is a clear loss. All the strength and energy of the tree in producing them has been wasted; the remaining branches are smaller and weaker than they would have been if the tree had been able to concentrate upon a few limbs, and the stubs, so desirable for developing fruit spurs, will merely force their way into undesired branches again.

Distributes the Load in Advance.—In caring for a young tree, the first consideration is to produce a strong framework, capable of carrying heavy loads and yet at the same time the pruner should distribute that load in advance by placing his fruit spurs evenly all along the scaffold limbs. How often we see young trees carrying their crop at the ends of the branches, while the limbs bear nothing at their strongest point. Results from summer pruning should not be expected the first season, though some spurs will be formed. It takes one to three years to develop a fruit spur. The June pruning of the young tree is primarily to direct all energy into permanent framework. A later pruning about mid-summer is necessary, if the pinched back shoots have started a second growth. Thus all that remains for winter pruning is the heading back of the terminal growth.

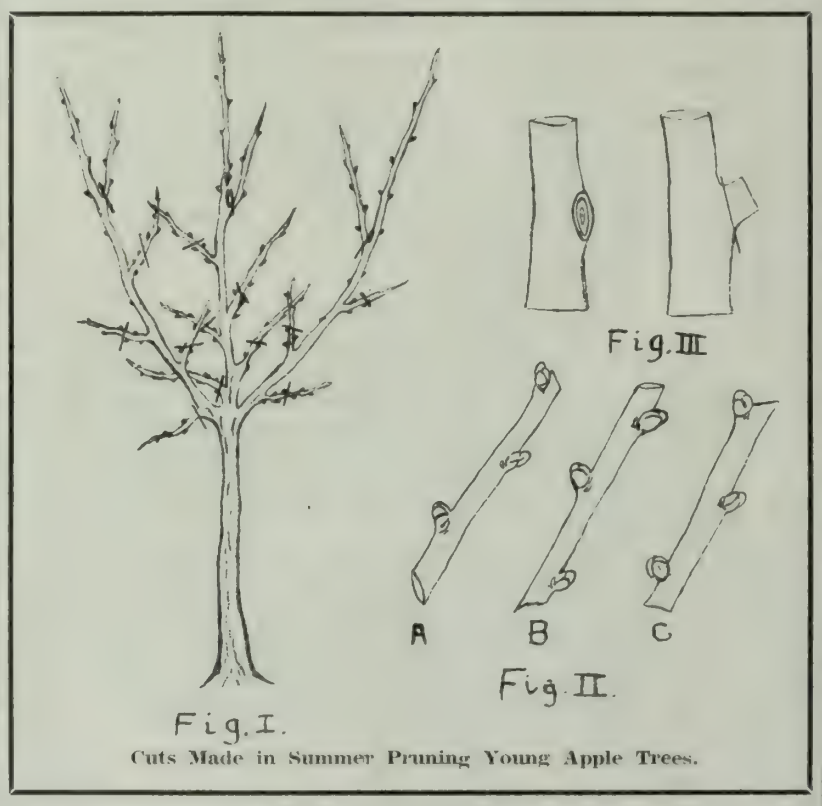
Giving Tree the Fruit Bearing Habit.—Many fear that a young tree will injure itself by overbearing if it develops fruit buds too young, but this danger is entirely overcome by thinning after the fruit has set. The two great functions of a tree, wood growth and fruit production, are opposite in character. The more you have of one, the less you have of the other. And either can become a habit with a tree, hence the desirability of establishing fruit spurs early.

Summer Prune Only Shy Bearing Mature Trees.—A mature tree should never be summer pruned unless it is a shy bearer. The method is practically the same as for the young tree, except the time of pruning, which is later. Snip back to a few buds, all growth not desired for branches, removing any forks or interfering growth. Never, under any circumstances, head in the terminal shoot. Herein lies the great difference between summer and winter pruning. Just when to summer prune varies according to the season, locality, and moisture. If done too early, secondary growth starts; if too late, when the season's growth has finished, it has no effect whatever in producing fruit buds. The right time is just before the tree has completed its season's growth, while the sap still has activity. If done then, food material is stored up in the bruised shoots, and fruit buds begin to form, while the greatest activity finds an outlet in the unpruned terminal twig. During the following winter all terminal growth should be cut back from one-third to one-half of the past season's growth, to maintain the vigor of the tree.

Continuous Summer Pruning Weakens Tree.—Anything that injures a tree will tend to produce fruit buds. Root pruning, girdling, twisting twigs, driving nails into trees, constricting the flow of sap be-low a bud and summer pruning are all injuries. Hence great care and judgment must be exercised in summer pruning resorted to only as a last resource to force an unproductive tree into bearing. In no case, whatever, should it be continued for more than three years in succession. Continuous summer pruning might in time weaken a tree to the point of death, for the leaf area removed in mid-summer has not had time to return to the tree as much food as it has taken away. Hence, if long continued, the roots would starve.

The fruit grower who has an unproductive orchard should first make sure of drainage, humus, available plant food, thorough cultivation and cross pollination. If these are all that they should be and the trees still shy bearers, summer pruning will be of great use in obtaining larger yields.

In all pruning, summer or winter, care should be used to make each cut the correct way. Never leave a stub above a bud, as shown in Fig. II, B and C), as they cannot heal, but make a clean slanting cut, not more than one-eighth of an inch above the bud, as at A. In removing branches cut close to the main limb and parallel with it, never at right angles to the branch cut (Fig. III). Always cut to a bud facing the direction you desire the growth to take and protect cut surfaces over an inch in diameter with paint or grafting wax.



Cuts Made in Summer Pruning Young Apple Trees.

Freight Concessions Needed.

[By T. F. Powell, U. S. Department of Agriculture.]

[Fruit growers are as interested in getting the money for their products as they are in raising them. The conclusions reached from much recent research are that the consumers generally pay enough for their fruit, and then some; but that the producers receive too little. Too much is absorbed between the producers and the consumers. If a little were added to the price received by the producers and a little subtracted from the price paid by the consumers, enough more fruit would be consumed so that producers would be made happy by selling all they can raise, and the consumers would be made happy by their increased health. Means to reduce the "absorbed between" in order to permit "the little added to and subtracted from" will be discussed in these columns from time to time as facts become available. The following article treats the reduction of the transportation part of the "absorbed between." It is of value principally to those who first assemble themselves into co-operative marketing associations.—Editors.]

The lack of proper assembling methods is one of the chief difficulties encountered in a successful solution of the marketing problem. In localities where suitable common or cold storage facilities are available, the growers of farm products would find the concentration and storage-in-transit privileges two of the most desirable means for bringing about the widest distribution. Shippers, as a rule, are not familiar with these arrangements; if they were utilized more frequently it would enable shippers to move their freight to market in carload lots, thus securing the benefit of the lowest rates and the quickest service.

Concentration is defined as the shipment in less than carloads of certain commodities to certain points, after which the shipments are reforwarded in carload lots.

Storage in transit is defined as the shipment in carloads to storage points of freight which has already been combined into carload lots under or independent of the concentrating arrangement.

The concentrating privilege at the present time is confined largely to butter, cheese, eggs, and poultry and permits of grading, mixing, repacking, and storing. Under this arrangement live poultry in carload lots is frequently shipped to a concentrating point and dressed poultry in carload lots is forwarded from such concentrating point. In some cases special any-quantity rates are provided to concentrating points. In other cases the carload rate in effect from original point of shipment to final destination is applied plus an additional charge of 5 or 10 cents or more.

The storage privilege is allowed on all of the above commodities, and from a concentrating point in some sections may be stopped once in transit for storage. Storage in transit independent of the concentrating privilege is allowed also on green apples in packages, onions, potatoes, celery, hay, grapes, and other produce in carload lots for periods varying from six months to a year.

The privilege is granted free of charge in rare instances. Usually an additional charge of from 1½ to 3 cents per 100 pounds is made. Ordinarily the shipments pay full tariff rate to the storage point and when reshipped the charges are adjusted on the basis of the through rate in effect at date of original shipment from point of origin to final destination plus the storage charge. Where both the concentrating and storage privileges are used, a separate charge for each privilege is made.

The concentrating privilege can be utilized most successfully in cases where several small points of production of a particular commodity in certain districts are somewhat widely separated. It would be of advantage in such cases to concentrate small shipments and combine them into carload shipments at certain points to distant markets, or, by also utilizing the storage-in-transit privilege to put the freight into storage at some convenient point and afterwards move it to final destination at the carload rate. Arrangements of this kind would enable small producing points to reach markets which otherwise would be out of reach, and would benefit the railroads by giving them a long haul on the traffic.

Concentrating rates are also of advantage to the railroads by increasing the size and regularity of

shipments. They benefit the shippers by enabling them to secure the carload rates, to avoid handling in transit, to secure quicker service and to permit them to supply the markets at times when their products are most in demand.

Both of the privileges are susceptible of much greater development in all sections and should be encouraged by the railroads. It would be well worth while for the railroads, as well as associations of shippers in various sections, to make a closer study of the suitability of such arrangements in particular localities. Such a study should be of especial interest to the shippers in the South, where many new problems connected with the distribution of new products must constantly arise for solution as crop diversification progresses.

If any shippers feel that either of these transit privileges would be of benefit and are prepared to supply suitable warehouse facilities, they should then arrange to confer with officials of the interested railroads. In this way a friendly discussion would develop as to how the arrangements could be made to fit any particular local conditions.

Shippers should always keep in mind, however, that service is the only thing the railroads have to sell and they should be willing to pay the railroads a fair additional charge for this or any other benefit which involves any extra cost on the part of the railroads, and which renders the service more valuable to the shippers.

FLOODING FAVORS LEMON GUMMING.

[Written for Pacific Rural Press.]

"When I came to this place, 75 to 100 Eureka lemon trees were said to be gummy on the 25 acres. Now there are not over five and I believe they have been cured by proper irrigation and cultivation," says H. E. Wilkinson of San Fernando Valley.

All that has been necessary to get rid of the gum disease was to keep the land well loosened next to the trees. This year he has the biggest crop ever. Every spring after the rains are over, he "hooks" out the dirt from a foot radius of the tree to break up the cement-hard collar of dirt which has been formed. This is done by men on their knees, using long handled prong hoes. This loosening close to the trees is followed by monthly cultivation with a goose-neck, sixteen-foot cultivator with wooden wheel buffers at the ends to ward it off from the trees without injuring them.

He irrigates not closer than 30 inches from the trees, using five or six furrows per row and a head of 35 to 40 inches of water. Flood irrigation on that deep loamy soil, according to Mr. Wilkinson, would bake it and undo his spring hoeing. The orchard would have to stand about a week until the dirt would crack before he could get teams onto it to cultivate. This would waste water and likely gum the trees. By the furrow irrigation, he can harrow after two days and save much moisture. He has 5,000 inch hours of irrigation water which costs $150 a year, furnishing 200 inch hours or 100,000 gallons per acre, which he thinks is plenty, though he would use more if he had it.

Home Canning; Fruits and Vegetables—III

[Written for Pacific Rural Press by Prof. W. V. Cruess, University of California.]

Reliable jars besides those mentioned last week are on the market and can be recommended.

Cans Must be Soldered.—The wax top tin can which is sealed by means of a ring of hot sealing wax is suitable for fruits and tomatoes, but unsafe for asparagus, beans, peas, etc., because it can not be used satisfactorily at the high temperatures used in sterilizing these vegetables.

Solder-top cans are used in factory made home-canning outfits. The top of the can has a circular opening of widths varying with the size and type of can. A disc to fit over the opening can be soldered around the edges to make the seal. The disc is ordinarily perforated in the center to permit escape of steam during preliminary heating of contents of the can. This is closed before the final sterilization. To seal the caps on the cans a soldering iron is needed. The one used for this purpose is cylindrical with a cup shaped end to fit over the cap. This "capping steel," as it is termed, must be the same size as the cap; therefore, in ordering cans it is essential to see that caps and steel correspond in diameter. Where only a few cans are to be soldered an ordinary plumber's iron may be used. The small vent hole in the cap is closed by a tipping steel. This is a small, pointed, soldering iron. Caps can be obtained coated with a ring of solder; this saves a great deal of time, labor, and solder in capping. These are called "solder-hemmed caps."

Soldering Fluid.—To make a good union between the solder and the tin of the cap and the can, the surfaces must be cleaned with soldering fluid. This can be bought or can be made as follows:

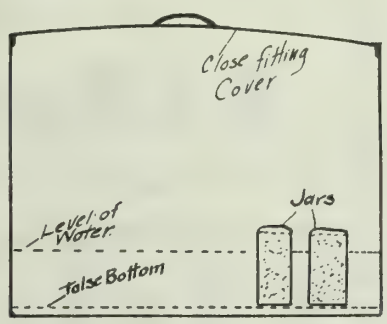
Place about an ounce of zinc in half a tumbler of strong muriatic (hydrochloric) acid. Let stand until no more bubbles appear. If all the zinc dissolves add some more until undissolved zinc remains after all bubbling has ceased. Strain the solution through a cloth. To use as soldering fluid add an equal volume of water before use. It keeps indefinitely.

Explicit directions for use of soldering irons, soldering fluid, etc., during closing of solder-top cans will be given in a later article.

Enameled Cans for Acid Fruits.—Cans may be obtained that are coated inside with a protective enamel. These must be used for very acid fruits, berries, rhubarb, and beets. They minimize the action of the tin on the canned product. They are known as "enamel lined" cans and may be had from any can manufacturer.

Tin cans used in large canneries are not sealed with solder, but the caps are crimped on to give an air tight seal. The cap carries a composition coating where it is in contact with the top of the can and thus makes the seal doubly certain. Expensive machines are necessary for use of this "Sanitary Can" and its use is therefore not possible for home canners.

Sterilizers. — Most housewives cook their fruits or vegetables in an open pot, pour the hot material into the can or jar, seal, and trust to luck that it will not spoil. A far better way is the "cold filling" method where the vegetable or fruit is filled into the container, sealed, and cooked in the container. In this way the flavors and aromas are not boiled out into the air and lost, but are retained in the jar or can, and the fruit or vegetable retains its shape and appearance much better. Furthermore, this method is economical of cooking space and fuel.



Back home, Mother used to boil her fruit in a kettle and pour it hot into the can at much pains, hoping that the can would not break, nor her fingers burn, nor the fruit spoil. A far better way is to pack the fruit cold into the jars or cans, and cook it in a sterilizer made by using a wash boiler with a half-inch mesh heavy wire screen made to fit inside the bottom of the boiler, to keep the jars away from the direct heat of the fire.

To sterilize the fruit, etc., in the can or jar, a sterilizer can be devised very satisfactorily out of a wash boiler. To prevent breakage of glass containers by direct heat from the fire, a half-inch mesh heavy wire screen can be cut to fit the boiler and serves as a false bottom on which the jar rests. To use this, the jars are filled; covers put on loosely; jars placed on false bottom of sterilizer, cold water added to about two-thirds height of jar; the water boiled for length of time necessary to sterilize the fruit or vegetable; jars removed; covers clamped or screwed down; and jars allowed to cool upside down (to sterilize the caps). The diagram shows plan of such a sterilizer. It should have a snugly fitting cover to keep in most of the steam to sterilize upper part of containers.

Certain vegetables are very hard to sterilize except by use of steam under pressure to get the desired temperatures. Factory made sterilizers of this type are on the market at prices varying from ten dollars upward. These are known as "Steam Pressure Outfits."

A number of different types of factory made sterilizers are on the market and are in use, but in canning for the family use it is not necessary to buy any special sterilizer.

Blancher. — Certain vegetables must be "blanched" or par-boiled before canning. This is done by dipping in boiling water. A large cooking pot will suffice for the blancher and a wire screen can be formed to hold vegetables during dipping.

Exhauster. — Canned materials must be heated a short time in the can before sealing and sterilizing. The blancher noted above can be used for this purpose.

Cooler.—The cans after sterilization are cooled in a tub of cold water to prevent further cooking.

Thermometer. — A good Fahrenheit thermometer reading from 32 degrees F. or lower to 250 degrees F. or higher should be purchased. A druggist can order this for about one dollar.

Sugar Tester.—A Balling or a Brix saccharometer reading from 0 to 70 per cent sugar should be obtained through a druggist for about 75 cents. A tin cylinder about 1½ inches in diameter and 15 inches long should be made or bought to hold the syrups when tests are made. A plumber can make this cylinder.

Stencil and Ink for Labels. — A small set of rubber stamps and a little canners' ink or other ink that will stand hot water should be on hand to mark the cans, or gummed labels may be stuck on the cans after sterilizing to designate variety and grade of canned product.

Miscellaneous Equipment and Supplies. — Pots, paring knives, buckets, gasoline torch if soldering iron is used, kitchen table, sink, good supply of water, large range or gas-plate to heat sterilizer, sugar and salt will comprise the remaining necessary items.

In the next few articles specific directions for canning of vegetables will be given.

WHY TOMATOES SPOIL IN THE CAN.

To the Editor: Last year I bottled Matchless tomatoes. I did with them as I would do with fruit, salting them, of course, instead of sugaring; and boiled and sealed them in half gallon jars. One dozen of these half gallon jars kept and the other two and a half dozen spoiled. A jar would be perfect say four months from canning: at five months it would be working. Some kept for shorter and some for longer periods. I wish to put up some more this year. Will you kindly tell me how I can make them keep?—Mrs. W. W. W., Vallejo.

[Answered by Prof. W. V. Cruess, University of California.]

The spoiling of these tomatoes may have been due to defective rubbers or to insufficient cooking of the tomatoes. I would suggest that she put the tomatoes into clean jars and that she use new rubbers on the jars to be sure that the jars will not leak. Then place the lids on the jars loosely. Put the jars on a wire screen or wooden screen in the bottom of a washboiler. Place three or four inches of water in the washboiler, put the boiler on the stove and put a tight-fitting lid on the boiler. Heat the water to boiling and keep at the boiling point for about one hour. While the jars are still very hot, screw the lids down tightly, remove the jars, and allow them to cool upside down so that the lids will become sterilized with the hot tomatoes. If this process is followed and if good rubbers are used there should be no trouble from spoilage.

Wants Better Fruit Marketing.

[Written for Pacific Rural Press.]

To the Editor: The farm papers have of late years been writing so much about co-operation among farmers, that some farmers seem to be possessed with the idea that co-operation works something like a charm, and forget that co-operation will not avail much unless present methods of marketing the products of the farm are greatly improved. Some farmers' co-operative organizations are packing and marketing their products in the same manner as has always been done by the packers, and then expect much better returns. Such folly is inexcusable.

For one thing I believe that the fruit growers' organizations don't do enough advertising. Your little article on page 567 of May 8 hits the nail on the head. Would like to see much more of the same kind. It is reasonable to believe that the consumption of our fruits could be doubled in a few years by judicious advertising; and better prices would result provided the growers would see to it that the middlemen would not grab away the producers' hard-earned dollars.

What we need more than anything else is an organization or league of all the fruit growers of the Pacific Coast. Such an organization could harmonize all the different growers' organizations and while maintaining their separate existence could prevent unnecessary competition, reduce the army of middlemen, introduce packing reforms, help along an efficient advertising campaign, and present a united front for our common good.

San Martin. **John Silbersack.**

[It has been the object of co-operation to improve past marketing methods and is still the object of co-operation to improve present marketing conditions. If some farmers' co-operative organizations are packing and marketing their products in the same manner as has always been done by the packers, such "folly" is not inexcusable. Granting that they do business in the same way as the packers and as economically, they still return to the growers the profit ordinarily taken by the packers. If they are still doing business in the same old way, it is because the growers themselves do not co-operate enough to make their organizations strong enough to do business in any other way.

A growers' organization controlling a quarter of the California crop of its kind, operating as usual on practically no capital, is not in a way to invade the Eastern brokers' and jobbers' domain. When they attempt this, they lose the support of those jobbers and find themselves out all around with no way to market their products at profit unless they have capital to employ able men in the East to take the place of those jobbers; or even going further, to regulate the operations of retailers.

The California producers have so far been unwilling or unable to furnish that capital, and it is only of late years that they have been willing to pay salaries which would attract capable general managers for their organizations. Even so, most of the organizations receive such a small percentage of the support of the growers that they are not in position to institute new ways of marketing.

Present Co-operative Situation.—The California Fruit Growers' Exchange is said to be considering advanced propositions in the way of doing away with the middlemen; and there is even some talk of doing away with the present wasteful retail system for oranges. The Almond Growers' Exchange is in practical control of its crop; and the raisin growers are in practical control of theirs.

Cured fruit growers are badly divided into three or four independent and partly antagonistic organizations with the effect that no one of them is strong enough to exert a controlling influence on the markets, and further, this antagonism itself keeps many of the outside growers outside. When all cured fruit organizations get together, their combined strength will give them control and will attract outsiders to membership.

Co-operative Advertising. — The Farmers' Union, which operates most strongly in your section of the State, has tried advertising, but not efficiently, because it had no brand of its own to advertise. The Cured Fruit Exchange is in the beginnings of advertising its own brand. The Associated Raisin Company has recently adopted its own brand; and the orange growers have long been advertising theirs.

Those organizations can exert a controlling influence on prices to the growers only when they are supported by a large majority of them. Pacific Rural Press is always glad to help co-operation along.

Federation of Fruit Growers' Associations.—Such a league of fruit growers' organizations as you desire for the Pacific Coast is in the process of being born for California, though from the lack of noise that is being made now, one might judge that it would be born dead. Prominent men from a large number of growers' and shippers' organizations and allied interests met this spring on the World's Fair grounds in an attempt to perfect such a movement which had been started at the Los Angeles Fruit Growers' Convention, and so far as we can learn, it has ended with an attempt to get certain able men to work on a committee for final arrangements.—Editors.]

PEACHES SELLING AT 3 CENTS.

To the Editor: In response to your request for information about peach prices, would say that a buyer for Rosenberg & Co. called and offered 3c for peaches and 6c for apricots. They are getting plenty of peaches at 3c. Most of the apricots sold at 6½c. Nobody buys clings now. I thank you for those articles about dried fruit; only wish I had known the truth earlier. **A. Werner.**

Kingsburg, R. 1, Box 72.

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Concrete Cement

The first cost is the last cost.

EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each. 4 for 50c. Special prices on large quantities.

THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

Grain Bags
Twine
TENTS
Irrigation Hose
Wagon Covers—Canvas
Desert Brand Water Bags
Milk and Butter Coolers

Write for Catalog and Discounts.

W. A. Plummer Mfg. Co.
35-37 Front St., Cor. Pine, San Francisco

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtholdt Co.
Geo. D. Kellog & Son	Pioneer Fruit Co.	Vacaville Fruit Co.

California
Fruit Distributors

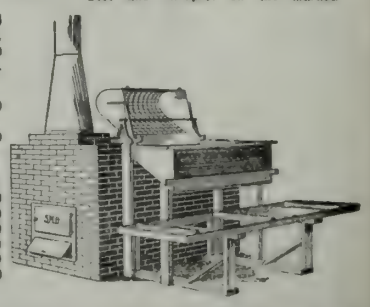
CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

PRUNE DIPPERS with all the latest improvements, Best and cheapest on the market.

..Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

Hopper and Spreader $15.00
30 in. Green Grader, 3 grades, suitable for above 85.00
Large Power Dipper and Grader, capacity 75 tons per day.
24 in. Hand or Power Dry Graders:
3 grade $55.00
4 grade 60.00
5 grade 65.00
Field cars, wood or steel frame 6.00
Transfer cars 8.50
Turn Tables 8.50
8-lb. steel rails, 7 cts. per foot.



SMITH MFG. COMPANY., 200-224-226 THE ALAMEDA, SAN JOSE, CAL.

Fruit Market and Crop Notes.

PRUNES DECLINING: PEACHES HOPEFUL.

[Written for Pacific Rural Press.]

"Everybody is breaking his neck to sell 1915 dried fruit. Nobody is buying very much of it, however, because they expect to get it at a lower price later," said a prominent dried fruit operator. "We can buy apricots in Fresno county at 6½ cents to the grower; and in Santa Clara at 7½ cents. Fresno peaches can be bought at 3 cents to the grower; and prunes, 3¼ cents basis. We aren't buying much."

It is in just this situation which a united organization of growers could force prices upward; but which, without united effort, places those who are holding prunes for 5 cents in the situation of "holding the umbrella" while the rest of the growers unload at somewhat better prices than they would otherwise, after which the "umbrella holders" are not sure what may come.

New crop apricots are said to be offered by the packers in the East at 6¼ cents for choice and 7¾ for fancy, with very little selling at the moment. New crop prunes are being sold short to the East at 3 to 3⅛ cents basis. "Standard" 1915 peaches have been sold East at 2¾ cents. The average grower's crop averages "choice," which sells at ¼ cent more.

Holders of 1914 fruit are unloading even at sacrifices because this fruit will be worth no more when the new fruit comes in than the new fruit itself, and the packers do not expect the prices to be as high then as now. One firm that bought several crops of prunes at 6 cents last year is said to be unloading them now at 4¼ cents, hoping to make up its loss by extra profits on the 1915 crop. Prunes are on the decline, though current prices, considering the light crop and the large sizes that are likely to result would make fairly good profit to the growers. Crop reductions from causes yet possible, such as the touch of brown rot in Sonoma county, may help the prices to some extent.

Fewer Dried Peaches. — However on peaches, while the crop promises nearly the same as last year, the portion that will be dried is likely to be greatly reduced. It is figured that the cost of drying equals 2 cents and hauling to the packing-house ¼ cent, so that the difference between 2¼ cents and the selling price equals the grower's remuneration for spraying, thinning, cultivating, pruning, and rent.

Many growers think they will make more, if offered only 3 cents as seems to be likely, by turning the hogs into the peach orchard and shaking the fruit off at intervals. Quite a few growers have already written to the California Cured Fruit Exchange, saying they do not expect to dry this year because there is nothing in it. It is also said to be a fact that many of the Chinese who ordinarily buy crops to dry will not be in the game this season and the crops they would buy will, of course, be lost or fed to animals. Districts like Sonoma, which have peaches of poor color, usually grading seconds, could not afford to take reduce the total quantity dried.

Various points in the San Joaquin valley are reporting considerable the trouble of drying the poor grade fruit; and this is expected to further loss of the crop on account of brown rot and little leaf, so that the crop

Taken all in all, there is some prospect that the dried peach output will be greatly reduced and those packers who have sold short may have to bid against each other and raise the prices in order to get the fruit with which to fill their sales.

FRUIT CANNERS QUIET.

[Written for Pacific Rural Press.]

The canneries are still holding off in the matter of making prices on growers' crops because they do not expect to put up much, if any, more than they can dispose of before the 1916 crop comes on, for the reasons mentioned in a recent issue.

When the orders for the canned goods come in, they will be compared with the orders of last year from the same firms; and if, as a general rule, this year's orders are larger than last there will be a larger amount canned. The prospects, however, are that there will be less may not be as big as was expected. canned than last year, according to reliable authority.

The asparagus crop is light this year and much of it has been shipped east, while more than usual has been consumed locally on account of the hotel trade. In spite of this, the canned output will probably nearly equal that of last year. About the usual amount of peas also are being canned and one prominent packer says that while there is no way of knowing, the fruit pack may be like the vegetable crop in that there may be no reduction, though market conditions will have to improve or there will be less of a pack this year than last.

SANTA CLARA PRUNE CROP.

In our crop report of last week, we printed the estimate of the Grange on prunes in Santa Clara Valley as 60 per cent, while in our tables it was stated to be 85 per cent. The figure in the table was intended to be 65 per cent, as the average of several estimates obtained by us from Santa Clara county people who are in a position to know. However, we are coming to think from later reports that it ought to be somewhat higher than this.

BIG CURED FRUIT PACKING HOUSE.

It is rumored that the California Cured Fruit Exchange has bought a packing house handy to tidewater on San Francisco bay, providing over 100,000 square feet of space, three times as much as any other in San Francisco territory. The building is 400x80 feet with a wing 166x 80 feet, and has two and a half floors including an attic for the graders, etc., with a chance for a

(Continued on page 647.)

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

CITRUS TREES
Grown by
TEAGUE
—in the Largest Citrus Nurseries in the World.
are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.
Citrus Trees Exclusively
We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.
Place your order early while a good stock is to be had. Get in touch with us.
Send 25 Cents Today
for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating, packing, and shipping.
Quotations Gladly Given
free upon request. Ask for prices and suggestions.
San Dimas Citrus Nurseries INC
Established 1890 by R.M. Teague
San Dimas, Cal. U.S.A.

BERRY AND GRAPE JUICE
6c A PINT—Make it yourself; easy as preserving fruit; I tell you how. Send stamp for particulars. MERWIN, 190 Letitia Bldg., San Jose, Cal.

Get On the Right Side of the Fence

SCIENTIFIC TREATISE SENT ON APPLICATION
During the Month of June
we will accept from any rancher in the State of California, an order for one 5 acre can of WRP Legume Bacteria,
and will agree to refund the purchase price to the purchaser, if, in his judgment, and providing directions for use are followed, appreciable results are not obtained therefrom. Order must be placed during June, but shipment of the Bacteria can be postponed until later, if you prefer.
The price of a 5 acre can (containing sufficient Bacteria to inoculate seed for 5 acres) is $8.00, plus parcel postage. Within 150 miles the postage is 9 cents, and elsewhere in the State 14 cents. Therefore if you are within 150 miles of San Francisco send $8.09; beyond, send $8.14.
WESTERN ROCK PRODUCTS CO. 1020 Balboa St SAN FRANCISCO
THE YELLOW CAN PUREST & SUREST

Mechanical Power on the Farm.

FAST STEAM CREAM SEPARATOR

[Written for Pacific Rural Press.]

It takes about half an hour to separate the milk from the 50 to 65 cows milked by J. R. Denman of Sonoma county. His separator has a capacity of 300 gallons an hour. It used to be part of the equipment of a butter factory which was operated on the farm, but now the cream is sold to the Western Refrigerator Company of Petaluma and the skim milk fed to hogs and calves, with a little of it used for chickens.

The separator is run by a steam engine, the fire being started in the morning as soon as the milking is done and the separator run at 8 a. m. only once a day. The Refrigerator Company calls for the cream three times a week with an auto truck. Sometimes it is sour by the time they call, but "that is up to them."

While separating only once a day may not be the best method of handling the cream, it is most convenient considering the fact that a fire has to be built each time the separator is run; and while daily cream gathering would improve the quality of the cream products, Mr. Denman does not feel responsible for that.

POWER DRIVEN PRUNE DIP.

[Written for Pacific Rural Press.]

One of the largest dryers of Sonoma county is run by S. L. Wattles, who has used with the best satisfaction for years an Anderson-Barngrover power-driven combination revolving drum dipper and grader. It has a sieve for the prunes from the orchard to be dumped onto and the dirt and leaves to be cleaned out. The prunes are then run into a revolving cylinder with an auger arrangement inside to force the prunes continuously through the lye water onto the shaking grader.

Not only does this outfit dip the prunes, but it runs them over needlepoints half an inch apart on a board platform. A heavy cloth has been pressed down over the needles before the fruit was put on in the morning so that when the needles become gummed and full of leaves they can be cleaned off by simply pulling the cloth loose from them. The needles are used to prick the fruit in order to hasten drying.

The capacity is 120 boxes per hour. One man is kept busy dumping the prunes into the first sieve, but two boxes per minute is not so fast until it becomes steady, according to John Hausler, who has worked on the place nine years. One man has dumped 900 boxes in 6 or 7 hours. One man attends to the fire and watches the smallest sizes, which fall through a screen and run off to one side; and four men fill and change the two trays which receive the standard sized fruit. These trays lie on a slant so the fruit spreads out quite evenly without much attention.

PIGS GRIND FEED.

[Written for Pacific Rural Press.]

Letting the hogs grind their own feed may be seen in many places, including the World's Fair.

J. P. Daggs of Stanislaus county has one of the machines in which he grinds feterita with which the pigs are mostly fed. The machine consists of a hopper above the grinding burs so that the grain feeds into it as the outside covering of the grinder, fixed to the movable bur, is moved around. This outside cover has several compartments around its base, extending diagonally forward from the circumference, and connected so that the ground grain falls into them. These compartments are open for the pigs to feed from.

When the grain in the compartment is eaten up, the pigs shove forward trying to reach that just out of reach of their noses and this turns the machine so that more is ground and falls down where it may be eaten. Mr. Daggs is enthusiastic about the benefits of the machine for growing pigs, since it supplies exercise and ground feed without extra cost.

LOW SPEED ON HARD WORK.

To the Editor: The querist of last week who wanted to know how to regulate the speed of his automobile engine to develop its rated horsepower was probably confused by the expression, "low speed" for hard pulls and "high" for smooth sailing. These expressions refer to the gear used and not to the speed of the engine. If there is hard work ahead for the engine to do, the low speed gear is thrown in so that the engine running at the same speed will not be expected to make the machine go as fast. If there are smooth roads ahead, the running gear is connected to the engine by the "high" speed gear so that the engine with the same speed as before will produce greater speed of the machine with the same power. The "high" gear

200,000 FEET CHEAP WATER PIPE

Just received several carloads of new and 2nd hand water pipe. Oil Well and Water Casing; Riveted and Surface Irrigation Pipe. Big Stock. All sizes. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy 1264—F1917
(Under entirely new management.)

You Know

American
Surface Irrigation Pipe.
is RIGHT

—then why experiment with any other? Lasts a life time.

AMERICAN STEEL PIPE & TANK CO.
Suite 354-56 Pacific Electric Bldg., Los Angeles.
Branch: 1228 "H" St., Fresno.

Also, single and double Well Casing.

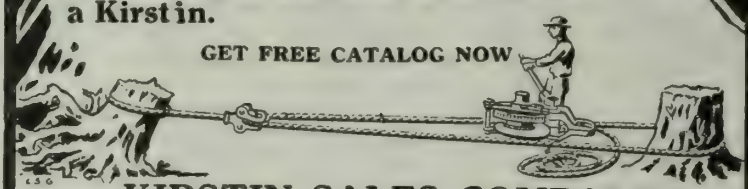
The Powerful One Man Kirstin

Strong, simple, speedy—this one man way of turning stump land into cash income is the way for you. Many fine, attractive features, such as the

TRIPLE SPEED

This splendid feature lets you triple the speed after the stump has broken loose. That means something to the man who owns a Kirstin.

GET FREE CATALOG NOW

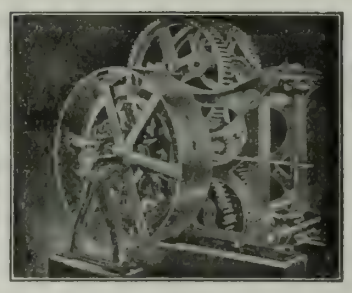


KIRSTIN SALES COMPANY
341 E. Morrison St. Portland, Oregon

Pomona Deep Well Pumps

For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.

Write for Catalogue 104,



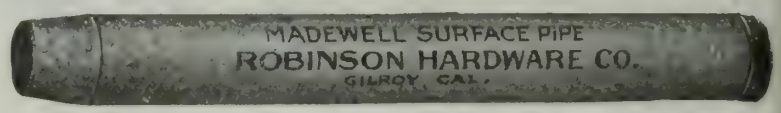
Do not get oil into the water. Consume less power per unit volume of water pumped.

Write for Catalogue 104, with valuable information on irrigation.

Pomona Mfg. Co., Pomona, Cal.

Both Lock-Seamed and Soldered

Demonstrated to have the proper seam A riveted seam leaks as the rivets are knocked loose or as the solder breaks between them. But our wide lock-seam—carefully soldered the entire length of the pipe—stays absolutely watertight. Complete collapse of the pipe will not put a leak in the seam.



LOCK-SEAMED SLEEVES. The sleeves are lock-seamed and soldered the same as the body of the pipe. Countersunk on the inside, leaving a perfectly smooth surface and making possible a watertight connection between joints. This feature found only on

Madewell Surface Pipe

You want all the water delivered to the end of the pipe—the Madewell Surface Pipe does it. Made right from end to end. Built for downright hard service. A new length FREE for every Madewell length that proves unsatisfactory.

SEND FOR FREE MADEWELL BOOKLET—tells how Madewell Surface Pipe is made, and explains just why it is superior to all other pipe. Send a postcard—now.

Robinson Hardware Co.
Box V, Gilroy, California.

If you want the most for your money ask for, insist on, and demand that your dealer furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good"—it cannot be furnished. Every sale carries with it an unqualified guarantee.

Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives Power Tables, Belt Speeds, List Prices, etc.

New York Belting and Packing Co. of New York
Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

cannot be used on hard work because where the speed is increased, the power must also be increased, which cannot be done with a given engine except within small limits. The only way to use "high" speed on hard work is where you can get up momentum by using the "high" speed on easy work, then the momentum carries you through the hard work, though very little more horse power is developed.

SOIL VARIES HORSE POWER REQUIRED.

There is a great difference in the amount of power required to pull a plow in different soils and under different conditions. In order to determine what this variation is, dynamometer tests have been made in different kinds of land and in different parts of the country, and great variation was found.

In ordinary stubble plowing, a six-bottom gang, cutting 4 inches deep, requires a draw bar pull of 2,600 lbs. In a different locality a four-bottom gang of the same make and type used in breaking 3½ inches deep, required a draw bar pull of 4,000 lbs. The soil and conditions sometimes vary enough in the same field to make a variation in draft amounting to 500 lbs. per plow. This will indicate, of course, that the condition of the soil has a great deal to do with the number of plows that a tractor can handle.

It will be found that the draw bar capacity of the tractor is about equal to its rating in horse power, therefore, if three average horses will pull one 14-inch plow in a certain field, a 15-25 Oil Tractor will pull five, and a 30-60 tractor ten, plowing at the same depth.

HANDY LITTLE PUMP.

[Written for Pacific Rural Press.]

A handy little pumping outfit is used for watering livestock and irrigating the garden by W. F. Bernstein of Kings county. The well is 130 feet deep, but the water lift is only about 35 feet when the pump runs all the time.

A two-inch centrifugal pump is run by a 3 h.p. motor at a minimum cost of $1.00 a month per horsepower. The water can be used directly from the pump at the ground level or forced into a galvanized tank directly over it supported by a tower made of 2x6's.

AUTO APPLE DELIVERY.

[Written for Pacific Rural Press.]

Greatly increased prices are obtained for apples by Chas. King of Sonoma county, who stores his late varieties on the farm and delivers them in the winter on special orders.

This is made possible by use of his automobile, because whenever he gets an order for six, eight, or ten boxes he can deliver them at once. The automobile is also used to get feed for the team which works the place, and repairs when machinery breaks down at critical times.

Aside from this, the machine is the source of great pleasure in the Sonoma country and furnishes a great chance for education by seeing what other growers are doing.

FARMERS GET CHEAP MONEY

The farmers of Wisconsin are able to secure loans at lower rates than do those of any of the adjoining states.

B. H. Hibbard and Frank Robotka of the agricultural experiment station, University of Wisconsin, have made a careful survey of the credit extended the farmers of this state and in a bulletin, just published, report that on short time loans the rate in Wisconsin is six and one-quarter per cent, which is one per cent below that in Iowa; one and seven-tenths below that of Minnesota; two-thirds of one per cent below that of Michigan, and a trifle below that of Illinois.

As would be expected from this and other causes, Badger farmers use credit to a greater relative extent than do farmers of other nearby states.

Now Ready
"VACATION 1915"

The Guide to
Summer Outing Places
Tributary to the
Northwestern Pacific Railroad

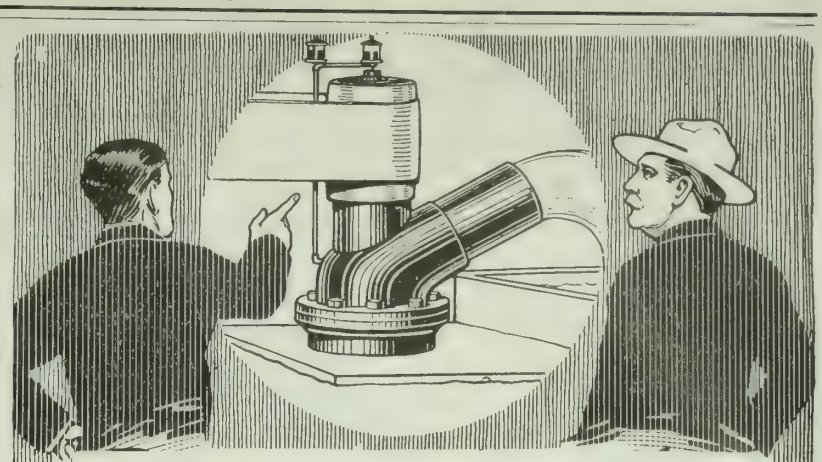
Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

Copies of "VACATION" may be had free at 874 Market street (Flood building), Sausalito Ferry Ticket Office, or on application to J. J. GEARY, G. P. & F. A., 808 Phelan Building, San Francisco, Cal.

SECOND HAND PIPE

Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.

WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco



Your Decision

The five big points you should consider when buying an irrigation pump are—Economy, Durability, Simplicity, Efficiency and Dependability. Select the pump that operates at the least cost; that's built of the finest materials, to give years and years of perfect service; that's of the very fewest parts; that has a high efficiency; can be depended upon at all times, requiring no attention—one that produces the full capacity of your well at least cost. Don't gamble on a pump. Install the one that has a reputation for meeting every requirement perfectly. If you do this you will be sure to install the

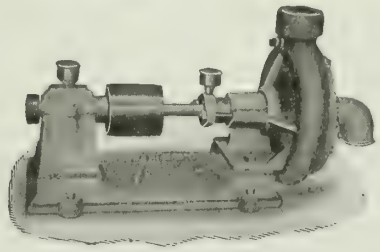
Layne & Bowler Pump

Write for valuable pump and irrigation booklet No. 25. It's free. See exhibit at San Francisco Exposition.

Layne & Bowler Corporation
900-910 Santa Fe Ave. Los Angeles, Cal.

THE WINSBY PUMP

Our New 1915 Type Pump



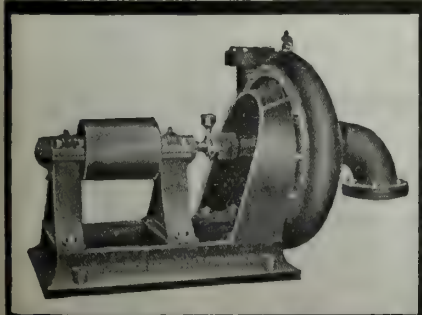
Best Model for Low Lift Pumping

Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars.
Price	$16.00	$20.00	$25.00	$30.00	Oakland

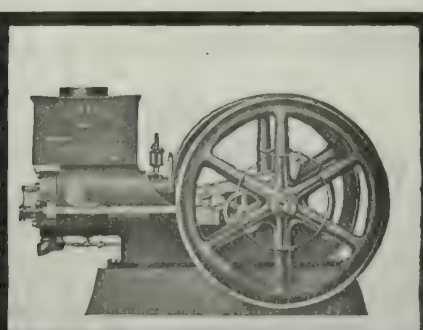
Larger Sizes at Proportionate Prices.
Complete Pumping Plants of Any Size or Type Furnished and Installed.
WE MANUFACTURE
Pumping machinery of all kinds and for all purposes.
Mining, Milling, Concentrating and Rock Crushing Machinery.
Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.
Water Wheels, Dredges and Hydraulic Machinery.
Fire Hydrants and Cast Iron Fittings.
WRITE FOR CATALOGUE AND PRICES.
WE CARRY IN STOCK

Pipe Casing Valves and Fittings	Belting Leather Rubber and Canvass	Pulleys Wood Steel and Cast Iron	Shafting Hangers Collars and Boxes	Boilers Steam Engines and Supplies

UNITED IRON WORKS
Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.
GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.
We are the largest manufacturers of pumping machinery on the Pacific Coast.



WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.



Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

Planting of 160 acres to lemons and oranges is being done by the Kings River Orchard Company near Reedley.

A citrus fruit exchange for Sultana is being boosted, and it is thought that final organization will take place this week.

One hundred and fourteen cars of Valencias have been shipped from Lindsay so far this season, and it is estimated that the season's run will amount to 700 cars.

Preparations for the Sixth National Orange Show to be held in San Bernardino Feb. 17-24, 1916, are started. F. M. Renfro, general manager of the 1915 show, is in charge, and J. H. Wilson is the president.

An organization to fight the gray scale has been perfected in Tulare county by citrus growers in conjunction with the officials of the Tulare County Citrus Protective Association and the Supervisors. A committee has been appointed under whose charge the work will be done.

A sweet lemon tree has been reported from the A. A. Stevens place near San Dimas. The tree has been bearing for at least 25 years, producing an average of six boxes a year, which has been packed with the balance of the fruit from the Stevens grove by the San Dimas Association. The fruit, however, has no market value, being insipid and undesirable.

Governor Johnson has signed a bill which will materially affect the date industry of California. It provides that no offshoots of date palms can be distributed until inspected and passed on by the State Horticultural Department. It is proposed through this measure to prevent the spread of the Blanchard scale which has already done severe damage to the date industry in this State.

Preliminary steps have been taken by Tulare county orange growers to organize a growers' clearing house through which to control the marketing of oranges this fall. The plan outlined is for a general growers' committee representing all parts of the orange district, which will control the extent of shipping to market. It will not attempt to boost prices, but at the beginning of the season it is proposed to set a minimum price at which oranges can be sold.

DECIDUOUS FRUITS.

The first apricots for the eastern markets left Winters May 20.

W. J. Wilson & Son shipped the first crates of peaches to the East from Newcastle May 20.

The Winters Dried Fruit Company recently appointed R. L. Neimann as manager and F. W. Wilson, secretary-treasurer.

The Santa Rosa Cured Fruit Association, an auxiliary of the California Cured Fruit Exchange, has announced that no new members will be taken in after July 1.

J. Campodonico shipped the first straight carload of cherries out of Stockton last week to a dealer in Los Angeles.

The proposed organization of a Visalia and Tulare county sub-organization of the California Cured Fruit Exchange is meeting excellent favor.

Fruit growers of Sacramento and San Joaquin valleys will be able to deliver their fresh or green fruit in the eastern markets 18 hours earlier than in the past if the plans carry for a Green Fruit Special to the East. Santa Fe officials are now considering the advisability of the plan.

A new scheme for marketing peaches and other dried fruits has been presented to the farmers of Hanford by the Fresno Raisin and Fruit Products Company of Fresno. The plan is to sell the dried fruits in two-pound packages direct by salesmen to the retail grocers throughout the United States. It is also planned to sell a sufficient amount of stock in Hanford to commence operations on a local packing house.

At the annual meeting of the Ventura County Dried Fruit Association recently, the association was reorganized under the name of the Ventura County Cured Fruit Association, affiliated with the California Cured Fruit Association. The following officers were elected: President, E. P. Foster; vice-president, D. Felsenthal; secretary-treasurer, F. E. Bagnall; Executive Board, E. P. Foster, F. E. Bagnall, D. Felsenthal, and A. Everett.

The Peach Committee, whose duty it will be to devise means of disposing of the surplus 1914 peach crop and creating a reasonable market for the 1915 crop, was formed last week at a commercial club meeting in Fresno. The following men will be in charge of the work: Dave Newman, president; H. H. Alexander, vice-president; and H. E. Patterson, secretary. Additional committeemen, to represent the various towns in the peach district, are to be named and then all will meet to learn the amount still on hand and the price hoped for.

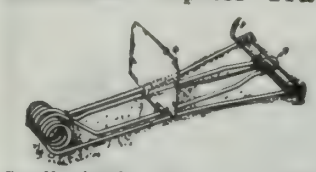
GRAPES AND SMALL FRUITS.

Mildew is causing concern to the vineyardists of Napa county at this time and everyone is busy sulphuring.

Owing to the fact that most of the Sutter county raisin growers belong to the California Raisin Growers' Association, quite an effort is being made by outside buyers to secure the smaller lots from non-members.

A bill, establishing a uniform system of horticultural laws in this State, has been approved by Governor Johnson. It is said that five different counties have as many different laws on the matter of regulating grape pests, which system is neither satisfactory or effective.

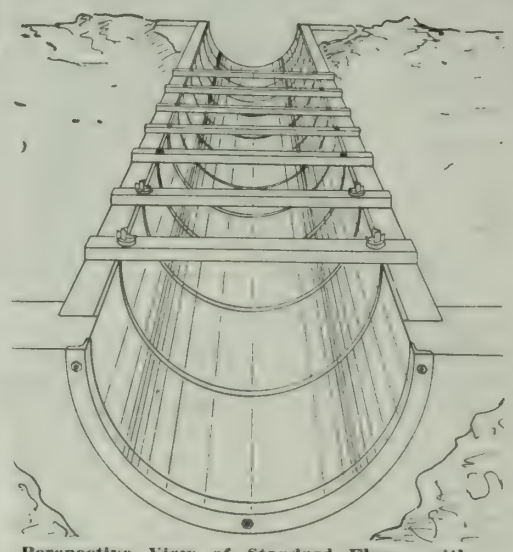
Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail, postage paid, at special rates. Manufactured by

Z. A. MACABEE, Los Gatos, Cal.

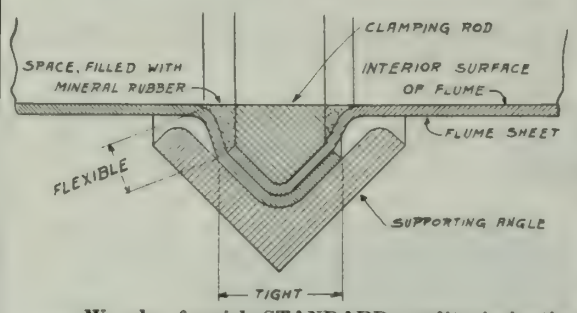
THE IMPROVED STANDARD FLUME



Perspective View of Standard Flume with Cross Bars Partly Removed.

Made with wood or iron cross bars, with locking wedge of metal, eliminating all possibility of looseness. Improved in design, construction and material. Engineers, private and public, State and Government, pronounce it superior in design and construction to any other flume in the market. Built of commercially pure **Vismera Iron** (guaranteed 99.86 per cent pure) it is a flume built to last — and should be installed wherever permanence and economy are a factor.

The Standard Expansion Joint



The illustration herewith shows the cross section construction of the joint of **Improved Standard Flume. Standard Flume** never becomes rickety or second-hand. In any climate, in any job, whether one rod or 10 miles, the joints in **Standard Flume** are adapted to fit the job.

We also furnish STANDARD quality irrigation Gates and Corrugated Culvert Pipe.

We will gladly send details, estimates, etc.

Standard Corrugated Pipe Co.

517 Rialto Bldg., San Francisco. 739 Lawrence St., Los Angeles.

PHOSPHORUS Makes FRUIT

Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn out soils and Maintains and Increases the Fertility of good soils.

Write for Our Literature.

United States Phosphate Co.

405 Marsh-Strong Bldg., Los Angeles, Cal.

Our Mines are Located in Utah, Idaho and Wyoming.

KIRKMAN NURSERIES

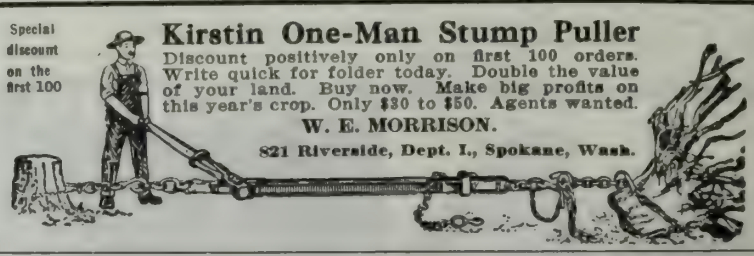
WHOLESALE GROWERS OF

True to Name Nursery Stock

Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Special discount on the first 100

Kirstin One-Man Stump Puller



Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

821 Riverside, Dept. I., Spokane, Wash.

THE PROOF of the pie is in the eating, and so it is with our groceries. Prices low and quality high. Send for our catalogue.

FREESE AND CO.

1262 Divisadero St., San Francisco.

BEE-KEEPERS' SUPPLIES

We keep a full line of supplies and are prepared to serve bee-keepers promptly.

Write for Catalogue A.

A. I. ROOT CO.,

58 Sutter St., San Francisco.

PROFESSIONAL DIRECTORY.

Practical Land Appraiser & Soil Expert

Many years experience in Fruit, Alfalfa, and Stock Raising in California. Special attention given to prospective buyers and money lenders. Management for non-resident owners.

PAUL GOODLOE,
79 Post St., San Francisco, Cal.

SYMMES & MEANS
AGRICULTURAL ENGINEERS

Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.

58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS

Hearst Building, San Francisco.

Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.

Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.

Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.

SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY

Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products, Water, Insecticides, Etc.

CURTIS & TOMPKINS
Agricultural and Industrial Chemists.

108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Kill Morning Glory
NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer
624 CALIFORNIA ST.,
San Francisco, California.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

California Vegetables. $2 postpaid. Pacific Rural Press.

OLIVES AND NUTS.

Many walnut trees have been planted around Visalia this season.

An olive orchard of 3100 acres is proposed for Yuba county. The land is in wheat at present and will be subdivided and put on the market in small tracts. Buyers will be asked to plant their land to olives; and if they comply with this wish, this tract will be the largest planted to olives in the State.

GRAIN AND FIELD CROPS.

Thirty crates of summer squash comprised the first shipment of the season from Livingston to San Francisco.

The season's first shipment of tomatoes left Merced on May 21. It comprised three boxes from the ranch of Pietro Montirsiro.

A real estate firm in Madera county is leasing 1500 acres of their land south of Madera to be planted to beans. They are leasing on a percentage basis, and many ranchers are planting black-eyed peas, white beans, and other varieties.

The last carload of the Merced county 1914 sweet potato crop was shipped to San Francisco last week, so that future orders will have to be filled from the new crop. It is estimated that 9,000 acres are planted this year.

MISCELLANEOUS.

Ten members of the Department of Pomology of the University of California recently commenced a tour of inspection through Pajaro valley to study the apple industry there.

Seventy-seven thousand acres of the Sierra National Forest in Fresno, Madera, and Mariposa counties are soon to be reopened to actual settlers, according to a statement issued by the United States Land Office.

Farm Adviser H. A. Weinland of San Diego county reports an effort on the part of the Farm Bureau to secure a spur line of the railroad into the other side of El Cajon valley where the fruit and vegetables are grown, in order that the ranchers need not haul their products two to four miles to the railroad.

The cargo handled through the Panama Canal during March (635,057 tons) was 98.7 per cent of the through freight hauled over the Panama Railway during the 12 months ending June 30, 1914, and is about 40,000 tons more than the through freight handled by the railroad in the previous year. The Panama Railway was supposed to have had the heaviest traffic per mile of all the railroads in the world prior to the opening of the canal.

Farm Adviser of Humboldt county, A. H. Christiansen, announces a big meeting of the farmers at Fortuna. One of the novel features will be a market day, and already a number of entries have been made, ranging all the way from wagons and automobiles to pigs, chickens, and cattle. He also reports that the boys' clubs are all going through with the same membership that they started with, three clubs being practically sure of sending boys East.

An orange tap root was in the way all the way down where H. E. Wilkinson of San Fernando valley dug a hole 11 feet deep for an oil storage reservoir.

Do It Electrically

PACIFIC GAS AND ELECTRIC COMPANY — PACIFIC COURTEOUS CONTINUOUS SERVICE

ELECTRIC APPLIANCES in the household not only add to the convenience of all members of the family, but they are economical and times-savers. ELECTRIC APPLIANCES include CHAFING DISHES, COFFEE PERCOLATORS, VACUUM CLEANERS, ELECTRIC IRONS and every other appliance that is needed in the modern home, not forgetting ELECTRIC FANS.

We carry these appliances in many of our branch offices, and will be glad to have you call and inspect them. Where we do not carry them we will be just as glad to give you our expert advice.

"PACIFIC SERVICE" is always "At Your Service."

Pacific Gas and Electric Company
HEAD OFFICE, 445 SUTTER ST., SAN FRANCISCO.
Branches in all principal cities and towns of North-Central California.

PLANT NOW

Sudan Grass — Tepary Beans
Melons, Pumpkins and Squash
Special Prices on Application

WEST COAST (Cut Rate) SEED HOUSE
116-118 East Seventh St. *Los Angeles, Cal.*

New Type "AB" AMERICAN PUMP
and CHECK VALVE COMBINED
No Leak Through Stuffing Box.

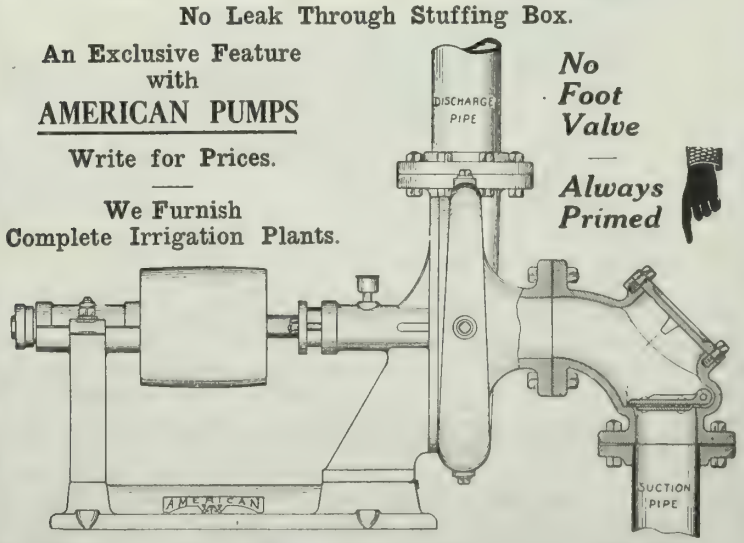
An Exclusive Feature with AMERICAN PUMPS

Write for Prices.

We Furnish Complete Irrigation Plants.

No Foot Valve

Always Primed



California Hydraulic Engineering and Supply Co.
68 Fremont St., S. F.; 129 No. L. A. St., L. A.; 31 Briar St., Lindsay.

PIPE

For Every Purpose NEW Threads & Couplings. Hot Asphaltum

Second Hand and NEW

Screw Casings Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. Main and Howard Sts., San Francisco

Some High Points in Agricultural Hall.

[Written for Pacific Rural Press.]

Agricultural Hall, covering several acres, overlooks the bay near the California Building. Entering the west central door, one is in the midst of agricultural machinery. Yuba and International Harvester Company tractors are the first seen. The latter company has an exceptionally complete display of cultivating, planting, and harvesting machinery, including a working manure spreader; and a grain drill planting wheat, oats, barley, peas, and beans, and flax on revolving belts which show how the grain would be deposited in the ground.

Other agricultural machinery and machines are displayed by the Pacific Implement Company for Newell Sanders. The De Laval Dairy Supply Co. has a separator operating on real milk, besides Alpha gas engines, pumps and other machinery; and the Calf Way Milking Machine has exhibits of dummy cows being milked.

Near them are the Best and Holt tractor and agricultural machinery exhibits with glass doors so the insides of working machines may be seen.

The center of the Agricultural Hall is occupied by State exhibits of characteristic agricultural products, striking scenery, and the latest results of agricultural college research.

Iowa has an avalanche of corn as fine as any seed corn that could be collected. Illinois has exceptional chart exhibits showing the increased crops due to different kinds of fertilization on different kinds of land, and due to rotation of crops. Idaho has some wild mountain scenery showing irrigation projects. Other State exhibits are equally good, the western states showing principally fruits and grains.

At one side of the State exhibits is the New Zealand collection of agricultural products, specializing on wool and wool fabrics. Near it is a lady spinning California cotton on an old-fashioned spinning-wheel.

On the south side of the building is the U. S. Department of Agriculture exhibit. The outstanding, noticeable points of this are the model, sanitary farm buildings and equipment, the collection of diseased organs of livestock, eggs in various stages of incubation, a very extensive array of citrus and semi-tropical varieties, and an artistic group of wild life in snow.

In the southwest corner is an extensive exhibit of hemp, cocoanuts, and other products from the Philippine Islands.

This is merely a sweeping glance at the Agricultural building. Adequate description would require pages.

RABBITS DIE FROM ALFALFA

To the Editor: We have several does which lose their young just after they start to come out of the nest, or when they are about 15 to 20 days old. We feed grain and alfalfa hay mixed, rolled barley, and Egyptian corn. Can you tell me the cause and a remedy for this?—F. H. D., Porterville.

[Answered by Mrs. B. H. Gilkey Santa Rosa.]

If there are no chicken mites or dirty hutches we must ascribe the fatality among your baby rabbits to faulty rations.

To begin with, in all cases of rearing young life, the nearer we conform to Nature's laws, the better are the results. No rabbit in its wild state lives exclusively upon one thing. Turn a rabbit loose in your yard and watch how quickly it will pass from one plant to another. A bite here, a nibble there, a scamper and jump, and more dainty tasting and feasting, until it is satisfied; when down it plumps on its well-filled stomach to rest and enjoy itself. In every case where I have heard of rabbits dying as yours do the fault lies with the ration, and more especially regarding alfalfa hay. Don't feed alfalfa at all, unless it be green, fresh cut, and sweet. In changing from dry feed to green, however, one must use caution and not give too much. Just a little until they become used to it, as they are apt to overeat and die suddenly. By watching the bowels and not letting them eat too heartily at first, you may in a short time feed freely without danger. Also give good, clean, sweet straw or oat hay. They do well on change about; straw one feed, and green the next. After becoming accustomed to the change in diet, straw once a week, but lots of weeds of all kinds, and vegetables, except cabbage.

Rabbit Feeds.—Are apples good for rabbits; are green corn stalks good for them; is corn on the cob good for them?—Subscriber.

All of these things may be fed in small quantities, perhaps without injury, but not as a whole diet. See answer above.

Rabbits Die.—At about a month old my little rabbits die. Should I wean them before that?

Yes, and feed them a little rolled oats, a few carrots, and a head of cabbage once in a while. Also be sure to keep rock salt where they can help themselves.

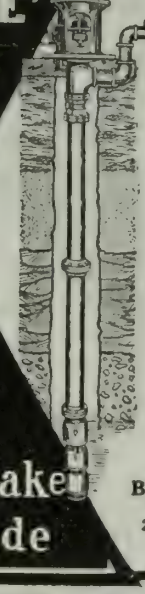
WHY SILO MILO MAIZE?

To the Editor: Would it be practicable to shock dwarf milo maize, harvest the seed and stack the stalks for feed? All of your articles about corn mention siloing it. Do you think stock will eat the dry stalks? P. W. L., Pleasant Grove.

[We believe that it would not be most profitable for you to handle your milo maize in the manner you describe for the reason that after harvesting the seed, the stalk which is left in its dry state has very little tle feeding value. It is believed to be inferior to corn stover, which stock will eat if forced to, but which does not furnish a complete maintenance ration for cattle, but is oftentimes used to advantage at the east in connection with other feeds during the winter, preferably in a shredded form. It would be far more economical from a cattle feeding standpoint for you to silo the crop than to harvest in the manner you describe. By siloing, the entire plant is economically used without waste, and a succulent feed is produced.—Editors.]

The dairymen of Fresno county were paid about $75,000 for their April cream.

"Jackson MADE"



Write for Catalog No. 47 F

A Better Maker Not Made

For Water Deep Under The Ground

Jackson Deep Well Turbine Pumps give continuous and efficient service. They do not get out of order as they have no valves or plunger rods. Very little care or attention needed as they are oiled from the surface. Are much lower in cost than other types of deep well pumps when the expense of dug pits, cribbing and timbering is reckoned. They raise water from the very bottom of the well, thus eliminating heavy vacuums and delivering all the water the well yields. They develop slow wells and increase their flow.

Like all Jackson Made Pumps These Deep Well Turbine Pumps Are the Very Best Pumps Made for the Purpose—They are Dividend Earners, Not Expense Makers

Whatever your water problems may be our Expert Pumping Engineers will help you out free of charge—write

BYRON JACKSON IRON WORKS, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal. and Visalia, Cal.
Works: West Berkeley, Cal.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade of pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

Hillcrest Stock Farm

THORNTON S. GLIDE, Prop., Davis, Cal.

Breeder of

Short Horn Cattle

Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

22 Hereford Bulls 22

AT SACRIFICE

These bulls were purchased in the East, to be used on pure-bred Hereford cows to produce range bulls. The owner having sold his ranch with the cattle on it, has now no use for this load of bulls, and will sell them at a sacrifice. Their ages run from 20 to 24 months, registered tuberculine tested, and are splendid individuals. Will sell in lots to suit purchasers.

For particulars, address

W. M. Carruthers

218 Hearst Bldg., San Francisco.

Will Constructive Dairying Pay?

(Continued from page 225.)

stead of a scrub, as Mr. Crowley says most of them have done, and then figure what the cost of testing has been at $.80 to $1.00 per cow per year. Compare these figures with your own revenue and expense per cow the past year, provided you have the record.

Alfalfa Hay vs. Cow Testing.—The question with these Humboldt dairymen never has been whether they should sell their feed or feed it. This has placed their association at an advantage over those since organized in other localities, for from the following statements it will be seen that the cow testing association situated in localities where hay selling is practiced, have had no easy road to travel.

Of the Gridley Cow Testing association which was started less than a year ago Charles Klint has this to say: "We have been testing since October 1, 1914, having at the present time about 26 dairymen with 1,000 cows entered. We have had some difficulty in holding the required membership, due to some dairymen selling out, while others dropped out because they did not get the benefits from testing that they would have derived had they taken a little interest in the work done to help improve their herds.

"The low prices are having the double effect of making the dairyman who wants to stay in the business weed out his poor cows while the one who doesn't have much faith in dairying will not spend the extra money for testing as long as there is no money in dairying anyway, according to his viewpoint. A very small percentage of the cows in this district are entered in the association and of our members about 40 per cent are using purebred sires." Note that this is an alfalfa section.

Speaking of the first year's work with the Yolo Cow testing association J. F. Grass, Jr., says: "We are now testing about 650 cows belonging to 22 members. During the year nine members have dropped out with over 500 cows. This was due in part to speculation, in part to poor market for dairy products, discovery of too large a number of boarders to warrant keeping the herd and a lack of definiteness of purpose and proper attitude toward dairying among farmers. About 50 per cent of the cows in this territory are now being tested." It might be added that the average fat production of cows in this association has been increased five pounds a month for the year. This also is essentially an alfalfa district.

Back in 1912 two associations were formed, one in Stanislaus county and another in Tulare county. Both are situated in strictly alfalfa sections, and both in sections which by their natural conditions have been mixed up in the hay situation as much or more than other counties of the State.

Both associations are still in operation, the experiences being very much the same.

Enthusiasm ran high in dairy circles of Stanislaus county at the beginning. The purebred breeders lent their support to the movement, and altogether things ran smoothly. The next year the purebred men dropped out in order to do official testing and the association fared badly. Last year saw another weak membership and with the beginning of the present testing association in April, it was necessary to reorganize the old association, again securing new members to take the places of those who had dropped out for various reasons. But for the work of a few strong supporters, the association would probably have gone by the boards.

The Tulare association has not fared quite so badly; but notwithstanding the strong co-operative spirit which prevails there, the cow-testing association has not gone ahead as it was expected to at first.

New Associations.—In the face of the discouragements cited in the alfalfa sections there is evidence that our dairymen are awakening to the economic necessity of the cow testing association plan, for besides those mentioned there have been several new associations organized in the past year, among them being one in San Joaquin county, with a membership of 700 cows, started last month; the Los Angeles County Cow Testing association with a membership of 1,000 cows; the Tri-County Cow Testing association with over 700 cows, and one at Bodega, Sonoma county, with a membership of over 1,000 cows.

Besides these there is an association in Napa county that has not as yet commenced operations, and one was organized in Madera county last week.

The present success or failure of these associations will depend largely upon the number of dairymen in the respective districts mentioned, that have come to see the absolute necessity of cows, good cows, as long as we are in the business of hay growing.

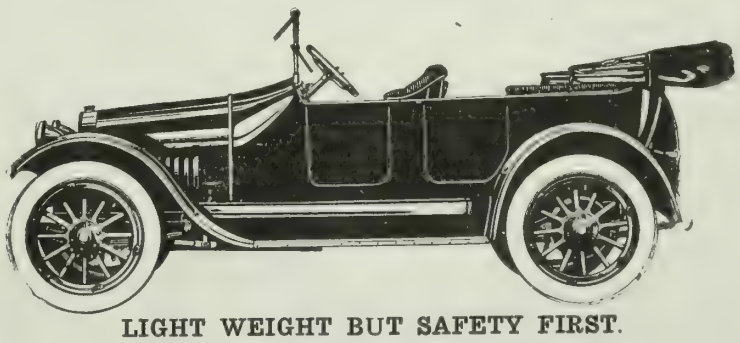
The Humboldt association proves that the only safe and sure way to market good feed at a good price is to keep good cows and raise better ones. Give us another year or two of cheap hay and butter and you, Mr. Dairyman, or Mr. Alfalfa Grower, will also come to the conclusion that the old hit or miss system of dairying does not pay. If you have already arrived at that conclusion, join your nearest association and stay with it. If there is no association close take steps towards organizing one. You may say we are preaching, but the above experiences, together with your own experience, shows you have looked at the dairy cow from the wrong angle. If you would have your land pay you, be constructive, weed out your boarders, get a good sire and breed him to good cows. Don't expect to reap the harvest in one year or two years. Those dairymen up in Humboldt have been at it six years and are still unsatisfied. They are builders of the right kind. Give the cow a chance and she will do as much for you as she has for them.

A quarantine has been declared by the Missouri Board of Agriculture against all livestock from Arizona, California, Nevada, Oregon, Utah, and Washington.

1915

Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.

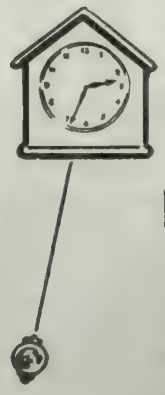


LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.

1st & St. James Sts., San Jose.



Every minute counts when you're busy hauling the crops. Save time by using

MICA AXLE GREASE

It takes less grease to do the work and half as many applications. The ground mica does it — makes the grease last twice as long—forms a lasting lubricating film on the spindles. Dealers everywhere.

Standard Oil Company (California) San Francisco

With the Live Stock Men.

HORSES AND SWINE.

Ranchers of Tulare and Kings county have been warned against the prevalence of hog cholera in various parts of the counties.

Fifteen cars of horses recently left Modoc county for European points. There are seven horse buyers operating in that county, securing all available animals for cavalry and artillery purposes.

DAIRYING.

The Glenn County Creamery, handling the output of 500 cows and shipping the product to the San Francisco and Oakland markets, now has a daily output of 40,000 pounds of butter.

Farmers of Sierra county have organized the Sierra Valley Creamery, Inc., of Loyalton, to transact their dairy business. W. E. Rees of Loyalton is president; Alassio Ramelli of Vinton, vice president; and C. A. Jones of Loyalton, secretary and treasurer.

A cow testing association is under way in Madera county. Initial steps in the organization were taken recently when a number of the dairymen met with the Farm Adviser, and a petition is now being circulated among the dairymen urging them to sign up.

California is shipping butter to foreign ports for the first time in its history, consignments being made to London via Australia, Suez canal, Bordeaux, and Dover. It is stated that 54,420 pounds of butter were shipped to England from San Francisco during the month of April.

The Tulare Co-operative Creamery Company, together with the Visalia Creamery Company and the Lakeview Creamery Company of Corcoran, have opened headquarters in Los Angeles for the direct sale of their products instead of through the commission houses.

A. W. Morris & Sons report that their world's champion cow, Tilly Alcartra, has surpassed her own record for one week's butter fat production. After a seven day test, the official record shows that she produced 32.22 pounds of butter and 112 pounds of milk.

H. Patterson of Cedarville, Modoc county, recently purchased 140 dairy cows in the Sacramento valley and is planning to establish a modern, up-to-date dairy with a capacity capable of handling the output of 2000 cows. This will provide a local market for the dairymen of that county, who have formerly shipped their product to Oregon and Nevada.

The Ayrshire Breeders' Association of Brandon, Vt., reports that Jean Armour 3d 32219 has finished a year's official test for advanced registry and holds the Ayrshire World Championship in both milk and butter fat for a two-year old. Her record is 14991 pounds of milk, 599.91 pounds of fat, and 4. per cent fat.

In Oregon, at the recent legislative assembly, a law was enacted requiring that all testing of milk and cream, purchased on the basis of the amount of butter fat contained therein, be done by a licensed tester who shall supervise and be responsible for the operation of the Babcock test of milk and cream.

A notice has been received from the Holstein-Friesian Association to the effect that the cow, Johanna Rue Korndyke 141428, has broken the record for fat production in the senior four-year class of the "eight months division" by producing in seven consecutive days 18.02 pounds of butter fat from 389.6 pounds of milk.

CATTLE AND SHEEP.

The McCloud River Lumber Company recently transported 1100 head of their live stock from the winter ranges in Tehama county to the forest area belonging to the company at McCloud.

J. H. and T. S. Glide of Yolo county will exhibit their sheep at the Panama-Pacific Exposition. At the present time 6,000 head are being fed and prepared with a view of selecting the best for exhibition purposes.

L. Herskoertz, stock buyer of Oakland, recently purchased five cars of prime steers and one car of calves from the Tom Pratt ranch near Visalia. He also purchased from the G. W. Halstead ranch at Goshen two cars of hogs, and 3000 head of sheep from the foothills will complete the consignment, which is the largest that has been shipped from the valley in ten years.

MISCELLANEOUS.

It is stated that there will be such an abundance of feed on the lowlands as well as the hills of Tulare county this summer that it will not be necessary for stockmen to take advantage of the offer of the Government to use the forest reserve.

Portland Union Stockyards' receipts for the week ending May 20 were: Cattle, 985; Hogs, 3770; and Sheep, 3186. The cattle run was light and the offerings were mostly of the lightweight well-finished class. Choice light hogs sold for $8.25, with the demand good and the market strong. Receipts in the sheep section were liberal. First-class lambs sold for $8.30.

The American Association of Medical Milk Commissions will meet in San Francisco at the Municipal Auditorium at 9:30 a. m., June 17, and at the Agricultural Building of the University of California at Berkeley at 2:00 p. m., June 18. There will be a program by notable eastern and California men on the subject of a sanitary milk supply, and any dairyman or other interested person will be very welcome to attend the sessions.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

WANTED—12 to 60 Holstein cows, registered or well-bred grades, in exchange for high-class, clear residences. Los Angeles and vicinity, at from $1800 to $9000, desirable for private homes or income. R. H. Whitten, R. D. 5, Box 646, Los Angeles.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also gandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BARGAIN—A Holstein Bull Calf from same dam as 26-lb. A. R. O. Cow. K. W. Abbott, Milpitas, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Roung males for sale. O. J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

REGISTERED GUERNSEY BULLS for sale. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

TWENTY GRADE PERCHERON MARES with colts. Weight 1500 lbs. Imported Percheron Stallion, 8 years old. Also other horse stock for sale. S. L. Skaggs, Madera, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Pe kins, Cal.

FOR SALE—Registered Short Horn Bulls. L. A. Macomber, Tipton, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sac amento county, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

GOLD MEDAL HERD DUROCS—Weaned pigs, either sex, from prize-winning sows and boars State Fair, 1914. I have Grand Champion sow, Champion sow bred by Exhibitor, second prize boar. Pigs of these sows, mother and sisters. Priced right. Elmer Lamb, Ceres, Cal.

BERKSHIRES—Headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Farm at San Mateo. Address W. M. Carruthers, 218 Hearst Bldg., San Francisco.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

A FEW CHOICE thoroughbred, pedigreed Duroc-Jersey sows, bred to our famous Red Wonder. Write for special prices. Also pigs of the same breed. Ten dollars per pair. Western Hog & Land Syndicate, Inc. 919 Hearst Building, San Francisco.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D. McCarty, 201 Sansome St., San Francisco.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Hobson Co., 819 J St., Sacramento.

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

TAMWORTH BOARS—Nine months old, averaging 250 lbs., $25 each. Bred gilts, $25. Weanling boars, $10. L. J. Archer, R. F. D., Antioch, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

TWO POLAND-CHINA Tried Breed Sows. Registered $30 each and pigs at $15. F. O. B. N. M. Lester, Gridley, Cal.

BERKSHIRES—Utility and Choice Registered Pedigree stock Correspondence solicited. C. H. Thompson, Novato, Cal.

POLAND CHINAS—Young stock. Either sex. Write for pedigree. Reasonable prices. Edwd. A. Hall, Watsonville, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A. Young, Lodi, Cal.

REGISTERED BERKSHIRES for sale. All ages. Boars ready for service. Stanislaus Ranch Co., Crow's Landing, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $30 up. M. Bassett, Hanford

REGISTERED BERKSHIRES—Young stock for sale. John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS — Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal

REGISTERED DUROC-JERSEY SWINE—Las Pederas Ranch, El Cajon, Cal., M. S. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington

REGISTERED POLAND-CHINAS—Young stock for sale Hewitt & Hewitt, Hardwick, Cal.

REAOAKS RANCH herd of registered Poland Chinas W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. CONWAY, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son Napa, Cal.

REGISTERED DUROC-JERSEYS — T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electric car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. R. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. O. I. Sayre, Madera, Cal.

FOR SALE—1 to 100 mules from 1 to 7 years old Will trade for cows or heifers. Holsteins preferred C. A. Kelley, R. 3, Box 93, Lodi, Cal.

Promoting the Silo in Stanislaus.

[Written for Pacific Rural Press.]

Carrying the silo to the farmer through personal visits, school house meetings and public gatherings is a new one on the California stock man, but the results accomplished in other States in this manner by L. Fischer, special representative of the Western Retail Lumberman's Association, has led one of the largest lumber companies in the San Joaquin valley to secure his services for a year in Stanislaus county.

Mr. Fischer has been employed in this capacity for 12 years and his enthusiasm is so catching that dairymen who have long been prone to the silo idea are evidencing a desire to own one or more silos before the year is over.

"No, I don't advocate the building of any particular kind of a silo," said Mr. Fischer to a question of ours. "My only advice is to build one and build it quick. It doesn't make any difference to us which type appeals to the farmer, but it is my work to show farmers the advantages of the silo and advise them as to planting, cultivating, and harvesting their silo crops.

"It is my belief that where thousands of farmers in the east are satisfied that the silo is profitable, farmers here should be doubly willing to build them when they can silo two crops instead of one.

"I am advocating the planting of soy beans with the corn crop, as this climate allows a good growth of both; and while the corn will take fertility from the soil, soy beans will put fertility into it.

"This matter of soil conservation is one which will demand more consideration from the farmer here than it has in the past and the silage crop, with its resultant rotation of crops, is bound to be of immense value.

"A point which silo owners here have overlooked in the past is the matter of roofs for their silos. Sun and rain both aid in destroying the feeding value of silage, and assist in making the open-topped silo a breeding place for flies, a matter in which all dairymen are intensely interested. Keep the silo dark inside, by covering it with a roof and keeping the doors in place; and the fly evil is easily overcome."

While the work Mr. Fischer is doing toward the advancement of silos is to be commended, experience has shown that not all types of silos are fitted to California conditions and it is a well known fact that a misfit silo is worse than none at all. Care should be taken by the silo builder that his is of the right type and the experience of his neighbor silo owner should be considered above all others.

CALVES WITHOUT MILK.

To the Editor: I will have about 100 tons of alfalfa and I have a team and three head of cattle. I don't want to sell hay for $5.00 or less a ton. Cows are so high I can't buy them; they sell as high here as $125.00 to $150.00, so I was thinking of sending to the city and buying some calves. Can I buy anything to feed them so I can raise them without milk? Would canned milk do? It might be too expensive, though. Would you tell me what you think about it, and, if it can be done, in what way?—E. L., Winton.

[We do not believe that it would be profitable to try to use canned milk for skim milk or whole milk. There are a number of calf meals on the market which are used as a substitute for milk; but, according to Prof. Woll, the conclusions drawn from a number of experiments with a number of these feeds were that while good, strong, healthy calves could be raised in that manner, it is much cheaper for the dairyman to mix his own meal and the results will be just as satisfactory. He advises the use of the following mixture: 20 parts each of ground oats and wheat middlings; 10 parts of corn meal; and 5 parts of linseed meal or ground flaxseed. He also states that if skim milk is not at hand, a good substitute is third grade dry skim milk powder. This is what is commonly known as dry milk and may be purchased at any store handling a full line of feeds. —Editors.]

WHITEHALL SALE GOES WELL.

The first annual auction sale of livestock held by the Whitehall Estates, Inc., at their ranch at Tracy recently was an entire success in so far as the horse offering was concerned, which comprised the major portion of the stock offered. The two-year-old drafters sold at prices ranging from $150 to $200 a head, while the yearling fillies sold at $80 to $110. A noticeable lack of interest was shown in the Shorthorn bull offering, buyers being exceptionally scarce and only two of the offerings being sold. In view of the shortage of beef bulls, this was a surprising feature of the sale. All of the grade hogs were sold at just about pork prices. The total receipts of the sale amounted to about $15,000; and considering that most of the stock, including all of the horses, were grade animals (the latter being sired, however, by purebred stallions), the financial side of the sale was very satisfactory. About 250 people were present and all were much impressed with the manner in which Auctioneer Higginbotham conducted the sale.

STALLION LICENSE FEES.

To the Editor: Will you let me know what we have to pay for a license on a stallion, and also if there is anything else to pay?—Subscriber, Olema.

[If your horse has not been previously licensed for public service, the cost will be $2.50. If he has already been licensed, a renewal of his license will cost $1.00. In order to secure a license certificate, you will have to forward an affidavit signed by a licensed veterinarian to the effect that he has personally examined your stallion and that to the best of his knowledge and belief, the stallion is free from hereditary, infectious, contagious, or transmissible disease or unsoundness. You will also be required to furnish the Stallion Registration Board stub book certificate of registration of the pedigree, provided the stallion is registered, and all other necessary papers relative to his breeding and ownership. These should be sent to the Secretary of the Stallion Registration Board, State Capitol, Sacramento, together with your remittance of $2.50 or $1.00 as the case may be.—Editors.]

A movement is being started in Yolo county to interest dairymen, merchants, and others in a plan for subscribing $25,000 worth of stock as an inducement for the Blue Ribbon Company to locate a $100,000 condensed milk plant in that locality.

BLACK LEG LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials. 10-dose pkge. Blackleg Pills $1.00 50-dose pkge. Blackleg Pills 4.00 Use any injector, but Cutter's best. The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct. THE CUTTER LABORATORY, Berkeley, California.

Segis Pontiac de Kol Burke

1st Prize 2-year-old Cal. State Fair 1914.

The bull that combines the blood of the greatest producing families in Holstein history. He is an outstanding individual, weighing 2200 at just three years of age. His dam RIVERSIDE SADIE DE KOL BURKE, is the heaviest milker that the breed has ever developed. She and six of her sisters have records above 30-lbs. butter in seven days.

A few sons of this sire are now available, some of which are soon ready for service.. Several are from half sisters to Aralia De Kol, 30-lbs. butter in seven days at 12½ years, 28090 lbs. milk and 1142 lbs. butter in one year. Prices reasonable.

Pedigrees and Prices on Application.

A. W. Morris & Sons Corporation

Box 398-D, Woodland, Calif.

20 HEAD HIGH GRADE HOLSTEIN COWS.

FOR SALE—3 TO 7 YEARS OLD.

Have been breeding Holsteins for 27 years. For price and particulars address

E. H. CHENEY, Bodega, Cal.

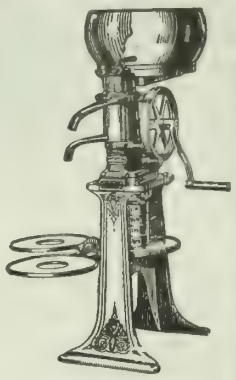
FOR SALE

ALMOND and PRUNE ORCHARD

Five years old. 3000 trees. Good buy. Will also sell over 100 acres creek land, most of it growing alfalfa..

WRITE TO ALEX. T. GIBSON (Owner). P. O. Box 361, Chico, Cal. Call at 239 E. 1st Ave., Chico, Cal.

Anker-Holth The BEST



There is no other just as good. If any one tells you they can sell you a separator just as good as the Anker-Holth, ask them to prove it. Ask them if they can show the up-to-date features and late improvements. No other separator has them. The Anker-Holth is the machine to buy, the latest and the best. We can prove it. Just ask us to do so. Ask us about our Perfection Milking Machine, and don't buy until you see it. The latest invention, it comes the nearest to hand milking of any machine yet made. It is going to be a winner, and you should have our catalogue telling about it.

THE J. C. ROBINSON CO.,

44 First St., Portland, Oregon.

Stock Ranches!

3200 A. open grassy Range. 600 A. level meadows. Water. Good Bldgs. 35 mi. Stockton. Carries 500 cattle. $13.50 per acre.

5000 A. Sonoma Co. Fine range. Water. Bldgs. 200 A. hay land. $10.00 per acre.

Will trade for ALFALFA RANCH.

1280 Acres Open Grassy Range. Well watered. Fenced. Finest Feed Carriers. 170 head Cattle. $9.50 per A.

W. W. WILLIAMS, 110 Sutter St., San Francisco

RHOADES & RHOADES

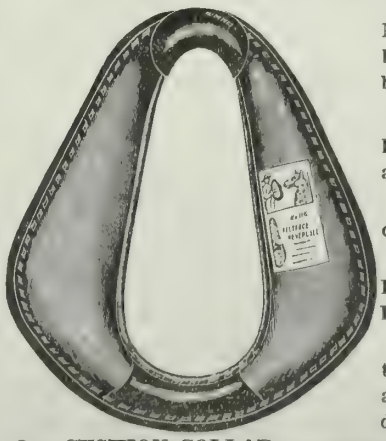
Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

BEWARE OF CHEAP, EASTERN MADE HORSE COLLARS



More shoulders are being ruined by poorly-constructed collars than by the work the animals are doing.

W. DAVIS & SONS' FELTFACE COLLARS are guaranteed to prevent sore shoulders.

Look for the felt at the edge of the stitching.

Made to sell as follows:

FELTFACE, medium draft, $5.00

FELTFACE, heavy draft... 6.00

If your dealer does not have them, we will tell you where they are to be had, or send direct if no dealer is within reach.

Our CUSHION COLLAR, a canvas and leather Boston Team Collar, is now to be had for $3.00.

ANOTHER GOOD SORE-SHOULDER PREVENTER.

A selling agent (dealer) in nearly every town. If none in your town, write us,

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

COMMENDS VETERINARY REPLIES.

To the Editor: I am exceedingly pleased with Dr. Wintringham's answers in the Press. He is handling the subject much better than anyone who has ever handled veterinary matter for your paper. Dr. Boyd did good work, but he does not begin to compare with Wintringham. I was poor, because I never really had the time to take up the matter properly. You deserve to succeed, as you publish a grand paper.

Edward J. Creely.

San Francisco Veterinary College.

[Dr. Creely has a fatherly interest in our Veterinary Department, and we are glad to receive this volunteer letter of commendation.]

PIGS TAKE COLD AND DIE.

To the Editor: About March 25th I had about sixty head of hogs of different ages—sows, two years old, their first litters of pigs, eight months old, and pigs two months old in fine condition. On that day I shut them up on floored pens. They had been on ground barley for three weeks and were fed rolled barley once a day during that time. Within five days, disease made its appearance, two of the shoats being affected, which were promptly removed. One recovered, the other died. A post-mortem examination revealed lungs solidified and mucus in trachea, other organs normal. Several other examinations revealed practically the same conditions. The general symptoms prevailing were waxy mucus from the eyes, a frothy discharge from the nose, a manifest uneasiness while standing, a general stiffness of the legs—in the first stage of the disease—which were slightly swelled. A disposition to lie down flat, from which position it was difficult for them to raise so as to get their feet in a position to get up, and in convalescence, a seeming weakness in the hind legs and spinal column. This last condition applies more particularly to the sows, but apparent in the entire herd. All the pigs are dead, two sows out of six, also, and seven of the shoats. I have left about fifteen on the road to recovery, three are yet affected, and the rest headed for the "boneyard." Now, my dear sir, I have thus taxed your patience with a long speel, but at your suggestion.—J. S. McP., Los Altos.

[Your pigs have "swine plague"—in simpler language, pneumonia. As a hog-raiser myself, had the pleasure of writing an answer for the Press some years ago, entitled "Pneumonia in Pigs," page 229, "One Thousand Questions in California Agriculture Answered." As a veterinarian today, I can see no reason to alter the article. It is a pleasure to get symptoms as clearly set forth as you have done, as it makes diagnosis easier and more certain. Medication for your trouble is of no avail—they will get well or die as they see fit, mostly the latter. Disinfect your premises with 5 per cent cresol solution. Look to your pens and stop up cracks and openings conducive to draughts. I take it your pens have wooden floors. Rip them out and substitute concrete with earth beds.]

COW SHOULD DRY UP.

To the Editor: I have a young cow two years and six months old. She will have her second calf the 7th of next June. The milk flow has decreased to about three quarts at a milking until the last week there is quite a noticeable increase in the flow of milk, at least a quart a milking. Just feeding alfalfa hay. What would you advise as to drying her up? Or shall we keep on milking her as usual?—W. A. S., Sanger.

[Dry her up as soon as possible by leaving all the milk in her bag that you can up to the point where it begins to harden. The cow should rest from milk flow a little while, though this is not absolutely necessary.—Editors.]

HEIFER DIES SUDDENLY.

To the Editor: I lost one of my heifers last week. I gave her a good physic, but it did not affect her and she only lived about twelve hours after I discovered she was sick. When I discovered she was sick she had a stiff walk and hung her head down. She had no appetite whatever. We had been keeping her in green feed. Today I have another one in the same condition. Do you know of anything that can be done for them?—F. F., Sunnyvale.

[Give your heifer the following: Quinine sulphate, four drachms; fluid extract belladonna, one-half ounce; fluid extract digitalis, one-half ounce; spirits nitrous ether, four ounces; alcohol, four ounces; syrup enough to make one pint. Give two ounces every three to four hours until gone.]

CACTUS FOR STOCK FEED.

To the Editor: Has spineless cactus been proved a success as feed for cattle and hogs? At what age is it ready to begin cutting, and does it do as well in the interior valleys as on the Coast?—H. J. N., Oleander.

[Spineless cactus makes fine feed for cattle, but as it is mostly water, much of it must be fed to get much nourishment. J. B. Wagner of Pasadena recommends that it be not cut until the slabs harden, showing plenty of fiber, as the green slabs are immature and lacking in nutriment. He leaves three or four slabs as matrix for the next season's crop. Slabs may be taken off at less than a year after planting.

Mr. Dairyman and Farmer

You Are Interested

in any plan which actually means an increased profit from your labor. The medium through which you may realize the maximum net returns from your investment is

PORTER

Perfect Barn Equipment

hence you are overlooking an opportunity if you fail to send for complete catalogue today. IT IS FREE.

Detailed blue print floor plan furnished without obligation if you will advise us of your needs; thousands of barns have been equipped with

The World's Standard Line

of fixtures which are high grade and strictly sanitary.

Our barn plan experts can offer many valuable suggestions regarding the economical and efficient arrangement of your barn, whether you expect to build or remodel, and their experience is placed at your disposal.

PORTER EQUIPMENT means the best barn equipment money can buy; such an installation assures a clean and sanitary barn, cow comfort which increases the milk yield, less labor, thereby solving an important problem, and finally added profits which are acceptable to all.

Send in Your Requirements Now

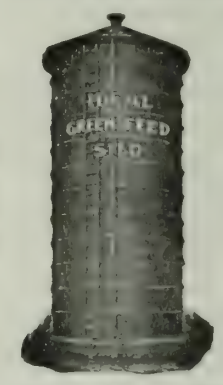
J. E. PORTER CO.

642 Fremont St., Ottawa, Ill.

A Thoroughbred or a Scrub?

WHY EXPERIMENT

with a "Near Silo" when you can buy the **IDEAL GREEN FEED SILO**, a thoroughly practical piece of equipment built by a concern that **knows how**.



A silo, to be of any value to you, must be absolutely **air and water tight** in all joints, and of such design, material and workmanship that the shrinkage, while empty, can be taken up and the Silo made just as effective after a period of years of use as when first constructed.

UNLESS YOU BUY A GOOD SILO you had just as well do without one, for it will be a source of loss to you instead of profit.

THE IDEAL GREEN FEED SILO is the result of over twenty years' practical experience in silo building, and will return to you as good ensilage every pound of good feed you put into it.

Send for silo catalog B.

Everything for the Dairy.

DE LAVAL DAIRY SUPPLY CO.

San Francisco. Seattle.

ALPHA ENGINES. **FEED CUTTERS.**

Short Horn Bulls

7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.

H. L. MURPHY, **PERKINS, CALIF.**

Feed for Sows With Pigs.

To the Editor: Would you be so kind as to let me know through the Press a good ration composed of alfalfa meal, barley and wheat shorts for sows and suckling pigs?—H. L. M., Durham, Cal.

[Answered by Prof. F. W. Woll, University Farm, Davis.]

[The brood sow should receive rations composed largely of easily digestible, milk-producing feeds so as to be able to maintain a good flow of milk, and at the same time keep up fairly well in body weight. An excellent ration can be made up of barley and shorts, two parts of barley to one part of wheat shorts, by weight, with about two parts of a good quality of alfalfa meal. Feed this in a slop with water, or better still, with skim milk or butter milk. The pigs should receive in addition after the first couple of weeks a thin slop of grain feed (barley and shorts) in the proportions given, the water in the slop being gradually decreased as they grow older. By feeding the young pigs extra grain in this way they will make a thrifty, strong growth and will be largely independent of the sow at weaning time. Barley is generally our cheapest grain feed and is preferably ground for young pigs rather than rolled, and fed with wheat shorts in a slop with water, or with skim milk, if this can be obtained.]

A. R. O. REQUIREMENTS.

To the Editor: What is meant by A. R. O. cows? — Subscriber, Bethany.

The term A. R. O. is used by the Holstein-Friesian Association for the purpose of distinguishing the classification of a cow and is an abbreviation for the words, "Advanced Registry Official." Only such cows as have made officially authenticated butter fat records in a sufficient quantity to meet the minimum requirements for a given age are eligible to the A. R. O. division. These records must be made under the supervision of the State Agricultural College or Experiment Station or by some person whose integrity or ability is vouched for by the Director or Professor of Dairy Husbandry or Animal Husbandry, or by such other official as shall be placed in charge of the test of dairy cows by that institution, and if such record during any period of seven consecutive days meets the following requirements it shall be entered in the advanced registry. The requirements follow:

Junior Two-Year Form.—A cow, calving on or before she is two years of age, shall make a record of not less than 7.2 pounds of butter-fat in seven consecutive days, and for every day that she may exceed two years of age at date of calving in the Junior Two-Year Form, the requirements for the butter-fat record shall be increased .00439 of a pound. The same increased requirement is made for every day older than the required age when calving, in all "Forms" to the Full Age Form.

Senior Two-Year Form.—If calving on the day she is two and a half years of age, not less than 8 pounds butter-fat. The increased requirements per day shall be the same as in the Junior Two-Year Form.

Junior Three-Year Form. — If calving on the day she is three years of age, not less than 8.8 pounds butter-fat.

Senior Three-Year Form.—If calving on the day she is three and a half years of age, not less than 9.6 pounds of butter-fat.

Junior Four-Year Form.—If calving on the day she is four years of age, not less than 10.4 pounds of butter-fat.

Senior Four-Year Form.—If calv- on the day she is four and a half years of age, not less than 11.2 pounds butter-fat.

Full Age Form.—If calving on the day she is five years of age, she shall make a record of not less than 12 pounds of butter-fat in seven consecutive days; and no increase in production for increased age at date of calving shall be required for any cow calving in the Full Age Form.—Editors.]

NEEDED PROMPT INOCULATION.

A significant epitome of the danger of delay when hogs are sick was recently made in a report from W. R. Nixon, Farm Adviser for Alameda county. "Last week occurred the first outbreak of hog cholera in the county since the Farm Adviser began work. The rancher had diagnosed this trouble as cholera, but took no steps to get in communication with the Farm Adviser for about two weeks. When I was finally called in, half of his forty odd hogs were dead and a half a dozen more were visibly sick. I returned the following day with a supply of serum. When it came to taking temperatures, but five hogs were in condition for treatment. Yesterday, one week later, the five treated hogs are perfectly healthy. Of the others, three old sows still linger, the rest are underground."

HARVESTING EGYPTIAN CORN.

To the Editor: Will you kindly tell me how to harvest Egyptian corn? I have about fifty acres and expect to put more in. What is the best implement to cut the corn? Is there a ready market for it?—M. S. B., Antioch.

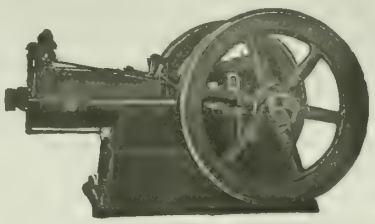
[Egyptian and Kaffir corn for grain are usually allowed to dry on the head in the field and are then cut off with pruning shears or knives, thrown into wagons, and piled in the barn or stacked beside it to be threshed when convenient. Much of it is fed without threshing. It is a standard corn on the market and has a ready sale.—Editors.]

Judging of stock at the Butte County Spring Exposition will be done by Prof. Gordon H. True of the University Farm at Davis.

Hopland Shorthorns
Hopland Berkshires
All Stock Registered.
Bulls of Highest Quality
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
Hopland Stock Farm
HOPLAND, CAL.

Alpha Engines
BUILT UP TO A STANDARD, NOT DOWN TO A PRICE.
BUILT LIKE A WATCH, BUT RUGGED AS A BATTLESHIP.

No Batteries — No Coil — No Troubles



A Big Hot Spark — A Quick Start — Results

THE MASTER ENGINE OF THEM ALL.
What other Engine Manufacturers are still striving for, we give you in the ALPHA. There are over 500 different makes of engines today, but only in the ALPHA ENGINES will you find all of these glowing triumphs.

SUSTAINED POWER EVEN AFTER YEARS OF USE.—This engine, like the trained athlete, grows better by action. Its uniformly exposed valves are not affected by the cylinder heat. So there is no warping, no leaking, no power wasted. Think of the years of extra service this master engine will give you.

NO VIBRATION: SMOOTH RUNNING AND LONG LIFE.—Each fly-wheel is perfectly balanced and machined all over excepting spokes, which make them absolutely true. This does away with any unnecessary strain and adds years to the life of your engine.

SPECIAL GEAR DRIVEN MAGNETO AND NO BATTERIES.—All Alpha Engines are equipped with special built-in, gear-driven magneto which is guaranteed for the life of the engine. Batteries such as are commonly used are not necessary with Alpha Engines. A big saving in time and money.

FUEL ECONOMY.—Alpha Gasoline Engines combine great fuel economy with maximum power production. According to Government Tests will soon pay for themselves in saving of fuel over other American makes.

An Engine that lacks these features may cost less. But it will cost more to operate and keep up.

When once you know the years of extra service these features add, you will have no other than an ALPHA.

Built in sizes from 2½ H. P. to 100 H. P., hopper or tank cooled, portable or stationary type. We also handle complete line of Viking Pumps. Self-Priming, high efficiency, and especially designed for irrigation work.

WRITE FOR SPECIAL ENGINE CIRCULAR 2-B.
De Laval Dairy Supply Co.
SAN FRANCISCO. Everything for the Dairy. SEATTLE.

$1.50 Per Acre
For Rental of Fertile Farm Lands
5,000 Acres can be rented for a term of years at $1.50 per acre per year, and up.
Located 11 miles from Dixon, "the Dairy City" in Solano County. Excellent transportation facilities are afforded by the O. A. & E. Ry. Electric freight and passenger service to all parts of the United States.
Other lands in Solano County, splendidly located, can be leased or rented for various terms of years at low prices.
FULL INFORMATION WILL BE FURNISHED ON REQUEST.
Oakland, Antioch & Eastern Railway
Address L. H. RODEBAUGH, Traffic Manager,
40th and Shafter Ave., Oakland, Calif.

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland
TAMWORTHS, DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

HORSE OWNERS! USE
GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

IN ONE of our state institutions, an agricultural club issues a monthly bulletin which records some of the proceedings of the Poultry Class that forms one of the important divisions of this club. In the bulletin for May is published an article by E. Marshall, entitled "The Utility Fowl." Mr. Marshall says in part: * * * "Those of us who hope to make either the whole or part of our income in the future from the products of our poultry yard, it is the general utility bird that we shall need. * * * Therefore, though we may be, and very properly so, convinced that purebred stock will give us the best results, and being determined not to commence operations with anything but purebred fowls, we shall do well when buying to avoid the fanciers who set such store on what are merely show points, and to patronize those who, while breeding for beauty, emphasize the value of high general utility."

Utility Purebred Fowls Will Win.

[Written for Pacific Rural Press by George H. Croley, President Federated Poultry Association of California.]

The above concrete statement includes the most convincing premise and logical demand for the official recognition of the purebred utility fowl that we have seen and it expresses the sentiment that now influences the selection of breeding stock by buyers of purebred poultry in all parts of the country. This condition of mind is now so prevalent among the practical poultry farmers and keepers of fowls for profit as a side line that we will venture a prediction: The American Poultry Association at its fortieth annual meeting in connection with the Universal Poultry Show at the Panama-Pacific Exposition, Nov. 18 to 28, will doubtless ratify one or more previously considered innovations, and we prophecy that if it does not actually amend its present system of judging at this meeting, steps will be taken to adopt as quickly as its by-laws will permit a regulation providing for the joint judging of and certification to the utility value of fowls, in connection with the fancy or show qualifications at exhibitions held under its rules. This will mean that within two or three years the score card or prize certificate must include the utility rating of the show fowl to make it worth anything to its owner.

Every poultry keeper should visit this show because, with the various poultry conventions to be held in connection with it and the prominence given the utility classes, the psychological result will be the greatest advancement in poultry culture that has occurred since the establishment of the American Poultry Association over forty years ago.

We mean by utility fowl one that is purebred, is a great producer, but may or may not be in the fancy class.

HATCH CHICKS THIS FALL.

With the exception of a very few experienced breeders, California poultry keepers have neglected an opportunity to add to their profits directly by increased production of large premium eggs from mature hens in the fall and winter, when extra eggs bring high prices; and indirectly by adding to the size and vigor of their fowls, particularly those belonging to the Mediterranean varieties. These benefits can be obtained in nearly all parts of the State through the fall hatching of chicks from eggs set in September and October; possibly in some locations conditions would be more favorable for setting in October and November.

Fourteen years ago, in San Mateo county, I obtained during their first year and a half laying period, the greatest net results per hen that I ever experienced in egg production, from a flock of White Leghorns that were hatched October 15. During late summer and fall, I fed and treated them exactly as though it was springtime, by supplying shade and green stuff in great variety and in abundance; and, of course, with plenty of other properly balanced feed, avoiding fat and oils that might induce molting.

They laid more eggs in October and November than in February and March; during February and March they also did most of their molting. Some of them were dropping feathers in January and it was April before all of them had completed their undergrowth or down feathers. I recollect that the egg yield thereafter up to the first part of the next October was very satisfactory. At that time, because of moving to Alameda county, it was necessary to dispose of them, and unfortunately these records were lost in the Great Fire of 1906, otherwise I could give some exact and instructive data.

I am satisfied that fall hatching affords a great opportunity for many in this State, who will patiently breed up flocks of fall layers. It will usually require two or more years to get satisfactory results, but it will pay if properly undertaken.

A DESTRUCTIVE DISEASE.

"Boys will be boys," and my eldest son is no exception to the general run in the matter of "striking out on his own hook," as illustrated by the following reference to a little enterprise in poultry culture. Our own "one acre ranch," with its poultry yards, in time became too restricted to satisfy the ambition of a nineteen-year-old boy; besides, the desire for a real partner and to be one's own boss, together with the possibilities for profit, as demonstrated on our own little plant, were naturally alluring.

After considering several plans, the partners selected — against my advice, not very vigorously expressed, however — a ready-made plant less than half a mile from home. "Oh yes, we know second-hand hen houses are usually unsafe, but this is such a clean place," was the crusher placed on my objections.

And now, after a year of proper effort, it has been demonstrated that it is utterly impossible to raise chicks anywhere on that apparently desirable place or six acres, or in that immediate neighborhood. Of several thousand chicks, some hatched on the place as well as others bought elsewhere, not one grew properly, while many died. Of those that survived, as broilers they were stunted; and at maturity, worthless as breeders. Scattering of chicks to various points failed to prevent infection.

The cause of this disaster was a disease known as Coccidium, the germs of which were left on the grounds by diseased fowls, brought there from a neighboring place several years previously and which remained dormant until picked up by the chicks. Recent investigation disclosed the original seat of infection a mile away, and hundreds of failures have been caused by the diffusion of the germs from this place.

This trouble was long ago brought to the attention of the University

Classified Advertisements.

Rates, 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

WANTED.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

MISCELLANEOUS.

FOR EXCHANGE—Absolutely pure, reliable Sudan Grass Seed. The grass you read so much about. The dependable and profitable hay crop. Relished and good for all stock. Here is your chance. Will trade pure Dollar Sudan Seed, for Cows, Hogs, Turkeys, Chickens, Ducks, Guineas, Pigeons, or Rabbits. Anything can use on farm. Try a few pounds, you will never regret it. Booklet sent on request. Will also furnish Seed on Shares, small or large acreage. Address, Sudan Farm, Route 7, Box 53-A, Los Angeles.

SUCCESSFUL FARMERS are buying Lumber from us at wholesale prices. No. 1 dimensions, $9 at the mill. Send us your lumber bill for figures. Our prices are lowest in the country, on quality lumber. Write today for free price list. Buy while prices are at bedrock. Pacific Mill & Timber Co., First National Bk. Bldg., San Francisco, Cal.

SHARPLES MECHANICAL MILKER OPERATORS are in demand. We offer complete course in modern dairying on our own farm. Further particulars, write: The Sharples Demonstration Farm, Geo. W. Lucy, Superintendent, Stockton, Cal.

SECOND-HAND WATER PIPE and screw catalog. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. K. 8, Fresno, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK

AVOCADO TREES—The Avocado is the most valuable of all fruits and the most important future industry before the people of California today. Vigorous, field grown, two-year-old budded trees of standard frost resistant variety, from four to seven feet high, $2 Write for literature. W. A. Spinks, Duarte, Cal.

DON'T MIEE this chance—A No. 1 Washington Navel, Valencia, and Eureka Lemons. Must be sold at a sacrifice as they have to be moved. ½ in. and up. $18 per hundred, balled and delivered at station. J. C. Johnson, Azusa.

BURBANKS SPINELESS CACTUS—Hardiest varieties Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others Geo. S. Weinsbank, 425 Magnolia Ave., Whittier, Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft., on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

BERRY PLANTS, Rhubarb, Cacti—Send today for price list. Louis F. Scribner, R. 2, Pasadena, Cal.

LAND FOR SALE.

CALIFORNIA LAND — Money-making little farms. High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—Highly productive small fruit ranch Well located edge of small city in Sacramento valley. Fine buildings, excellent modern home, good income from property. I want to retire on account old age. For particulars address Box 387, Corning, Cal.

FARMS WANTED—We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

GOVERNMENT AND STATE LAND County Sectional Maps, showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

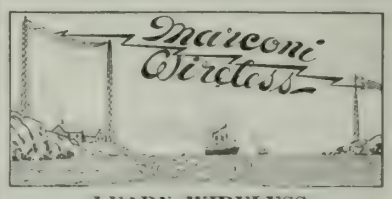
WANTED—about 20-acre irrigated ranch, part improved, near school, in exchange for San Francisco 7-room cottage, nearly new. Value $3,500. All clear. Will assume. No agents. Box 58, Rural Press.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools, machinery, pumping plant, fruit. Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR SALE—Santa Clara Valley Ranch. 90 acres all level; 40 acres in alfalfa. Improved. Address owner for circular. F. E. Romie, Edenvale, Cal.

DAIRY RANCH—Six miles west of Napa, to lease. 1400 acres. Cross fenced. F. L. Morehouse, Napa.



LEARN WIRELESS
Railroad or Commercial Telegraphy

Telegraph operators see the world and get paid for doing it. The Marconi Company gives our graduates preference for positions. The only Telegraph School on the Pacific Coast having a direct main line wire. Individual instructions.

Send for Catalogue.

MARCONI SCHOOL OF INSTRUCTIONS
13th and Madison Sts., Oakland, Cal.

ARNOTT & CO. HAY PRESS HEADQUARTERS

Three Stroke - Great Capacity - Self Feed - No Danger - Smoothest Bales - Easily Moved - and Set - Extra Power - Simple - Durable - Guaranteed - Sold on Easy Payments CATALOG MAILED FREE

-THE ANN ARBOR "35"-

ARNOTT & COMPANY
118 So Los Angeles St Los Angeles

In answering advertisements mention the Pacific Rural Press.

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK, Dept. B.
731 Market St., San Francisco, Cal.

"SAVED $49.85 on her grocery orders for the year," writes one of our patrons. Send for our catalogue. DO IT NOW.

Freese & Company
MAIL ORDER GROCERS,
1262 Divisadero St., San Francisco, Cal.

"California Poultry Practice"
$1.00 Postpaid, Pacific Rural Press.

at Berkeley and at Davis, but that institution has no authority to eradicate this menace to the poultry industry that may spread over the entire State. Do we need a Poultry Commissioner?

Farm Poultry for Profit.

[Written for Pacific Rural Press by Mrs. Susan Swaysgood, Pomona.]

Find Mites in Early Morning.—I had one hundred and twenty little turkeys hatch during the last month and now have only twenty left. They have no lice or diarrhoea. When I go out once they are all right and eating; next time I go out to look at them in perhaps ten minutes I find two or three dying. I am feeding hard boiled eggs, onion tops, and curd. As I have more hatching soon, would like to know what to do for them.—Mrs. J. B. C.

Your feed is about all right. A little corn meal mixed with the egg and a little rolled oats would be a good addition. Turks must have something in the cereal line such as bread crumbs, corn meal, and rolled oats. These are all easy to digest, yet nourishing. But I am afraid that it is either lice or mites that is doing the mischief. Look well into the brooding place very early in the morning and I think you will find some nice little red fellows that have dined off your turks while you slept.

Now to anyone not accustomed to the ways of mites it is not easy to find them until they have taken full possession of a place; hence the need of looking early in the morning. At that time they are full and, of course, lazy. You will find them under boards, in cracks, and about all joints and knots in lumber where chicks and turks are. There is nothing else that could clean up a lot of turks like that and leave no trace of its work. Diarrhoea gives itself away, but not mites or lice; of course you can find the lice, but mites are mighty cunning.

Another turkey inquirer wants to know what to give for yellow droppings and what to feed little turks. What not to feed little turks until at least two weeks old is: All or any kind of grain; they cannot digest it. Very likely you have done so and your poults are suffering from indigestion. If so you will find a few drops tincture of Nux Vomica in the drinking water one of the best tonics for the indigestion. Say ten drops to a good quart of water the first two days, then reduce it to 5 drops. Give until turks show good, healthy droppings. If you have fed right, with soft feed as stated above, then give Carter's little liver pills, one to a bird at night, but for indigestion caused by incorrect feeding I prefer the Nux Vomica. The only way to cure a turkey poult and have it back in the flock well in a few hours, is to catch it in the first stages before the trouble materializes into a serious case. This means to watch the droppings every morning and catch the sick poult right off the bat. How many do that?

Breeding Stock Separate from Layers.

[Written for Pacific Rural Press by Henry W. Luhmann, Napa.]

I have often been asked why the method of breeding up as practiced with live stock, especially dairy herds, in using only the best producers for breeding stock, did not give good results when applied to poultry. That it does not, we have positive proof—some reliable experiments even showing us where the progeny of fine layers kept under the best of conditions finally resulted in practically nothing but poor layers. As I has not seen this point answered satisfactorily in the press, and consider it of prime importance to every poultry raiser, I want to give my theory and results of experiments.

There seems to be no reason why breeding from high producers should not work as well with poultry as with dairy stock, but a closer examination will disclose the utter dissimilarity between the two. To make this explanation as plain as possible, I repeat here a few elementary points on physiology. We know nearly everything regarding the origin or continuity of life; or plainer, we don't know just what starts the development of the germ which finally results in the formation of a living being, and what then makes the heart pump the blood through the arteries to all parts of the body and thereby keep all the organs doing their special functions; but we do know that, like everything else in nature, these things are governed by a certain set of rules, some of them apparently very elastic and nearly always in our favor, but nevertheless, seemingly unchangeable. If continually violated, they will finally exact the extreme penalty. It is to these, Nature's rules, that I go for all my information when experimenting or in quest for reliable knowledge.

Excessive Egg Production Debilitates Digestive Organs.— Looking at the production of milk by a dairy cow in this light, we find it right in line with Nature's intention. She is supposed to furnish milk for her offspring for several months continually; but applying this same reasoning to poultry, what do we find? A hen was supposed, in her natural state, to lay only enough eggs to perpetuate her species, which at the utmost would probably be not more than twenty a season, putting all her endowed life-giving quality into those twenty eggs. But along comes man, finds those same eggs palatable; and as his appetite for eggs does not stop with the laying season, commences to encourage old mother hen to lay more eggs, by not allowing her to set and raise her brood. This has finally developed into our highly scientific forced egg-producing of today. But with what results? Commencing with a perfectly healthy specimen: When she was induced to lay a few extra eggs, the reproductive organs called upon the digestive organs for more material, placing a heavier burden on the latter; and in place of putting all her strength into a possible twenty offspring, she was putting it now into perhaps forty, making each possible offspring just a little bit weaker. This process kept on continually, each generation getting a little weaker, with perhaps a little greater inherited tendency to lay a few more eggs, placing a greater burden upon the digestive organs that were steadily getting much weaker, with Nature's final penalty, the breakdown; when the digestive organs were only able to assimilate enough food to nourish the body, and egg-laying ceased.

This may sound like another of our hare-brained theories, but it works out that way in practice. You don't have to dig very much to verify it.

Now, what's the cure for this. We can't let our egg-production drop; we'd soon go into bankruptcy, or just bust up.

Breeding Flock Never Forced.—My method of overcoming this is to keep a separate flock that are never forced, even in their pullet year. [Geo. H. Croley of the Federated Poultry Ass'n. suggests that selection for breeding may best be done by the Hogan system, using only those capable of high production, but never letting them produce more than 75 eggs per year.—Ed.] I always get them out during the natural breeding season, give them as much range and exercise as possible, and keep them on rather scant rations of low protein content, mostly grain and greens. This gives me usually good large bodies and framework on the fowls, and very few eggs during the winter; but when the breeding season comes around, I'll have chicks that are a joy to look at, and what's more, for real strength and vitality, I'll back them against any 200-eggs-during-the-pullet-year, two-year-old hens' offspring in existence. Now mind you, I don't advocate the reckless breeding from pullets. But in commencing a new start, like I am now, I always prefer this method. Using two-year-old cocks, these latter give not quite such a high percentage of fertility as yearling cockerels, but greater vitality. It might not be amiss here to mention that I use about one yearling cockerel to fifteen two-year old hens, and about one two-year-old cock with twelve one-year-old pullets. This seems to give a slightly greater percentage of cockerels in their offspring, but both the fertility and vitality are greater than if fewer males are used.

Where offspring from such special breeding stock is not available, the next best thing are those eggs from two-year-old hens (that have not been forced greatly during the pullet year), laid as soon as possible after molting, and yet come somewhat nearer the natural spring breeding season. Don't wait too long; every extra egg means that much weaker chick. I look with suspicion upon the offspring produced during the summer from a hen that laid heavily all spring. It's not the heat and germs that make those chicks not do well. It's their inherited debilitated condition—they never had a chance.

One thing more, don't let the thought of interbreeding even enter your head, for that alone seems to have had a bad effect on poultry. Keep the vitality up to the highest possible point, so that your flock for commercial eggs will stand up under forcing.

A record for installing an irrigation pump was made recently. J. P. Shelton of Burbank placed an order with a Los Angeles concern for the immediate delivery of a turbine centrifugal pump and the same week the pump was in running order, throwing a fine stream of water. Mr. Shelton is greatly pleased with his new pumping plant. The pump was manufactured by the Layne & Bowler Corporation.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

ROOFDEN RANCH Chicks are good chicks—the kind that satisfy you in quality and price. Special for June: Our best grade White Leghorns from first-class breeding stock, heavy laying strain. $8 hundred; $70 thousand. Brown Leghorns, quick growers and everlasting layers, $9 hundred. Our R. I. Reds and Black Minorcas at $11.00 hundred are some bargain. Write for delivered prices. Safe arrival guaranteed and our interesting circulars. Roofden Poultry Ranch, Box 176, Campbell, Cal.

BARRED PLYMOUTH ROCKS—Winners of New York and California's leading shows. Laying strain second to none. Cockerels from famous sires at reasonable prices. Eggs for hatching from fifteen grand yards. Seventeen years breeding Barred Rocks exclusively. Just write us your wants. Chas. H. Vodden, Box 396, Los Gatos, Cal.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. Wm. Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

EMPIRE HATCHERY sells best White Leghorn chicks at lowest prices. Best of quality and satisfaction guaranteed. Orders shipped on short notice. Beagle & Cullen, Empire, Cal.

SINGLE COMB WHITE LEGHORN Pullets two months old, also breeding cockerels and yearling hens at reasonable prices. Model Poultry Farm, Corning, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons. Susan Swaysgood, Route 2, Pomona, Calif.

PETALUMA HATCHERY—We have chicks every Monday. Five varieties. Send for May and June price-list. L. W. Clark, Petaluma, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock; Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks, Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded Toms recently from East. Inquire today, John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHEASANTS.

WHILE THEY LAST—Plymouth Rock Homer Pigeons for $3 per dozen. Very fine. Geo. M. Bosworth, Geyserville, Cal.

PHEASANT EGGS—Golden, Silver, Chinese and Amherst. L. R. McCoy, R. 1, Box 205, Stockton, Cal.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

BELGIAN HARES.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

NOW is the Time to Feed
Coulson's Egg Food
to your pullets as well as your hens, commencing at the age of three months.
Write for free book "Chickens" from shell to market.
Coulson Co.
Petaluma, Cal.

1000 White Orpington Chicks
in lots of 100 or more.
H. F. PIXLEY,
Corte Madera, Calif.

My shortest days end, my lengthening days begin. What matters more or less sun in the sky, when all is sun within?—Christina G. Rossetti.

The Home Circle.

THE END OF A KITTEN HUNT

Dot and Charlie were going through the barn on their way to play in the orchard, which they could see through the open barn doors. They had baskets of luncheon with them, for mother had said they might stay till past supper-time if they liked.

But in the middle of the long barn floor Dot stood still with her finger on her lip.

"Look, Charlie," she whispered, "the old cat is climbing the ladder to the haymow. Now we can find out where she has hidden the kittens." The two children had been hunting more than a week for those kittens, which old Floss, the mother cat, had carried off one day. But they had not found them, though they had looked twice on that very mow.

"She does hide them in the littlest corners," whispered Dot. "But if we creep up the ladder just as still as mice we can see where she goes."

They waited till the old cat had jumped off the ladder into the hay. Then they crept up step by step and peeped over into the mow. They could see the cat's eyes shining in a dark place under a beam, and they went tiptoeing over to her.

Floss did not run away this time, as she usually did when any one came near. She looked up at them from a cozy nest in the hay, and beside her they could see the kittens looking up, too, with round, bright eyes.

"Oh, you darlings!" cried Dot, taking the kittens up carefully into the skirt of her dress. "See, Charlie, Floss is purring and acting just as happy as can be."

"That's because she sees we're not going to hurt them," said the boy. "Let's go now and show them to mother before we go up to the orchard."

They went to the edge of the mow with Floss purring at their heels. She had made up her mind that her babies were in good hands, though she had been so afraid at first.

At the edge of the mow the children stopped with a cry of dismay, for the ladder had slipped down out of reach.

"Oh, oh, how will we ever get down?" cried Dot, looking over into the barn floor, which seemed a long way below.

"We can't," answered Charlie. "Let's sit down on the hay and consider what to do next."

They "considered" a good while, but nothing came of it.

"Mother thinks we're spending the afternoon in the orchard, and perhaps nobody will come to the barn till milking-time to-night," said Dot.

"We left the luncheon-baskets down on the barn floor," added Charlie, "and I'm hungry now; but Floss isn't worrying."

Floss had curled up beside the kittens when Dot put them down on the hay, and they were all asleep in a bunch.

The children waited and waited, but nobody came. They called once or twice, hoping their mother would hear; but she was making pies in the kitchen, and that was too far away for the small voices to reach her. By and by they tried to play on the hay for a while, but they were too hungry and worried to care much about it.

"Suppose," said Dot, "that father couldn't hear us when he comes out to milk? He always shuts the tie-up door, and the mow isn't so very near, anyway."

Charlie laughed at this at first; of course father would hear, he said. But when at last they heard the tinkle of pails in the tie-up, they shouted in vain. Between the noise the cows made as they reached for the grain in their boxes and the noise the milkers made as they talked and laughed and rattled the pails, nobody heard the two little voices calling from the haymow.

"There, they're gone away with the milk now," said Dot at last. "Oh, dear, we've got to stay up here all night, and it will be so dark and lonesome and hungry."

She sat down on the hay, and the big tears began to roll down her checks.

"Floss," said Charlie, rolling the old cat over on her back on the mow," you got us up here, now you just show us how to get down."

Floss sat up and looked wise. You would have thought she understood just what Charlie said. But the truth was that she had heard the tinkle of those milk-pails and knew that there would be a foaming saucerful of milk waiting for her in the kitchen when the milkers brought the pails in.

She started straight for a higher

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway

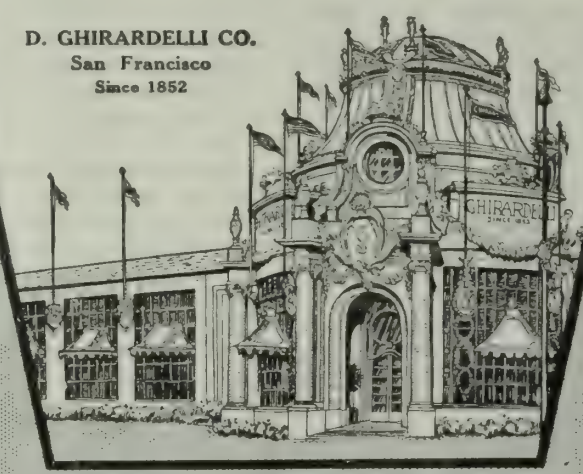
BODE K. SMITH,
Asst. General Pass. Agent.
San Francisco, Cal.

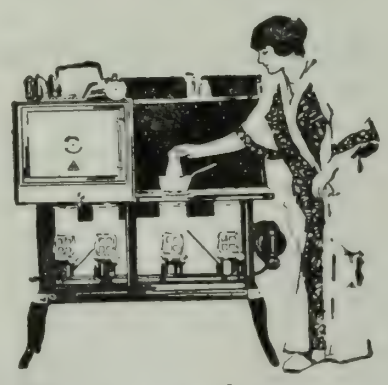
There is no secret about the making of

Ghirardelli's
Chocolate

Visit the building at the entrance to the Zone at the Panama-Pacific International Exposition and see it made—the ingredients are pure—the manufacture cleanly—the description interesting.

D. GHIRARDELLI CO.
San Francisco
Since 1852





Every Convenience of Gas

A good oil stove lights like gas, regulates like gas, cooks like gas. And it does away with the dirt, delay and waste heat of a wood or coal range.

New Perfection
Oil Cook-Stove
For Best Results Use Pearl Oil

Bakes, broils, roasts, toasts perfectly. Does everything your wood or coal range will do. No odor. Does not taint the food. Does not overheat the kitchen. Several styles and sizes. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

CALIFORNIA POULTRY PRACTICE
By Mrs. Susan Swaysgood.

PACIFIC RURAL PRESS, Publishers.
525 MARKET STREET, SAN FRANCISCO, CAL.

mow near by, and, though the children told her that she was going up and not down, they followed her to see what she would do. She went to the top of the higher mow, and stopped beside a little window away up under the edge of the barn roof.

Charlie looked out of the window and then he stood on his head in the hay, for right below was the slope of the high roof of the L. It was quite safe to slide down, too, for at the foot of the L roof was the flat top of a wide piazza with a good stout railing all around it, and from the piazza top there were stairs leading right down into the garden.

"Cats do know things that folks don't, sometimes," said Charlie, when they were showing the kittens to mother in the kitchen.—Mabel S. Merrill, in Zion's Herald.

HOW TO COOK VEGETABLES.

In a recent bulletin on "The Cooking of Vegetables," by Miss Louise Stanley, associate professor of home economics at the University of Missouri, Miss Stanley points out that the chief reason for cooking vegetables is to make them more digestible by softening the cellulose and by causing the starch to swell and assume a gelatinous consistency. When starch is changed in this way it is said to be hydrolyzed. Hydrolyzed starch is digestible; raw starch is indigestible. Those vegetables which have no starch or relatively small amounts of cellulose can be eaten raw.

Miss Stanley further emphasizes that many housekeepers make the mistake of boiling vegetables in a large amount of water and draining off the water in which mineral salts and sugar from the vegetables are present. When the water containing these constituents is drained off, a large amount of the nutritive value of the vegetables is lost. The most serious waste in throwing away the water in which the vegetable has been cooked is the loss of mineral matter which is necessary to build bone and prevent the decay of teeth.

It is desirable that strong flavored vegetables lose a part of their flavor. Fully as satisfactory as the method of pouring off water is the plan of cooking the vegetables in an uncovered vessel and allowing part of the flavor to pass off in steam.

BAKED ONIONS.

By the way, I wish every housewife would try baking onions and see how much better and sweeter they are. Trim and wash, leaving their jackets on, set in a baking dish with a little water. As the water boils out add more. We think them delicious. Serve in side dishes and let each person prepare them himself by pressing the inside out of the jacket. Season with salt, pepper and butter. This is from a French cook.—Mrs. J. E. Ryder in Rural New Yorker.

CONCURRING.

He—As I was saying, Miss Mamie, when I start out to do a thing I stay on the job. I'm no quitter.

She (with a weary yawn)—Don't I know it!—Baltimore American.

Senator Martin of New Jersey tells of a farmhand who philosophizes. One morning, when the Senator was wandering over the farm, he came upon his man feeding the chickens. Alexander stopped him with: "Good mawnin', suh! I been thinkin' this mawnin', and I made up my mind, suh, as I's lookin' at these heah chickens, that they's the usefulest animal they is. You c'n eat 'em 'fo' they's bo'n, and aftah they's daid!" —Washington Star.

"What is your name, little boy?" inquired the kindergartner of her new pupil. "I don't know," said the little boy. "Well, what does your father call you?" "I don't know," still bashfully. "How does your mother call you when the griddle-cakes are done?" "She doesn't call me," beamed the new pupil; "I'm there."—Ladies' Home Journal.

WHO MAKES "JERKIE"?

To the Editor: Can you give me information as to preparing meat in the dried form? I believe it is called jerkie.—E. W. C., Orland.

[While we have eaten jerkie in various parts of the West, our experience in making it is limited. Our recollection is that the meat should be cut in slices and hung up to dry. Will some subscriber who has had experience in making it give more detailed information on its preparation?—Editors.]

Little five-year-old Nettie, who had been brought up in the city, was spending a few days in the country. "Grandma, what are those funny little green things?" she asked, as they were passing through the garden one day. "Why, those are peas," was the reply. "Peas!" exclaimed Nettie. "I'm s'prised. I thought every one knew that peas come in tin cans.—Exchange.

Ants Easily Exterminated

By A Method As Simple As It Is Effective.

Even though you have tried without success many remedies for ridding your place of ants, do not despair—for a very simple yet effective method of relief is at your disposal.

Your case can be no worse than that of the Los Angeles baker, whose shop was over-run with ants to such an extent that he either had to get rid of them or go out of business altogether. After long experimenting he devised a paste which not only drove all of the ants out of his place in one day, but kept them out forever.

So great a demand was immediately created for this wonderful remedy that it was put up for general use under the name of Kellogg's Ant Paste. It can be obtained of all good druggists. Ask for a package today, and you will be surprised at the ease with which your ant troubles will be ended.

Sugar 2c per lb.

in combination orders. Write for catalogue. It means money in your pocket. Send for catalogue NOW.

Freese & Co.

MAIL ORDER GROCERS,
1262 Divisadero St., San Francisco

Redwood Tanks

I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. WILSON, Stockton, Cal.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENT AGENCY
PATENTS
Circular containing 100 mechanical movements mailed free.

The STEPHENSON PATENT COOLER

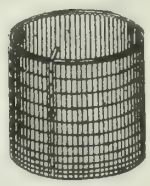
NO ICE REQUIRED.

Perfect Ventilation Absolutely Sanitary

Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers,
Steel and Wood.
Prices the lowest.
BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.



Luitwieler Pump

Exhibit at Both Expositions. Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.
Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

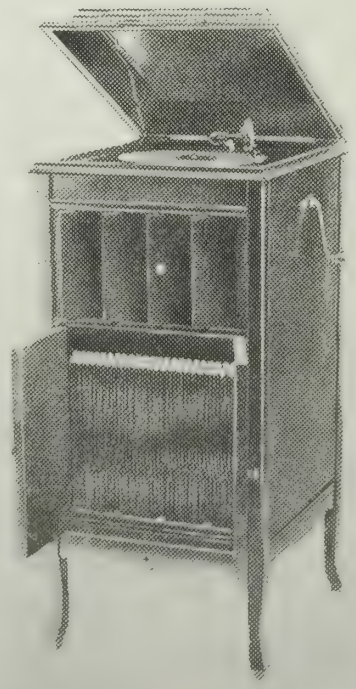
Blake, Moffitt & Towne

Dealers In PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

AT EILERS ONLY $96.60

Not only a Standard Talking Machine, equal in tone, quality and finish to any $200 instrument; but 36 vocal and instrumental selections also included at the price.

For the FIRST time we are offering this superb talking machine at this price. Big, beautifully finished, equipped with all accessories, and shown in mahogany or golden, fumed or weathered oak.



Try it in your own home free

Return it at our expense if it is not all we claim it to be—there is no obligation whatever.

Take 10 months to pay for it

Pay only $9.60 down and $7.50 a month thereafter. We will deliver at once. But DON'T overlook this unheard-of opportunity.

We ship free anywhere in California. Send for actual photograph and list of records.

Eiler's Music Co.
975 Market St.

Talking Machine Headquarters

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, May 26, 1915.

WHEAT.

With a very dull demand locally and no shipping movement whatever, there has been a decided reaction this week. Prices for all grades of wheat are down from 10 to 15 cents.

Cal. Club, ctl	$2.05	@2.10
Forty-fold	2.10	@2.15
Northern Bluestem	2.15	@2.20
Northern Club	2.05	@2.10
Northern Red	2.00	@2.20

BARLEY.

Though the market has weakened further this week, the price changes have been small. The demand for feed continues light.

Choice Feed, ctl	$1.15	@1.20

OATS.

The oat market is without change this week, owing more to light receipts than to any material demand.

Red Feed	$1.55	@1.60
White	1.80	@1.85

CORN.

There is almost nothing doing in corn this week. The feed demand is very small and stocks are very small.

California Yellow	$1.75	@1.80
Eastern Yellow	1.80	@1.85
Egyptian White	1.75	@1.85
Milo Maize	1.75	@1.80
Manchurian	1.40	@1.60

BEANS.

The bean situation continues about as heretofore. The market is firm; and a good deal of business is being done at the old quotations. Pinks and bayos are still the firm spots on the list; but, until further export business develops no further advances in these are expected. Mexican reds show an advance of ten cents.

(On Wharf.)

Bayos, Cal., per ctl.	$4.75	@4.90
Blackeyes	5.50	@5.65
Cranberry Beans	4.25	@4.50
Horse Beans	3.50	@4.00
Small Whites	4.65	@4.75
Large Whites	4.50	@4.65
Pink	3.50	@3.85
Limas	4.85	@5.00
Red Kidneys		5.75
Mexican Reds	2.90	@5.00
Garbanza		7.00

SEEDS.

Though there is some alfalfa seed on hand here, the season is over, and there is hardly enough business being done to establish prices. Other lines are unchanged.

(Wholesale prices, San Francisco.)

Alfalfa	17½	@18½
Brown Mustard, per lb.		Nominal
Canary	10	@12½c
Hemp	3	@ 3½c
Millet	2½	@ 3 c
Timothy	7½	@ 8 c

HAY.

Local hay dealers make no change in their quotations this week, though it is admitted that the situation here is statistically in better shape than for some time past. Arrivals have been rather light, and the yards have been pretty well cleaned up. The demand here is not particularly good; but the checking of shipments to this market by the prolonged rains and the realization that the rains have decreased the prospective crop have had their effect. The demand for strictly choice hay is said to be above the supply.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50	@11.00
do No. 2	7.00	@ 9.00
Barley	5.00	@ 8.00
Tame Oats	6.00	@12.00
Wild Oats	6.00	@ 8.00
Alfalfa	6.00	@ 9.00
Stock Hay	4.50	@ 5.00
Straw, per bale	.30	@ .45

FEEDSTUFFS.

(Wholesale prices per ton, carload lots, San Francisco.

Alfalfa Meal, ton	$14.00	@15.00
Alfalfa Molasses Meal per ton	18.00	@19.00
Bran, per ton	26.00	@29.00
Oilcake Meal		None here
Cocoanut Cake or Meal	25.00	@26.00
Cracked Corn	40.00	@41.00
Middlings	32.00	@35.00
Rolled Barley	25.00	@26.00
Rolled Oats	33.00	@34.00

VEGETABLES.

Generally speaking vegetables are coming in in better supply all the time; and prices are tending downward in a number of lines. The low prices quoted for cucumbers a few days ago caused all shipments to stop; and after a few vessels reached the market here without any cucumbers aboard, a scarcity developed which sent the price up again. Whether or not the present advance will bring in such a flood of stock as to send prices down again remains to be seen. Eggplant shows a wide diversity as to quality; and the top figure has been marked up to 17½ cents. The celery now coming out of cold storage is in most cases in bad shape, and prices are very low.

(Wholesale prices, San Francisco.)

Asparagus, box	$1.50	@2.25
Peas, lb	1	@ 3 c
String Beans, lb	3	@ 6 c
Peppers, bell, lb	20	@25 c
Tomatoes, Mex.	1.50	@2.00
Celery, crate	50	@1.25
Lettuce, crate	50c	@1.25
Rhubarb, box	40	@75 c
Cucumbers, S'thern, bx.	75	@1.00
Eggplant, lb	8	@17½c
Summer Squash, crate	40	@50 c
Okra, lb	15	@20 c

POTATOES AND ONIONS.

Lots of potatoes are now coming in and prices have been tumbling all week. At present the market is easy with buyers holding off for still lower figures. Sweet potatoes are unchanged without any great movement. Yellow onions are slightly lower, with other varieties unchanged.

(On Wharf, San Francisco)

Potatoes, Oregon, ctl.	$1.75	@2.00
Lompoc	2.35	@2.50
River Burbanks, ctl	1.25	@1.75
New Potatoes, ctl	1.25	@1.50
Sweet Potatoes, ctl.	2.00	@2.10
Onions, yellow, sk	60	@70 c
Australian, ctl.	3.00	@3.25
Bermudas, crate	1.00	@1.25
Garlic, per lb	10	@20 c

POULTRY.

The poultry market has held firm all week and is now in rather better shape from the seller's point of view than it was last week. A weakness has developed in broilers which resulted in a drop of from one to two cents.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	16	@18 c
Broilers	21	@23 c
Fryers	28	@30 c
Hens, extra, per lb	17	@18 c
Small Hens, per lb	16	@17 c
Smooth Young Roosters, per lb.	24	@27 c
Squabs, per doz.	$2.00	@3.50
Geese, per pair	2.50	@3.00
Ducks, young, lb	16	@17 c
Old	15	@17 c
Belgian Hares	8	@ 9 c

BUTTER.

The butter situation has continued throughout the week without any change in price for any of the grades. The sending of a considerable shipment to Australia served to remove the surplus but did not bring anything in the way of an advance.

(S. F. Dairy Exchange Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	23½	23½	23½	23½	23½	23½
Prime	23	23	23	23	23	23
Firsts	22½	22½	22½	22½	22½	22½

EGGS.

While fairly well sustained, the egg market has been gradually getting a little weaker all week, and closes from one cent to a cent and a half lower on the various grades.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	24	24	24	23½	23	23
Firsts	22	22	22	22	21	21
Sel. Pul.	21½	21½	20½	20½	20	20

CHEESE.

Like other dairy exchange lines, there has been very little change in cheese during the week, though the market is supposed to be a little easier than it was. The last transactions in California fancy flats were at a half cent below the quotation of last week.

(S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy		12½c
Fancy Calif. flats, per lb		10½c
Monterey Cheese	9	@11 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu.
Butter	23	23	23	23	23	23
Eggs	21½	22	22	22	22	22
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

The demand for strawberries seems to be holding up well with the increased supplies received; but the supplies of raspberries and blackberries have far outrun the demand at last week's prices; and lower figures are now quoted on both. Though fine large gooseberries are still quoted as high as eight cents, there has been a drop in the lower grades; and some are selling as low as four cents. Peaches are now coming in in increased supply as the price has dropped considerably, the top figure being now placed at $1.75. There is no great demand for apples; but prices are quite firm at the old figures.

Strawberries:		
Fresno, crate	50	@75 c
Longworth, chest	$4.00	@7.00
Banner, chest	3.50	@6.00
Raspberries, crate	1.00	@1.25
Gooseberries, lb	4	@ 8 c
Blackberries, crate	50	@75 c
Apricots, box	1.00	@1.50
Cherries, per lb, fancy	6	@ 8 c
Apples, Newtown	75c	@1.00
do, fancy	1.25	@1.50
Other varieties	30	@75 c
Peaches, crate	1.50	@1.75

DRIED FRUITS.

Local buyers claim that, aside from peaches and a few prunes, there is practically no dried fruit left in first hands. In some lines it is a little hard to fix definite prices, as the price of each lot is fixed by the needs of the buyer and the pressure to sell in the particular case. The prune situation seems to be a little stronger, some off grade stock here having been sold at three-quarters of a cent above prices offered a week earlier. There has been some movement in figs; and it is claimed that the stocks on hand here have been somewhat reduced. Peaches are very weak; and it is claimed that some fine stock was sold here this week at a quarter of a cent below the top quotation. Concerning the situation, the New York Journal of Commerce says:

Little interest is shown by buyers of California fruits in this section, whether for spot or forward shipment. The trend of prices is in buyers' favor all along the line, with a rather pronounced weak feeling in apricots and peaches. While on the former, packers' representatives are quoting 8c f. o. b. Coast for August-September shipment out of the 1915 crop in the three grades, it is intimated that some packers have indicated willingness to do business at a quarter of a cent a pound less than this figure. Such concessions, however, seem to bring out no additional orders. Peaches are depressed and prices are nominal. The crop promises to be heavy and with the export outlet practically closed the trend of prices is downward.

In California prunes, both here and on the Coast, feeling is easy. For a while, after putting their stock in cold storage, local jobbers were disposed to raise their quotations in order to cover the general expense, but as consumers did not respond the market eased off. Offerings were made of 40s for shipment out of town at 8¼c New York, though some holders still name 8½c as an inside price on that size. On future prunes the market is irregular and easy. There is no export buying reported and the domestic trade shows little interest.

There is little call here for California raisins, but the Associated Company's guarantee of prices keeps the spot market steady. Imported raisins are firm, though without animation.

Evap. Apples, 1914	4½	@5 c
Apricots, 1914	5	@9 c
Figs: White, 1914	3	@3½c
Black	2½	@2¾c
Calimyrna	5	@6 c
Prunes, 4-size basis, '14	4½	@5½c
Peaches	3	3½c
Pears	6	@8 c
Raisins (in sweatbox):		
Loose Muscatels	4	@4½c
Seedless Sultanas		5 c
1915 CROP.		
Apricots	6	@8 c
Figs, white	3¾	@4¼c
Black	2¾	@3 c
Prunes	3½	@3¾c
Peaches	3	@3½c
Pears	6	@9 c

CITRUS FRUITS.

Prices were somewhat lower May 24 on all eastern auctions, partly on account of cold, rainy weather, especially for poor stock.

At New York, navels ranged in general from about $2.10 to $2.95; Valencias $2 to $3.60; Bloods $2.10 to $2.55; St. Michaels $1.75 to $3.05; and lemons $1.95 to $2.95.

With the exception of two district exchanges practically all of the navels are cleaned up. Valencia shipments are increasing. G. Harold Powell estimates the Valencia crop between 10,000 and 11,000 cars as against 12,000 last year. Tulare county lemon shipments show a remarkable increase over last year.

The local demand for oranges keeps just about up to the normal notwithstanding the increasing quantities of deciduous fruits on the market. Tangerines are practically off of the market and are no longer quoted.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.75	@2.75
Tangerines, small box		Nominal
Grapefruit, seedless, bx	1.25	@1.75
Fancy	2.50	@3.00
Lemons, box	1.50	@3.25

NUTS.

Some inquiry for California walnuts is reported, and the market is a little firmer. The Manchurian nuts have not proved altogether satisfactory; and the best of these have been sold and have gone into consumption. The bulk of the cheaper domestic nuts has also been sold. The off grade almonds which have been held here for some time are also thought to be pretty will reduced in quantity.

(Prices f. o. b. San Francisco)

Almonds, 1914 crop:		
IXL	11	@13 c
Ne Plus Ultra	11	@13 c
Drakes	8	@11 c
Texas Prolific	8	@11 c
Walnuts, new crop:		
Jumbo, lb		19 c
No. 1 Softshell		16½c
Budded		18 c
Ungraded	8	@10 c
Manchurian	6	@11 c

HONEY.

The bulk of the extracted honey which has been held here has been sold; and most of it is understood to have been shipped out of the country. The demand, however, appears to have been satisfied for the time being, though the new crop will come into a much more favorable market than was anticipated a few weeks ago. No new comb honey has yet come in, and it looks now as though the first to arrive would find a ready sale.

Water White, comb	10	@12 c
Light Amber	8	@10 c
Water White, extracted	5	@ 6 c
Light Amber	3½	@ 4 c
Dark	2	@ 3 c

LIVE STOCK.

Local slaughterers claim to be pretty well supplied; and the general situation is a little easier as regards cattle. Range calves are very scarce, though dairy calves are in fair supply. Lambs are very scarce and are higher in price. Hogs are in fair supply.

(Prices at San Francisco.)

Steers, No. 1	6¼	@6½c
No. 2	6	@6¼c
Cows and Heifers, No. 1	5¾	@ 6 c
No. 2	5½	@ 5¾c
Bulls and stags	4	@ 5 c
Calves: Light		9 c
Medium	8	@ 8½c
Heavy	6	@ 7 c
Hogs: Grain-fed:		
225 to 300 lbs.		7¾c
100 to 225 lbs		8¼c
Prime Wethers	6½	@ 7 c
Ewes	6	@6½c
Shorn sheep, less by	¾	@ 1 c
Suckling lambs	7¾	@8 c

DRESSED MEATS.

Steers	10½@11 c
Veal, large	12½@13 c
Small	14 @15 c
Prime Wethers	13 @14 c
Ewes	11½@12 c
Suckling Lambs	15 @16 c
Hogs	13 c

WOOL.

A good many wool buyers are out in California and Nevada, and some buying is being done. A sale is reported in Colusa county at 20 cents. In Nevada buyers are offering from 18 to 20 cents and growers are holding for from 22 to 26 cents.

Wool, Sacramento Valley, lb	18@22c
Southern, year's staple	16@20c
Six months	14@17c

HORSES.

The market here is very dull, very little having been done at recent auctions. A buyer operating in the southern end of the San Joaquin Valley, said to be buying for European shipment, is paying an average of about $125 for suitable horses.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up	$275@300
Light drafters, 1550 to 1650 lbs.	175@200
Chunks 1350 to 1500 lbs	150@175
Wagon horses, 1050 to 1350 lbs.	100@140
Green Mountain range horses, 950 to 1200 lbs	50@ 90
Farm workers	60@ 75

MULES.

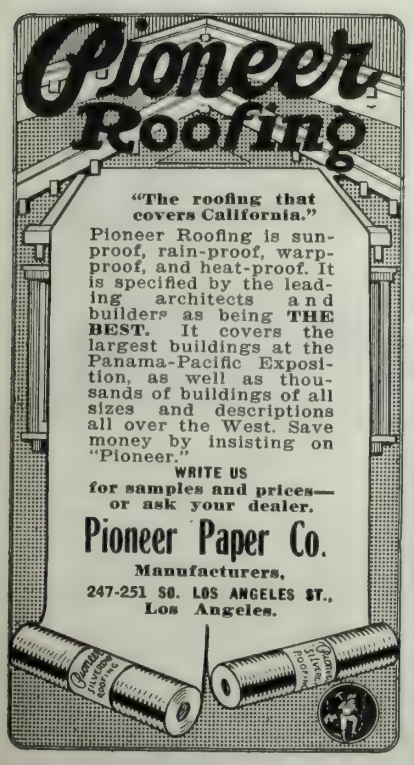
1200 lbs. and up	$225@250
1100 lbs.	200@225
1000 lbs.	150@175
900 lbs.	125@150

HIDES.

There is more movement in hides this week; and, though there have been no changes in quotations, the market is firmer all around, with the prospect of an advance a little later.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs	15 @15½c
Medium	15 @15½c
Light Steers, under 48 lb.	15 c
H'vy Cows, over 50 lbs	15 @15½c
Light Cows, 30 to 50 lb.	14½@15 c
Kip	15½@16 c
Veal	16 c
Calf	16 c
Dry Hides	25½@26½c
Dry Kip, 10 to 15	24½@25½c
Dry Veal, 5 to 10	29½c
Dry Calf, 7 down	29½c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00



FRUIT MARKET AND CROP REPORTS.

(Continued from page 631.)

basement under the entire building. Some of the machinery already there will be used and more will be bought. It is said that it would cost $200,000 to duplicate the outfit in San Francisco.

GRAPE MEN PROTEST TAX.

About 100 wine makers, grape growers, and grape market men met the State Viticultural Commission in San Francisco May 22 to discuss the 55-cent tax on brandy, used in fortifying sweet wines, which will be increased to $1.10 per gallon after January 1. It was decided by those present that practically no sweet wine would be made this year or hereafter unless Congress amends the law, which cannot be done until Congress meets next December. Meanwhile, many erstwhile sweet wine makers are expected to make an inferior dry wine and ruin the dry wine business. Advertisements recently appeared in the Fresno papers advising wine grape growers to dry their grapes. This aroused the fears of the marketing end of the Associated Raisin Company to the extent that they said if the wine growers dried their grapes, the great chances were that the Associated would have to go out of business and the raisin industry would be ruined. One table grape grower present stated that the outlet for cull table grapes would be cut off and the occasional profits from table grapes lost; while if orchards are planted in place of grapes there would be overproduction in those lines. One speaker pictured the shock that would come to manufacturing and business, the loss of property values all over the State as well as to agriculture if the tax on brandy for wine fortification were long continued.

A strong representation of Congressmen and State legislators was present or wrote letters of sympathy, and all present pledged their support to a petition which is being circulated among grape men to be presented to Congress asking for the old tax of 3 cents to be restored.

CROP REPORT NOTES.

Lake.—Apricots, cherries, peaches, and prunes, 75 per cent; apples, 50; walnuts, pears, figs, grain, and hay, 100.

Sonoma.—Black cherries badly cracked; white cherries not hurt; large numbers of prunes blew off from the trees; prune crop, 50 per cent.

Modoc. — Apricots, cherries, peaches, and pears, one-quarter crop or less; apples, 80 per cent; prunes, 50; grain and hay, 100; low crop estimates due to frost.

Solano.—Almonds, 80; cherries, 40; plums, 60; prunes, 30, wheat, 50; apricots and peaches dropping on account of shot hole and early cherries rotted on account of cold, wet weather.

El Dorado.—Storm damage considerable; foggy, damp weather caused much scab on pears and considerable drop. Plums dropped heavily and considerable curl leaf on peaches.

Fresno.—Wind has blown many Thompson and Muscat grapes to the ground; peach little leaf has reduced the crop considerably and brown rot is far more serious than usual.

San Benito.— Apples, pears, and grain hay, about three-quarters of a crop. Almonds, alfalfa, and barley practically full crops; plums, prunes, and peaches, about 60 per cent; apricots, 25; cherries, 40; very little new planting of apples and Loganberries on account of low prices.

Nevada.—A third of the apples dropped for lack of pollination; pear scab reduced first estimate 10 per cent; plums doubtful on account of storm which commenced before the calyxes had been shed; berries in full, heavy bloom; strawberries not far enough advanced to have been hurt by storm; their ripening season commenced May 25. Very little wind in the recent storm.

Stanislaus.—Rust has been injuring the grain crops.

Tehama.—Almonds and plums, 100; apricots, prunes, and peaches, about three-quarters; apples and pears, 10 per cent.

Ventura.— Apricots will be ready to harvest about July 4; not over 75% normal crop; walnut crop above normal, though blight is doing considerable damage in some sections. Oranges, just setting; prospects good; promise of more than normal of beet crop; olives and lemons in first-class shape; beans being planted throughout the county; some almond trees almost defoliated by rust and apricots by shot hole fungus in Bardsdale district.

ALMOND GROWERS

Membership books will soon close. Those who desire to become members should make application at once.. California Almond Growers' Exchange, 311 California St., San Francisco.

CALIFORNIA ALMOND GROWERS' EXCHANGE,
311 California St., San Francisco, Cal.

12,000 miles - no repairs

The owner of a passenger-service car running in the valleys and mountains of California, writes: "We have driven twelve thousand miles. Zerolene has been used exclusively. We have never adjusted a bearing, ground a valve nor cleaned a spark plug during this time. The engine runs more smoothly than the first thousand miles."

Standard Oil Company
(California)
San Francisco

SPRAY FOR GRAPE MILDEW

[Written for Pacific Rural Press.]

Do not forget that grape mildew will be more likely to get you this year than usual. It gets its foothold inside the vine. Examine thick vines frequently and apply sulphur freely. A sulphur spray will be most effective until the weather gets hot. Atomic or weak lime-sulphur are the spray forms and only thorough application inside the vines and topside and underside of all leaves and canes will prevent trouble. When mildew gets among the bunches, it is too late to remedy the damage. Prevent it. If rains wash off the spray, repeat it. There is too much money invested in land, vines, and labor, to waste it all by neglecting spraying.

PLUMS, $630.00 NET.

[Written for Pacific Rural Press.]

It is some patch of Grand Duke plums about which Horticultural Commissioner J. E. Hassler, of El Dorado county, writes us. It consists of less than an acre with the trees set 16 feet apart, having been grafted onto old French prunes about six years ago, and being owned by W. Wilkinson.

"The 145 trees yielded 20,700 pounds, packed 742 crates, sold at $1.05 f. o. b. Placerville, making 85 cents net after paying 20 cents for crates and packing, or a total of $630.70 net."

Lead arsenate applied on apples and pears at an average cost of $4 per acre proved effective for codling moth in Contra Costa county, but in Inyo county a large percentage of the apples and pears sprayed with lead arsenate were wormy. This is not the fault of the arsenate, but of the thoroughness of spraying, or else because spraying was discontinued too soon.

NOTICE TO STOCKHOLDERS.

The Regular Annual Meeting of the Stockholders of the GRANGERS' BUSINESS ASSOCIATION will be held at the office of the Company, No. 240 California Street, San Francisco, California, on Tuesday, the eighth day of June, 1915, at 10 o'clock A. M., for the purpose of electing a Board of Directors to serve for the ensuing year, and for the consideration and transaction of any other business that may be brought before the meeting.

F. A. SOMERS, President.
R. H. CHILDS, Secretary.
Dated May 22, 1915.

The kiss of the Sun for pardon,
The song of the Birds for mirth—
One is nearer God's heart in a garden
Than any place else on earth.

California Garden Flowers

TREES, SHRUBS, VINES.

By E. J. Wickson, A. M.

is just what you need as an aid in your every-day work in the yard. It is written by a Californian who knows, to meet your conditions. It tells the how, when and why, and is very practical in its suggestions.

Do you realize the contentment, happiness and profit gained by a well-cultivated garden?

The book is divided into six divisions and these parts are divided into twenty-six chapters, which cover California conditions, cultural suggestions, California garden year, ways with garden plants, shrubs, trees and vines, methods against pests and diseases.

The work contains 258 pages of closely packed information of absolute value to plant growers, besides numerous illustrations—handsomely bound in cloth. Price, $1.50 postpaid.

Pacific Rural Press, Publishers

525 MARKET STREET, SAN FRANCISCO, CALIF.

Change the waste places in your yard into a garden. It grows while you sleep.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

THE HAY STACKER THAT SAVES TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us NOW for full details explaining just what it can do and how it can save you time, work and money. Address

SCHMEISER MANUFACTURING CO.
Box 87
Davis, California

PILES UP HAY AND PROFITS

USED BY ALL MODERN FARMERS

CALIFORNIA POULTRY PRACTICE

$1.50 Postpaid

By Susan Swaysgood. Pacific Rural Press, Publisher

Here's a smoke *without* a sting!

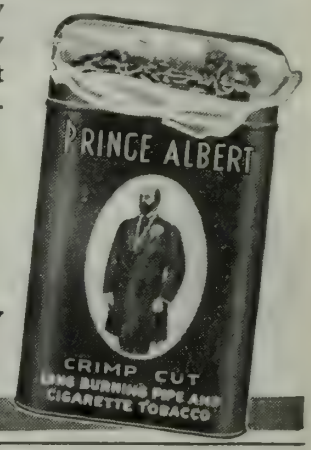
You get on the shady side of the lane long enough to jam your old jimmy pipe brimful, or roll a makin's cigarette with Prince Albert, make fire with a match—and go on. *For you've got yours!*

That's all there is to it—this having real fun with a pipe or a cigarette—if you follow suit with men all over the nation and smoke P. A., because it is made by a patented process that *cuts out* tongue-bite and throat-parch! No tobacco ever was, or can be made like

PRINCE ALBERT

the national joy smoke

Don't let your palate protest every time a whiff of jimmy pipe joy or cigarette makin's happiness breaks into the atmosphere! You start in right away with a pipe or cigarette and a tidy red tin of P. A. It is a guarantee that you'll be jimmy pipe joy'us and cigarette cheerful!

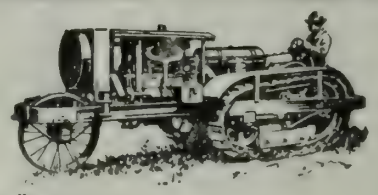


Prince Albert smokers everywhere are enthusiastic over the pound crystal-glass humidor with the sponge-moistener top which keeps the tobacco in fine fettle—always. Prince Albert is also sold in toppy red bags, 5c (handy for cigarette smokers); tidy red tins, 10c; and handsome pound and half-pound tin humidors.

R. J. REYNOLDS TOBACCO COMPANY
Winston-Salem, N. C.

Little Stories of Success

No. 7



"To see ourselves as others see us."—We had such an opportunity the other day in a letter the manager of the Santiam Fruit Colony wrote a prospective purchaser in answer to his inquiry regarding the Caterpillar "30." Here are a few characteristic paragraphs:

"*Regarding track item:*—Of course, there is an expected amount of wear, but the splendidly arranged adjustment takes care of this quite satisfactorily."

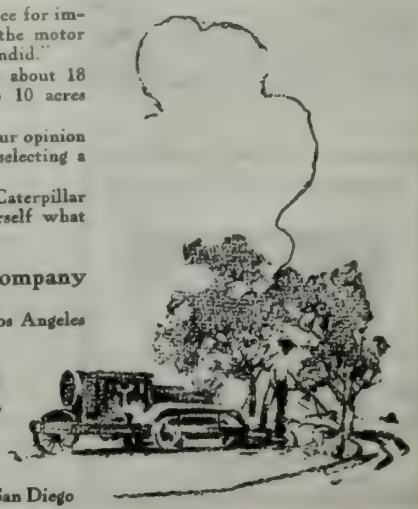
"*Engine speed:*—There is little chance for improvement in the relative working of the motor and the traction, as it seems to be splendid."

"*Cost per acre:*—We have averaged about 18 acres per day discing and about 8 to 10 acres plowing."

"If you are going to buy a tractor, our opinion is that you will make no mistake in selecting a Caterpillar."

Let us give you the name of a Caterpillar owner near you, and then see for yourself what he'll write you.

The Holt Manufacturing Company
(Incorporated)
San Francisco Stockton Los Angeles



CATERPILLAR
Reg. U.S. Pat. Off.

Don't say Caterpillar unless you mean Holt!

Both Expositions—San Francisco and San Diego

Vol. LXXXIX—No. 23 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, June 5, 1915 LOS ANGELES

State Commissioner of Horticulture

Good Dried Apricots Will Pay.

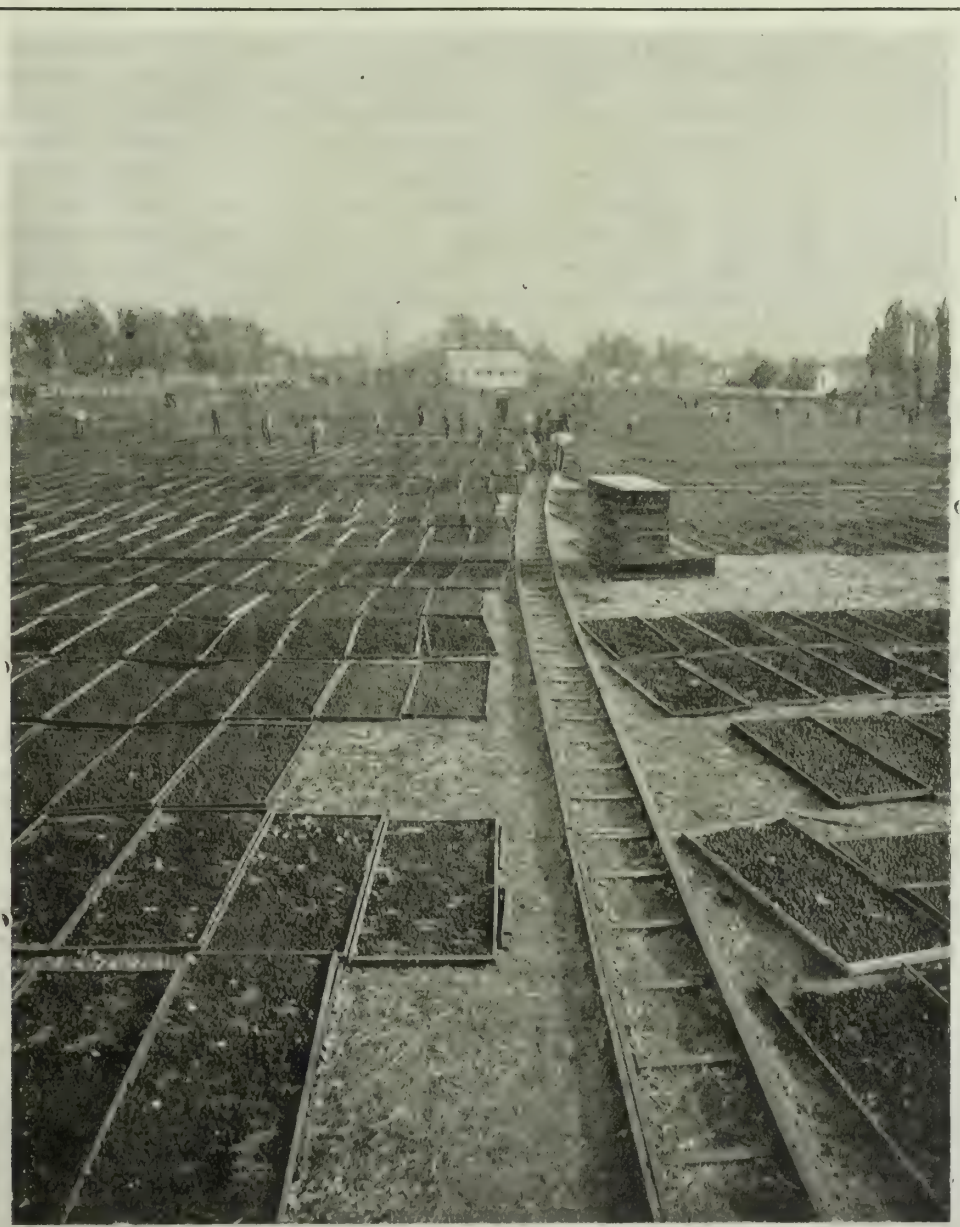
[Written for Pacific Rural Press.]

"Why are Hemet dried apricots better than those from Santa Clara valley?"

"They aren't. No section in the world produces so good apricots as right here. We get good sizes, more sugar, and better color when dried, on account of our gravel loam soil and continuous sunshine, with no fog in the drying season," loyally maintains F. E. Goodrich.

Now is the time to get fruit drying apparatus in shape to do the best and most economical job, because the best quality sells first and at the highest prices; which, at best, promise none too well this season. So it will be necessary to prevent all waste of quality and weight.

"I wouldn't take $5 apiece for these little brass paddles to scrape the fruit from the trays, if I couldn't get more," says Mr. Goodrich. "Here is one; just a paddle-shaped flat sheet of brass with a wooden handle for convenience. It is about five inches wide and three inches deep. It doesn't gum up, or tear the fruit, and by using it, we avoid tray stains on the fruit. Steel and wood of the same pattern never gave satisfaction."



The Most Carefully Dried Fruit Will Sell First at Highest Prices if Held until the Crop and Market Conditions Are Known.

Clean Trays.—While it is desirable to clean fruit-drying trays before they are stacked, after fruit drying is over, there is often too much work, so they are washed late in the fall, at leisure, in a 4x9-foot tub. Then, soon before using them, and pretty soon now, they are washed again, for "all kinds of trays will stain the fruit if they are not thoroughly clean." Pine trays, especially if weather worn, are likely to stain the fruit, so Mr. Goodrich prefers redwood bottoms, which are more durable and do not stain at all, if clean.

No Grass in Dry Yard.—The dry yard, now covered with burclover and volunteer grain, will be made "clean as a road." After cultivating, it will be smoothed down hard by running a "slab" clod crusher over it two to six times. A grassy dry yard does not hold sun heat so as to help dry the fruit from the underside.

Blenheims for Santa Clara.—"Moorparks," which include Hemskirkes, are in a class by themselves, bringing now (May 28) one-half cent per pound more than the "Royals," which include Blenheims. This extra grade of Moorparks is on account of their size. Mr. Goodrich's Moorparks, from which he claims to have lost only four crops in 24 years, average 4 to 8 cents per pound green, while the Blenheims average 10 to 12 per pound, and grade as "fancy." The large size of the Blenheims is partly due to the thinning, which took three weeks this season following the middle of April. Blenheims are the only commercial variety for this section according to Mr. Goodrich, though Royals are much grown elsewhere in California. Both are about the same size and quality. Moorparks, in most locations, are too uncertain in bearing.

The apricot orchard of Mr. Goodrich is picked over five or six times per season, picking for both the cannery and for drying at the same time. One man for every eight pickers sorts out for the cannery all fruit that is ripe but still firm. Since the fruit ripens from the pit outward, it is ripe enough to can when one cheek bears a blush between straw and pink colors. Should the local cannery have more fruit than it can handle, these apricots will be shipped in lug boxes, even as far as Sacramento. Fruit too ripe or too small for this purpose is dried. Perhaps this is why, as G. E. Merrill of the foot-hill orchards on the east side of Santa Clara valley points out, foot-hill dried apricots from his section are better than those from the valley floor, for all are dried, including the best.

Irrigation would have a share in this difference as a rule, perhaps, for not many of the foot-hill orchards are irrigated. Mr. Goodrich irrigates when necessary, but it won't be necessary this year until the crop is off. Then irrigation will be ideal to strengthen

(Continued on page 654.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges, J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., June 1, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka....	.05	42.65	45.05	62°	50°
Red Bluff...	.00	34.72	24.59	90	58
Sacramento.	.00	17.16	19.95	90	52
S. Francisco.	.00	27.41	22.11	81	50
San Jose...	.00	22.72	16.72	88	46
Fresno.....	.00	10.89	9.60	92	52
Ind'p'n'dnce	.00	3.47	9.46	92	50
S. L. Obispo.	.00	28.13	20.43	90	44
L. Angeles..	.00	17.03	15.57	96	54
San Diego..	.00	14.43	9.99	82	54

The Week.

Summer seems to have arrived in California. It is nearly a month late—measuring by the date at which settled weather conditions may be normally expected, but not a month late in the behavior of crops, because some of the plants which bear them seem to have rather enjoyed the forms of unsettlement which they have experienced. With such plants this year's peculiarity seems to consist of an unusual vernal extension of the growing season—increasing the growing and postponing the maturing season. Abundant soil-moisture thus continued seems indeed to have disconcerted few plants and they have suffered chiefly through the oversupply of moisture in the air, which has favored many fungi which the early coming of hot, dry air checks in their evil work. There has also been some loss of fruit from an unfavorable blooming season, due to too much spring rain and too little spring heat. But these disfavors are, on the whole, light, as compared with aggregate benefits; and though California prefers her normal conditions, she has approached summer settlement of the weather through much lighter evils than have prevailed elsewhere. At the close of last week killing frosts throughout the lake region and the middle Atlantic States broke May weather records of many years. Reports to the U. S. weather bureau indicated heavy damage to fruits and vegetables throughout that section, particularly in the interior of New York. While ice was being formed on standing water and crops were frozen in the East, rains and floods wrought much damage and some loss of life in the Central West.

Aside from parts of the world which are being blighted by war, the darkest pictures of industrial misfortune come from Australia. Reports from travelers recently arriving at this port are that there has been no growing rain in Australia for eighteen months, with the exception of small amounts near the coast, and the drouth is the worst in the history of Australia. Rivers whose waters have figured in irrigation development show only dry beds for hundreds of miles, and there promises to be losses of sheep and cattle greater than those of 1902, which were appalling. Cargoes of hay and grain are going from Pacific ports, but the amount to be thus secured can save but little stock.

Therefore, California, with her abundant rains, with activity in all lines engendered by her millions of Exposition visitors, and with escape from the extremes, both of man and of nature, has every reason to be thankful and buoyant in spirit.

Professor Mead's Return.

Dr. Elwood Mead, whose recall to California from his great work in Australia was accounted for in our issue of April 17, has arrived during the week, and will proceed at once with his work for the general government and for the University of California. Irrigation development in Australia must proceed more slowly, probably, because of the rivers going dry, although their doing so demonstrates most acutely the necessity for conservation in reservoirs, which is a part of the system to be realized. The European war is also delaying Australian progress by locking up funds and by curtailing immigration from Europe. For these reasons Dr. Mead can return to activity in this country, with a minimum of detriment to the Australian work, and his principals there bade him Godspeed on his departure. Of his government work in this country, our comments in the Pacific Rural Press of April 17 gave a fairly correct outline. More definitely it may be said that Franklin K. Lane, U. S. Secretary of the Interior, has appointed Dr. Mead chairman of a central board of Reappraisement of Reclamation Projects for revision of the costs thereof. The several committees are directed by the Secretary of the Interior to revise the estimated cost of each reclamation project, upon which construction charges heretofore announced were based. The reports of the committees are to be referred to Dr. Elwood Mead, General W. L. Marshall, and I. D. O'Donnell for review and report to the secretary, so that settlers who show themselves qualified can be offered these lands at fair price and favoring terms. It is a very significant and important undertaking and promises beneficent results.

Doing It Large with Stock.

We were mighty fortunate in getting in our exhortation two weeks ago to those having large lands and large money to throw them both largely into purebred live stock. If we had dallied over it it would have been historic instead of prophetic, which is not half as smart. Any one can write history, of a kind, but when it comes to prophecy—well, did it not take a priest and a whole procession of planets to tell when Mt. Lassen was going to do it again? And so we also claim to be in on the prophetic line, because within a week after we had goaded the millionaires to buy stock, what is described as "one of the largest sales of pure-bred stock ever recorded on the Pacific Coast" took place. The news about it will doubtless be given by our live-stock writers, but the upshot of the matter is that the Carnation Herd of Holstein cattle, whose achievements at the Exposition have been previously described in this journal, will henceforth find a home geographically in the heart of the San Joaquin Valley, and sentimentally, no doubt, in the heart of California. California had world-beating Holsteins before the capture of this collection, and so this great transaction becomes a new instance of the Dutch taking Holland. These cattle are pinks of perfection, as Carnations really ought to be, and will go forward with their predecessors of the same breed into the history of California's live-stock achievements. Now, we are wondering what millionaire-outfit will make the next move. It does not need to be all Holsteins, of course. Even in dairy lines there are others, strong rivals in beauty, in performance and the power to uplift common stock. What millionaire or bunch of them is going to do it large with Jerseys, Ayrshires, Guernseys, or with some of the best continental breeds? When we chased the cows through Europe we did not see a herd of the cows most famous in this country until we came near to the birth-place of each of the breeds. Many of our popular breeds have a hundred times the geographical sweep in this country that they have on the other hemisphere. This is not because these breeds are not counted good over there, but because there are others. When the Italians have their blue cattle, the Swiss their brown cattle, the French their grey cattle, etc., etc., why should they worship the black-and-whites of Holland and North Germany, or the red-and-whites or yellow-and-whites of Great Britain? They don't, and they won't, and that is all there is to say about it. They have breeds of their own, developed for their own topography and other natural conditions, and all of them watched and vouched for by their registry associations, experiment stations and government breeding farms. Here is a program for a millionaire: study your land and its climatic and foragic conditions; then go abroad, after peace is declared, and pick out the place which closely resembles yours. California combines practically all European conditions, from Holland to the top of the Alps. When you find your place on the European landscape, study the stock and what the people do with it and buy a good bunch of selections of the best they have, and ship them straight through via Panama, as you now fortunately can, and save much cost and worry. Bring home all the charming history and present doings you get of the breed, and you will find plenty, which you can load up with until you can talk down all other breeders, judges and the general public at every fair in the circuit.

But some reader may say: "Why are you giving this crazy advice; has not America all the breeds that are needed for various purposes and has not California good representatives of them already?" We are inclined to say, for practical purposes, yes; but there are two reasons why we should be sure that we have others. First, if we realize our chances as the breeding base for Pacific countries, we must have stock to suit the trade, and we should be able to give purchasers selection from all that is good in the world's achievements; second, we are talking to millionaires and not to common people, and the millionaire is not usually satisfied with the "old masters" which other people already have. He is often not content unless he can get one freshly dug up for him. We have merely indicated a way in which a millionaire can spend

some money in an interesting way and extend the live stock resources of the State. And he can do it with cattle or horses, or whatever else is pure-bred and valuable.

A Wrong Guess on Automobiles.

Here is a thing which has been thrown into the millionaire class, but does not belong there. According to a decision of the Interstate Commerce Commission the automobile is distinctly a luxury, and as such not entitled to the lower rates granted by railroads in the West to householders and settlers on their "household goods." Heretofore, no objection has been made to the including of buggies in "household goods," and it is not improbable that the automobile question will be further argued. In fact the Interstate Commerce Commission seems to have brought itself into conflict with various courts in different sections of the country, which have held that automobiles are not luxuries any longer, particularly not in farming communities, but that on the contrary, they must be classed as necessities. That is the view we take of it, and it is hard to take any other if one goes into the country and sees the farmers chugging around, the old lady sharing the tonneau with a crate of chickens and the running boards lashed full of everything which has to go to town or come home from it. There are luxurious automobiles, of course, and perhaps there ought to be a rating according to cost or the style of the showcase, but when people are moving to California, or from place to place in it, they ought to be allowed to bring along their common service cars just exactly as they have always done with the old style of farm vehicles. The very fact that the farmers are owners of more autos than any other class of our population ought of itself to be a demonstration that a car is not a luxury, for the farmers as a class do not get many luxuries. That is a chapter from the common law which the Inter-State Commission must give heed to.

Why Not Fruit Products?

The government at Washington announces that American foodstuffs exports amounted to almost $400,000,000 more during the ten months ending with April this year than during that period in the previous year. The huge increase has been due chiefly to the European war. The figures do not include manufactures and manufacturing materials which also have vastly increased. Some idea of the demands upon the United States for foodstuffs is shown by the valuations of the articles exported during the ten months: Forty million bushels of corn, valued at $31,000,000, an increase of almost $26,000,000; almost $44,000,000 worth of oats, wheat valued at $296,981,000, flour $77,869,916, canned beef $9,473,376, fresh beef $12,862,000, pickled beef $2,309,000, oleo oil $7,744,000, cotton-seed oil $17,541,000, bacon $36,714,000, hams and shoulders $20,265,000, lard $46,586,000, neutral lard $2,720,000, pickled pork $4,047,000, lard compounds $4,792,000. It is almost enough to make one scurvy to read the last few lines on the list. If those Europeans wish to shoot straight they should clear their eyes with twenty millions worth of California dried and canned fruits. If President Wilson should tell the Kaiser about that he might be willing to scuttle the submarines.

Queries and Replies.

Querists must give name and address.

Chafers Eating Alligators.

To the Editor: I send some bugs that are doing lots of damage to young Avocado trees in this locality. What are they? They eat the leaves, doing their work at night. They can be found in the day time by digging around the trees on the south side, about two or three inches deep. I have taken as many as twenty from around one tree. What is the best way to get rid of them?—A. H., Fillmore.

They are chafers (Serica alternata). They belong to the same bunch as the Eastern "June bug," but are rather more yellowish in color and about half as big. You can poison them by spraying their food plant with lead arsenate (two pounds to fifty gallons of water) if you are not in danger of poisoning the fruit. We should try two dodges first: see if they will fly to a lamp set in a milk pan of water with a film of coal oil on the water, or see if the hens will not scratch them out for you. The insects will not bother you long, for their tenancy of the mature or leaf-eating stage is short. The females will be busy laying eggs underground where the young can feed on grass roots, etc., and the males, having survived their usefulness, will go hence.

How Deep to Plow an Orchard.

To the Editor: Which is considered better for the good of orchard trees—to plow eight to nine inches deep, or six to seven inches? I mean with a turning plow and no inter-crops are grown, except to plow under for fertilizing. I have often heard it argued, but never could decide. I never could see any difference in the looks of the trees or the crops. I have been in the orchard business for about thirty years.—Subscriber, Healdsburg.

The fact that you have heard it argued both ways by practical men shows that there can be no rule about it, and that it depends upon the character of the soil, the amount of moisture it receives and is able to hold, and other conditions. The fact that in your own case you could not see any difference in results shows that the shallower plowing does the work for you. The chief functions of orchard plowing are probably three: first, to get the soil fit for a suitable depth of summer cultivation to check moisture-loss by capillarity and evaporation; second, to prevent the formation of a hard layer below the reach of the cultivator, which excludes penetration of moisture and air; third, to cover under manure or green-manure crops. If these are all accomplished and the behavior of the tree in foliage and fruit is good, the plowing is deep enough, whatever the number of inches may be. But it is not wise to always plow to the same depth because you form a plow-pan, which can be broken up by an occasional deepening of the furrow. So if you follow your own observation most of the time, once in a while practice what you hear about going deeper (but not too near the trees), you will cover both the law and the prophets.

The Occurrence of Pear Scab.

To the Editor: Is there any difference in the amount of scab that Bartlett pears have on heavy land or on light soil near creek bottoms? Is there any spray that will kill the scab on Bartlett pears which grow on wet, heavy soil?—Reader, Sonoma.

Our observation is that it is aerial moisture rather than soil moisture which helps the scab fungus in its distressing work, but, of course, a heavy soil, drying slowly, may indirectly contribute thereto, if the region is one of heavy rains after the foliage and fruit start. So far as we know, there is little, if any, difference in the efficiency of Bordeaux and of lime-sulphur when well applied. A thorough spraying should precede the break of the buds to clean the bark, another as soon as the petals fall from the bloom and repeated about once in three weeks if the air continues favorable to the fungus. The fungicide should then be combined with the arsenical used for the codlin moth.

Rose Leaf-Spot and Rust.

To the Editor: Am enclosing some leaves from a rosebush taken from my home in San Mateo county. Quite a number of the roses have this disease. Can you advise me what it is and what to use to destroy it?—E. F. W., San Francisco.

Your trouble is leaf-spot of the rose—purplish-brown patches on the older leaves, caused by the fungus, Actinonema rosae, and you have also rose rust, Phragmidium subcorticum, the orange-colored powder on the under sides of the leaves. Both these parasites can be checked measurably by thoroughly spraying upper and lower leaf-surfaces, with potassium sulphide, one ounce to three gallons of water. Probably more satisfaction can be had by selecting varieties which are but little affected by these pests and, by generous treatment, enable them to maintain their natural resistance. Probably all desirable colors can now be had with practically clean foliage, and enterprising nurserymen are continually observing this point and can tell you quite accurately which the varieties are which have disease-resisting foliage. These remarks apply also to the occurrence of rose mildew.

Erinose of the Walnut.

To the Editor: Enclosed please find walnut leaves, showing irregular spots which are yellowish on the under sides of the leaves and dark on the upper sides. I would like to know if this is caused from blight or something else, and what can be done for it? We have blight in this section and nearly all the walnut trees around Hollister are covered more or less with these spots or ruptures on the leaves.—E. T. S., Hollister.

It is erinose of the walnut, the spots being caused by a mite so small that it can only be seen by magnification. Though these spots have a very menacing aspect, it is a fact that so far they have not perverted enough of the leaf substance to do appreciable harm, and therefore nothing needs to be done. They are, of course, not the walnut blight,—Editors.

California Lilac Beetle Takes to Phloxes.

To the Editor: I send some insects that have been ruining my perennial phlox. I have killed hundreds of them, but they keep coming. They seem to touch nothing else. I used kerosene emulsion, Cayenne pepper and arsenate of lead, but it did no good. How strong shall I use the arsenate of lead?—T. A. G., Mendocino.

This is a small dark green beetle, which belongs on the California lilac and has taken to your garden for a change. Its visiting card reads: Luperoides veripes—but you may not have noticed it. You probably killed a good many, but as your ceanothus brush is full of them, naturally there would be plenty coming. You can use arsenate of lead, about a tablespoonful to a gallon of water. Perhaps it would be easier to rig up a cheese cloth cover for your phloxes unless you have too large an area of them.

Home Canning; Fruits and Vegetables—IV.

[Written for Pacific Rural Press by Prof. W. V. Cruess, University of California.]

Asparagus rapidly becomes tough and bitter after it is cut and brought in from the fields. Hence it is very desirable to can it as soon as possible after cutting. Medium size, crisp stalks as free as possible from woodiness are best.

Grading for Size. — Probably for home use, three grades for size would suffice. For the sake of appearance and evenness in cooking, some grading for size should be made. The crooked and straight stalks may be separated and should be thoroughly washed in cold water to remove adhering soil, etc.

Cutting.—The asparagus is next cut into proper lengths to fit the cans or jars used. This may be conveniently done by standing a small box of the proper depth on end, placing the stalks in this, and cutting them off flush with edge of box with a butcher knife.

Blanching.—To remove some of the bitterness and to improve the appearance, the asparagus must be placed in a wire screen basket and dipped in boiling water for a short time. The time necessary will vary from a minute or less for small tender stalks to as much as nine minutes for the largest sizes. Blanching does not bleach the color, as the term would indicate, but actually makes the color deeper. Blanching should soften the skin so that the outer layers can be brushed off with a stiff brush, but the stalks should not be softened enough to interfere with handling. The blanched asparagus is next dipped into cold water to prevent further softening and to permit ease in manipulation. The colored stalks may be separated from the perfectly white stalks at this point. Then pack the asparagus tightly into the jars or cans with tips up.

Brine. — Most vegetables are canned in a light salt brine. A 2 per cent brine is about right for asparagus. This is made by dissolving two pounds of salt in 12½ gallons of water, or 2½ ounces of salt in one gallon of water. Similarly 1 per cent, 3 per cent, 5 per cent, etc., brines are made by dissolving 1 pound, 3 pounds, 5 pounds, etc., salt in 12½ gallons, or 1¼ oz., 3¾ oz., or 6¼ oz., etc., in one gallon of water. Cover the asparagus with a 2 per cent brine. No. 2½ square cans are most commonly used for asparagus.

Tinning the Capping and Tipping Steels. — If the asparagus is to be put up in solder top cans, the following outline may be followed in capping. By capping is meant the soldering of the caps to the cans. By "tinning" a soldering iron of any kind is meant coating the point with a clean layer of solder. This coating is necessary to insure good union of the melted solder with the surfaces to be soldered together.

This tinning or coating of the capping steel may be accomplished by heating the steel in a gasoline torch or other suitable soldering iron heater, and dipping it while still hot into dry ammonium chloride ("sal ammoniac") containing several small pieces of solder. The solder is melted by the hot steel, and the ammonium chloride cleans the surface of the steel so that an even bright coating of solder results. If sal ammoniac is not available, the hot steel may be "tinned" by dipping it into soldering fluid for a moment and applying a piece of solder to the hot cleaned surface, the process being repeated until a satisfactory coating results. The steel should be hot enough when used to top cans, to melt the solder readily; but not heated enough to burn off its solder coating. The tipping steel is tinned in a similar way.

Processing Cans under Pressure.—Place two to three inches water in pressure cooker. Put cans in the crate and lower into cooker. Screw down the cover tightly and set the safety valve at as near 11 lbs. as you can. Leave pet cock on top of cooker open until steam issues freely; then almost close it, but still let just a little steam escape; allow pressure to reach 10 lbs. Keep pressure at 10 lbs. (by regulating pet cock) for 25 minutes for No. 2½ and No. 3 cans; 12 minutes for No. 1 and 18 minutes for No. 2 cans. Ten pounds equals about 239 degrees F.

Each additional pound per square inch of steam pressure adds approximately 3 degrees to the temperature at first, the increase in temperature becoming proportionally less until the increase from 14 to 15 lbs. increases the temperature only 1.8 degrees.

Cooling the Cans.—As soon as cans are taken from sterilizer (whether a pressure cooker or other type is used) place them in cold water to check further cooking.

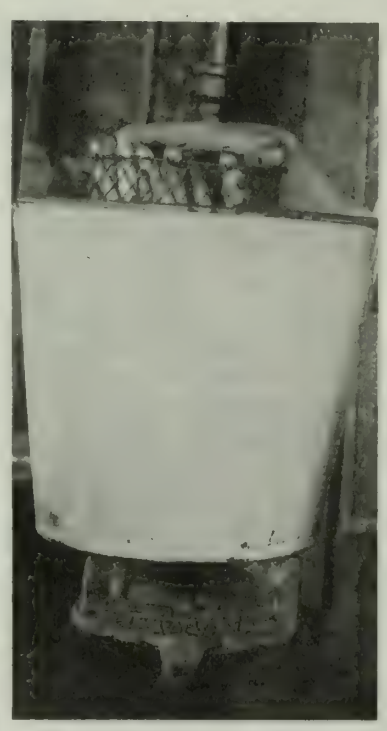
Can Capacities.—No. 1 cans hold 11.6 oz.; 1 tall, 12.3 oz.; 2, 21.3 oz.; 2½, 31.2 oz.; 3, 35.0 oz.; 3 tall, 39.0 oz.; 10 (gallons), 107 oz.

Processing Jars and Wax Top Cans Under Pressure.—Put rubbers in place and apply caps loosely so that steam can escape. Place in sterilizer. Heat exactly as with cans but add about 10 minutes to the time given for No. 3 cans because the heat penetrates glass more slowly than tin. This would make the cook about 35 minutes at 10 lbs. pressure or 239 degrees F. As soon as retort is opened at end of cook, remove jars, clamp or screw caps down tightly at once, and allow to cool upside down so that caps will be thoroughly heated. Avoid draughts because rapid chilling causes breakage. Wax top cans may be processed in same way as jars.

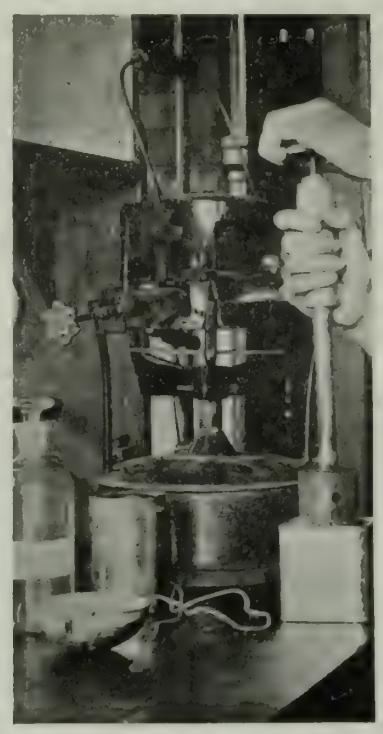
Processing Cans at 212 Degrees F.—Water boils at 212 degrees F. near the sea level. This temperature will not kill the heat-resisting germ spores occurring on asparagus by one heating; but three successive cookings at 212 degrees will usually sterilize the asparagus because the spores sprout between heatings and when still young and tender are easily killed. Place cans in boiling water or in live steam for one hour. Repeat heating at 212 degrees on following day for one hour. Repeat on third day, making three heatings of one hour each at 212 degrees.

Processing Jars at 212 Degrees F.—Use a wash boiler or similar arrangement with false bottom. Place jars in boiler with 2 or 3 inches of cold water. Leave caps on jars loose. Put cover on cooker and leave jars in the steam for one hour. Screw down caps. Loosen caps 24 hours later and repeat the one hour's cooking. Screw down caps as before. Loosen caps on third day and give final cook of one hour; screw down caps and allow jars to cool upside down. Wax top cans may be processed in same way as jars.

Trial Cooks.—Before canning any large amount of any vegetable or any fruit, make a few trial cooks of one or two cans each to note appearance, texture, flavor, and keeping qualities. The great variation in texture of the raw materials makes the times given above only approximate; hence the necessity, or at least the desirability, of trial lots.



Blanching Asparagus Softens the Outer Layers and Removes Some Bitterness.



Apparatus for Preserving Vegetables in Tin Cans. Capper is in Operation.

Sonoma Prune Dips and Graders.

[Written for Pacific Rural Press.]

A recent improvement in prune dipping machinery may be seen on the place of W. J. Yandel of Sonoma county. To heat the lye mixture in the semi-cylindrical vat, a steam pipe connects it with a regular boiler at some distance. The steam coming up through the prunes from the bottom agitates them so that when the scoop swings around in the vat at regular intervals, it gets under all without smashing any of them, and dumps them onto a grader screen made with wires with the proper meshes for the different sizes.

Rosasco Bros. of the same county have a large prune dip in which the semi-cylindrical vat rests on a brick furnace 42 inches wide, 48 inches high, and 72 inches long. A fire door at one end of the furnace permits the use of cord wood to heat the lye mixture. Crooked pipes under the vat in the fire box help to heat it. The fire itself must go clear to the other end of the furnace and then back around the sides of the vat and out of a chimney at the same end as the furnace door.

An ingenious arrangement of levers allows a man on the platform to raise or lower the handle to lower a basket of prunes into the vat and raise them out, dumping them onto a shaking drain-screen. The basket is made of galvanized iron for the ends and half-inch screen for the body. It is 30 inches long and 16 inches high, and is connected to the vat along one side by an axle which holds that side always in place.

The grader is run by an electric motor by means of an eccentric axle. The drain-screen is made of No. 8 wires ½ inch apart lengthwise of the grader, and cross wires five inches apart. This first section of the grader is 30 inches wide and 20 inches long from where the prunes enter until they roll off from it. It is simply to drain the prunes. From this drain the fruit rolls over a screen of No. 8 wire, with a 1x2 inch mesh, and out by way of a chute on each side of the grader onto a drying tray, which is set on a slope and able to be shaken by hand so as to spread the prunes over it. The chutes may be closed by an end board, while the trays are being changed. Smaller prunes which drop through the screen fall onto another screen two-thirds as wide, and all that go over run through another chute onto a tray beside the first ones. All that go through the second mesh run into a trough to be dried separate from the rest.

"When you see a tree of any kind dying back on its twigs, it shows that the roots aren't sending up enough sap to nourish the whole top and you want to relieve the strain by cutting back," says a fruit grower of large acreage.

Waiting till the pit begins to harden before thinning stone fruits allows them to be stunted so they will never size properly, unless perhaps with aid of irrigation, according to J. H. Davis of San Joaquin county.

Riverside Citrus Fertilizer Tests.

[Written for Pacific Rural Press.]

"This orchard is the most thorough and conclusive test of citrus fertilizers in the State," said Dean H. J. Webber of the Citrus Experiment Station at Riverside recently.

The section of seven and a half acres in the root stock experiment below the drive and the three acres in the one above the drive have been treated with cover crops, manure, and raw rock phosphate.

Similar Plots Fertilized Differently.—Between these two root stock experiments is the fertilizer experiment of 20 plots, each of which contains six trees each of Navels, Valencias, Eureka lemons, and Lisbons. It has had no cover crop in the past three years, though it had barley for the first five years. The barley became such an uneven growth that it could not be figured as a constant factor; and it was necessary to have exact amounts of plant food applied to each plot. These plots have been treated with over a dozen combinations of commercial fertilizers, some of them being organic and some entirely mineral, while three were untreated. The same fertilizers have been applied to each plot ever since the trees were set out in April, 1907, but the amounts have been increased about 10 per cent a year.

Influence on Mottling.—For mottling, the two stock experiments are in far better shape, presumably on account of their cover crop. The mottling and the yield, however, do not seem to have any relation to each other, though the plot which is first in yield is also in the best condition as regards mottling. For the effects of the different fertilizers on yields, quality, and size of fruit, the following table prepared by W. M. Mertz and furnished by Prof. C. S. Milliken brings out several important points.

Each plot is laid out rectangularly with a "guard" row between and drainage ditches to the outside of the fertilizer sections so that no plant food may drain from one plot onto another. The soil is fairly uniform, all the trees are eight years old in orchard form, and all are on sweet orange root. There is no need for the visitor to be shown when he steps from one plot to another, for there is a wonderful difference to be noticed just by crossing most any one of the guard rows.

Much Variation.—Some of the plots had practically no fruit on them when visited early in March; some of them were distressingly mottled; others were thin of leaf; others had leaves of fine color and extra size; some had fruit of good maturity, and all showed various degrees of value.

It will be noticed that the first rank in yield is for the blood plot marked "S." Second rank goes to another blood plot, while third goes to nitrate of soda alone. This is also in the best condition as regards mottling, with only one per cent of its leaf surface whitened. Ten pounds of blood per tree were applied last year, and since this is 13 per cent nitrogen, 1.35 pounds of nitrogen was applied per tree.

The first rank in quality goes to plot "G," which had an application of nitrate, blood, and bone.

Hard to Pay the Rent Without Investing in Fertilizer.—The lowest yield came from plot "B" on which nothing was applied; likewise, this one had the lowest percentage of fruit which would grade as fancy or choice.

The percentage of fancy and choice grades varied but little between any of the twenty plots; the highest being 79, and the lowest 65, so that but little could be said in regard to the effect of fertilizers on quality. However, the lowest quality was on the plot which had no fertilizer, and the highest quality on the plot which had been treated with nitrate, blood, and bone.

Manure Produced Fanciest Fruit.—Contrary to the commonly expressed experiences of orchardists, the plot treated with manure alone gave almost the highest percentage of fancy and choice fruit.

"In this experiment, the limiting factor of the yield seems to have been nitrogen," says Mr. Milliken. "The potash plots gave the smoothest fruit, but this does not indicate that the smoothness was due to the potash, but rather to the fact that the fruit grew so slowly."

Dean Webber notes that the average yield for the past five years has been less on the three plots which were treated with potash alone than on the three plots which received no fertilizer at all.

"However, we must remember that this experiment is only eight years old and there may be enough potash in the soil for all time to come; or again, there may be urgent need for an application of more when the trees are older. We must not talk beyond what we know," says the Dean.

Sulphate of ammonia, the main source of nitrogen in the Florida citrus orchards, has never been sufficiently tried in California to draw conclusions. The Limoneira Ranch in Ventura county has used sulphate of ammonia to some extent, but their tests are of too recent date to furnish satisfactory evidence.

Many fertilizers which are used in Florida are not good in California and vice versa. For instance, experience all over California points to the use of manure as one of the best fertilizers for citrus orchards. But, says the Dean, "I have seen growers dump manure into the drains and throw it away in Florida, as a general practice; and moreover, I think they were right in doing it. I have seen enough evidence to know that if the quantities of manure which we think are necessary in California were used in Florida it would cause die-back which is a serious trouble in Florida. Why manure is good here, but poisonous there, we do not know, but experience seems to show this to be true."

ORANGE FERTILIZERS AND RESULTS.

[Compiled December, 1914.]

Plat	Fertilizer	Lbs. food elements per tree 1914 *N	P	K	xLbs. fruit per tree to date; Navels & Valencias	Rank in yield	Per cent fancy & choice	Per cent best sizes (150, 176 and 200)
A.	Complete (Nitrate, blood, bone, potassium sulphate)	1.35	2.75	1.35	133	5	73	38
B.	Nothing				33	20	65	30
C.	Blood	1.35			153	2	74	36
D.	Potassium Sulphate			1.35	41	19	76	24
E.	Bone	.45	2.75		138	4	79	43
F.	Manure	1.35	1.00	1.86	128	9	77	34
G.	Nitrate, blood, bone	1.35	2.75		120	10	79	35
H.	Nitrate of Soda	1.35			146	3	73	35
I.	Potassium chloride			1.35	60	18	71	39
J.	Super-phosphate		2.75		69	17	72	43
K.	Bone, potassium sulphate	.45	2.75	1.35	115	11	72	47
L.	Nitrate, blood, pot. sulph.	1.35		1.35	131	7	76	43
M.	Nothing				87	16	73	41
N.	Super-phosphate, blood	.45	2.75		98	15	73	41
O.	Manure, raw rock, phosphate	1.35	2.75	1.86	131	8	75	37
P.	Bone	.45	2.75		101	13	76	53
Q.	Complete (Nitrate, blood, super-phos., pot. sulph.)	1.35	2.75	1.35	132	6	75	49
		1.35	2.75	1.35	132	6	75	49
R.	Pot. sulphate			1.35	99	14	68	44
S.	Blood	1.35			161	1	72	43
T.	Nothing				104	12	74	29

*For this table, N—Nitrogen; P—Phosphoric Acid; K—Potash.
xLemons not included because lost in freezes of 1912 and 1913.

Improved Grape Packing.

[Written for Pacific Rural Press.]

Preservation of grape bloom and exactness in packing standard weight, as well as less expense in packing, are claimed for the system adopted by J. N. Furry of San Joaquin county.

He makes a form of grape baskets with the bottoms cut out, to fit each section of a crate. These bottomless baskets are fastened together with cleats and placed in the crates bottom side up. The tops of the crates have all been nailed on, but the bottoms are nailed on after the picking is done. The large-sized bunches, which are always packed on the tops of the baskets, are placed in these forms first, and the finishing touches made with smaller bunches.

Every crate is weighed so that Mr. Furry can guarantee full standard, 24 pounds net. If it is more or less than the correct weight, the difference can be made up by removing or adding small bunches without disturbing the face of the basket at all.

After the grapes are packed in the mold, it is pulled upwards from them and ordinary baskets put in its place, after which the bottom of the crate is nailed on, and the shipment goes forward without delay.

Vineyard Pack.—The grapes are packed in the vineyard, eliminating the necessity of long hauls in lug boxes which shake them down and both bruise the berries and injure the bloom. This system gives a very even uniform finish to all of the baskets, which, according to the following letter to Mr. Furry from F. A. Roman, a Boston wholesale fruit dealer, gives his fruit a pre-eminence on the Eastern markets:

"On October 8, I bought in the auction market 22 crates of your Tokays. On November 2, I still have five crates on hand, having kept them fairly cool; and I find them better today than when I bought them. I have sold grapes for the past thirty years and never saw any that opened as well as this particular lot from you. They kept so well I thought it my duty to let you know of the success of your experiment. Whenever I see the same mark on grapes I will be the one to buy them," which means that he will bid whatever price is necessary to get them; and Mr. Furry will receive a larger check.

CHERRIES ON TREES TILL FALL.

[Written for Pacific Rural Press.]

A hundred boxes of cherries exhibited by F. A. Brush of Sonoma county at the Gravenstein Apple Show, August 21, excited considerable comment as to how they had been so well preserved.

It was six years ago that Mr. Brush first covered a few cherries as they hung on the limb with a thin sheet of cloth, when they were just ripe, and noticed that they did not change till fall. He tried it next time on a whole limb and has preserved cherries perfectly on the tree, sometimes even as late as October, for the past 6 years. They begin to change in October on account of the changed condition of soil or temperature, as Mr. Brush thinks.

He uses one thickness of ordinary cheesecloth simply thrown over the tree and figures that on account of the subdued light, the cherries "go to sleep and do not wake up." The thinnest sheet seems to work as well as any, and all experiments painting the cloth different colors seem to have made no difference.

The cherries at the Show last August had ripened in May, but "had not changed a particle since."

BANNING FRUIT CO-OPERATORS.

To the Editor: Not counting the outside orchards, though their products find their way to market through the Banning depot, there are about 3000 acres in fruit immediately in or about Banning, 50 per cent of which are in full bearing with most of the rest of the acreage being what might be termed near-bearing.

An estimate of the output for 1915 is as following:

Almonds, 190 tons; peaches (green), 2500; apricots (green), 2000; prunes (dried), 250.

This represents a fine crop of almonds, a poor crop of prunes and a fair crop of apricots and peaches.

Banning has an up-to-date cannery, having a maximum daily capacity of 90 tons of fruit; a warehouse of the California Almond Growers' Association; a modern and complete plant for packing dried fruit owned and operated by a branch of the California Cured Fruit Exchange; and besides all these facilities, several plants for packing and marketing green fruit.

Banning. N. L. Prince.

Prefers June Budded Almonds.

[Written for Pacific Rural Press.]

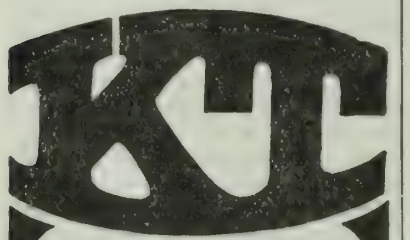
To cheapen the cost of producing almonds, P. D. Bane of Glenn county advises the planting of varieties which will ripen in succession. This advice is based on expensive experience because one year there was a lull between varieties in which he had to lay off his crew for a week and he lost half of them. That required him to hunt up that many to take their places when the Ne Plus were ready, and he had to use new people inexperienced in his methods.

For the past year or two, Mr. Bane has been planting extensive new orchards and is using IXLs, Ne Plus Ultra, and Drake seedlings in alternate rows. The Drakes being the strongest pollenizers, are put in the outside rows. There is a lull of a week between the IXLs and the Drake, which is filled by the Ne Plus.

In order to save money, get the best trees, and know they are true to name, Mr. Bane grows his own nursery trees. Bitter almond nuts were planted in January and budded in October for a part of the new orchard, but this October budding is not favored now. A June or July bud may be put into a tree from a nut planted in January, and it will grow enough so that the tree may be set out the next spring. The October bud remains dormant till spring and is kept another year in the nursery. Most nurserymen, according to Mr. Bane, bud in the fall on trees from nuts planted the previous winter, and the extra year in the nursery makes yearling trees on two-year roots when they are ready to be set out. This compels the tree digger to cut quite a few of the roots and give the tree a shock which perhaps sets it back to a certain extent. June budded trees dug the next winter for planting lose scarcely any of their roots and get less of a shock in the transplanting.

The best practice is not to look at the top of the tree when buying, but look at the roots, because the top is cut off to 16 to 20 inches, anyway; but there is no need for reducing the roots.

IXLs are rather poor bearers, as a general rule throughout the State, according to Mr. Bane, on account of weak pollination. The meats are likely to be ribbed, which is an objection from the confectioner's standpoint; but they are cheaper to harvest because the hulls practically all drop off when the trees are poled. On this account, figuring all points together, Mr. Bane favors the IXLs. Nonpareils, with which he had experience in the old orchard, are eliminated from the new ones because they are alternate bearers in the old orchard, also because they have a paper shell which often opens at the point and allows bugs, birds, and worms access to the kernels, and because they are so light weight that it requires "lots to weigh a ton." They ripen at the same time as the IXLs, and if hulled at once are easily cleaned, but they tend to close their hulls if allowed to stay on the trees so that they are always harvested first. This objection overbalances the full meat and their highest price on market, in Mr. Bane's estimation. Ne Plus is often double, which is an objection from the confectioner's standpoint. It is now used principally to fill in the gap between the other varieties.



IRRIGATION SYSTEM

THE 20th CENTURY METHOD OF IRRIGATION

As superior to old methods as the modern auto is to the ox-cart.

Saves Water, Land and Labor.

Don't experiment — the best is the cheapest in the long run.

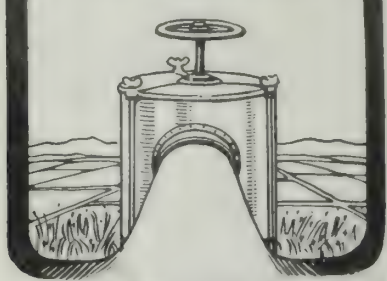
Illustrated Catalog and full particulars on request.

Kellar-Thomason Co.

"Originators of the Valve System of Irrigating."

1234 EAST 28th ST.
Los Angeles.

(Ask your Dealer or Contractor.)



California Vegetables. $2 postpaid. Pacific Rural Press.

GOOD DRIED APRICOTS WILL PAY.

(Continued from page 649.)

fruit buds for the next crop. "I wouldn't use irrigation now if you'd give it to me, even on this gravelly loam. I'd pay twice as much for water in August as now. Irrigation after fruit begins to turn is all right for what goes to the cannery if it needs sizing up, but there is no use in putting it into drying apricots.

Cutting and Drying.—Weak salt water sprinkled over the trays before laying fruit on them will prevent it from sticking, according to a long-time fruit-growing neighbor, and Mr. Goodrich tried it last summer, but the fruit was in such condition that it wouldn't have stuck anyway.

If the crop generally is large and help hard to get, not always can cutters be prevailed upon to cut entirely around the pit. They prefer to break the halves apart for the short distance the knife does not cut so handily, and this makes ragged dried fruit which is very unattractive. Mr. Goodrich has about the same crew year after year so this trouble is minimized.

After pitting the fruit and laying it close together carefully right side up so the juice will not spill, they stack the trays 20 or 25 high and run them into one of the several sulphur houses. For each stack, about three pounds of sublimed sulphur is burned, leaving the fruit in the fumes sometimes all night, and never less than two hours. This prevents dark colored fruit and worms. When left in the sulphur three to five hours, the fruit dries in better shape because of the glaze formed on the cut surface by the juice and sulphur fumes. The fruit thus glazed does not dry away so much, keeps better, and is more attractive. Mr. Goodrich showed us some beautiful Moorparks dried two years ago.

Trays must be handled carefully after sulphuring; because if the juice is spilled out of the pit "cups," weight and color will be lost; the fruit will stick to the trays and perhaps stain; it will be more or less torn in removing from the trays, except by means of the brass paddle mentioned; some of the juice may go through the cracks and stick dirt and stubble to the under sides of the trays. This will get into the fruit when trays are stacked; and at best, the trays are left in bad shape for the next batch of fruit.

Quality of fruit left an average of three days in the sun and four days in the stack would be improved and more weight saved by less time in the sun and more in the stack. Dried practically all in the stack. The fruit would keep all right if it feels about like dry chamois skin, while that dried the same amount in the sun would not keep, according to Mr. Goodrich. "I believe I would make the price of double the number of trays by drying entirely in the stack after a day in the sun, if I had the nerve. More weight and better quality," says he.

Most growers sell their crops without grading. The packer's man inspects the fruit, estimates for himself the proportion of standard, choice, and fancy grades, then makes an offer for the fruit, usually based, especially early in the season, on what he can make the grower think are the crop prospects. So long as growers do not study crop reports in reliable farm papers, or get them from comprehensive growers' co-operative organizations, it is hard for them to know what to believe; and they sometimes sacrifice by selling too soon.

Grain Bags
Twine
TENTS
Irrigation Hose
Wagon Covers—Canvas
Desert Brand Water Bags
Milk and Butter Coolers

Write for Catalog and Discounts.

W. A. Plummer Mfg. Co.
35-37 Front St., Cor. Pine, San Francisco

One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,
552-556 SOUTH FIRST STREET, SAN JOSE, CAL.

Fruit Market and Crop Reports.

[Written for Pacific Rural Press.]

TO ECONOMIZE IN HANDLING FARM PRODUCE IN CHICAGO.

Most California fresh fruit goes to Chicago and New York. In Chicago, there are four blocks of business houses on South Water street where apparent pandemonium reigns all forenoon every day in handling produce of all sorts. These four blocks are not connected with any railroad, though they handle practically all of the produce used in the city. All this must be hauled from the depots and auction houses by trucks to South Water street and then distributed in the same way to their customers. The total annual business transacted is said to be $300,000,000.

It is stated by a man who was in business on South Water street for ten years that the drayage costs $7,000,000 a year or $20,000 for each merchant on the street.

To avoid such tremendous waste in hauling produce from the railroads to South Water street, the Produce Terminal Corporation is promoting a scheme whereby all railroads entering Chicago will unload at a centrally located produce terminal where will be the business houses of all the produce merchants, thus saving the tremendous loss of time, drayage charges, and switching charges which now help to make the difference between producers' and consumers' prices.

CHERRY CANNING STARTS.

Libby, McNeill & Libby started their cannery at Sunnyvale May 29, putting up a few Tartarians and Royal Annes. They pay 4½ to 5 cents. Their factory at Sacramento also is now running. Two or three days per week is all they can run at present.

NO BOSNIAN PRUNE HOLDOVER.

A Bosnian prune report printed in California Fruit News indicates that their 1914 crop, equivalent to about 62,000,000 pounds, will have been all sold to Germany and Scandinavia before the new crop comes on. Only about 2,200,000 pounds remained April 17. Little damage had been done to the orchards by the war, though damage to Servian orchards was not known.

CROP REPORT NOTES.

Apples.—Humboldt about normal, though thinned by recent heavy winds.

Apricots.—Setting well in Inyo county, though in some parts almost the entire crop dropped off on account of the cold weather. In Kings county, above normal.

Almonds.—Crop will suffer in some sections on account of appearance of a fungus disease. Total loss reported in some orchards in Yolo county. Better crop than last year expected in Sacramento county.

Cherries.—Nevada county cherries are on the move, having not been much hurt by the storms. Humboldt county, cherries reported by Geo. R. Lane, are 75 per cent.

Grain.—Bumper crops in Kings county; cutting commenced in certain sections. In Tulare county, harvesting commenced June 1. Heavy crop expected in spite of damage due to rust and water from the Tule River, which flooded many of the lowland fields. Humboldt county grain and hay normal.

Grapes. — Vineyardists of Sutter county busy sulphuring for mildew, which is liable to cause considerable damage on account of late rains. In the Florin and Elk Grove sections of Sacramento county, the crop of Tokays is reported 50 per cent of normal. In Lodi district, 60 to 70 per cent of normal. In Fresno, the Malagas are 40 per cent short, but Muscats and Thompson Seedless are showing up well and crop is expected to be about normal. Full crop reported in Kings county.

Onions.—Early crop affected by fungus growth of mildew on account of late rains.

Peaches.—Dropping badly in the Selma district; 25 per cent of crop thought to be lost. Dropping also reported from Suisun. Little leaf very prevalent in San Joaquin valley. Other sections of the State show excellent promise. Crop 10 per cent above normal in Kings county. Rainy weather and cold winds dropped crop about 10 per cent in Sacramento county.

Pears.—Along Sacramento river, 75 per cent of a crop; Suisun, 50 per cent; Vacaville, 25 per cent. The

(Continued on page 671.)

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres
of Good Land Along the
Western Pacific Railway
IN CALIFORNIA,
NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway

BODE K. SMITH,
Asst. General Pass. Agent.

FOR SALE

Almond, Prune or Alfalfa Ranch. Will sell either part. 3000 trees 5 years old, or over 100 acres, mostly creek soil. Growing good alfalfa. Good buy for one man or as company. ALEX T. GIBSON (Owner), P. O. Box 361, Chico, Cal.

If you want the best
TREES
Write for Price List
UNITED FRUIT CO.
NEWCASTLE, CAL.

CITRUS TREES

Grown by
TEAGUE
—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating, packing, and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries INC
ESTABLISHED 1890 BY R.M. TEAGUE
San Dimas, Cal. U.S.A.

"CALIFORNIA GARDEN FLOWERS"
$1.50 Postpaid.
PACIFIC RURAL PRESS, Publishers.

Get On the Right Side of the Fence

SCIENTIFIC TREATISE SENT ON APPLICATION

A JUNE SPECIAL

We are going into partnership with every rancher in California. We are going to convince you that WRP is the best Legume Bacteria on the market —that it gives the biggest crop increases.

DURING JUNE

We will sell you a 5 acre can for $8.14. You can take it in June, or later in the year as it suits your planting. Treat your BEAN—PEA—ALFALFA—VETCH—CLOVER seed with it before planting. At harvest time, if you do not notice a marked increase in the crop, after having followed directions, we will cheerfully refund your money.

In ordering tell us the date you intend to plant, and the Crop. Directions for use are on each can. Send check or money order.

WESTERN ROCK PRODUCTS CO. 1020 Balboa Bldg. SAN FRANCISCO

THE YELLOW CAN PUREST & SUREST

Mechanical Power on the Farm.

PUMPS DEVELOP FROSTLESS WEST SIDE KINGS CO.

[Written for Pacific Rural Press.]

Twenty years ago a bunch of homesteaders settled on the sagebrush land west of Tulare Lake in Kings county. They got two crops out of five and couldn't stand it any longer; so that since then until recently the land has been rented for sheep pasture at 10 cents per acre per year.

David Murray of Hanford is one of the latter day pioneers who developed a 300-foot well, lifting 12 inches of water a hundred feet with a deep well pump to irrigate 95 acres of trees which he planted in the middle of May, 1912, after plowing up the sagebrush about the first of May.

Peaches, plums, apricots, and two olive trees were set out. When the olive trees were two years old, C. M. Gifford of the Gifford Ascolano Olive Company looked at them and said they beat any four-year olive trees that he knew.

He bought 160 acres before returning to town and planted 110 acres into Ascolanos last spring. In developing water for the new orchard, Mr. Gifford started to dig a well 500 feet deep, but a bunch of men interested in that section made up a purse and helped Mr. Gifford put his well down to a 1010-foot depth, finishing with a 7⅝ in. casing. Then they put on a Layne & Bowler centrifugal pump, operated by a 15 h.p. Fairbanks, Morse engine at 11 in the morning and pumped over 450 gallons per minute until sundown without diminution of the flow.

The water is of first-class quality, being soft and excellent for domestic purposes, as well as for irrigation. The 45 miner's inches developed by the well is figured enough to irrigate 180 acres at the rate of 5 inches of continuous flow per 20 acres of olives. Since the land is such a gentle slope in that section toward the lake, all that is necessary in irrigating is to plow the furrows and turn the water in.

The section west of the Lake is said to be practically frostless, for there were green tomatoes growing on the Murray place at Christmas time. On Joe Meadows' place, where there is also a deep well in which the water rises to 11 feet from the surface, they irrigated some Thompson Seedless grapes in September after allowing them to become pretty dry. The vines sent out new shoots which were eight inches long at a time when foliage on grape vines was killed by frost at Hanford, but the new shoots on the Meadows' place were not touched.

The San Joaquin Light and Power Company has promised to put in an extension of their electric line to furnish power for the many pumps which have been recently installed and the others which will be on account of the success of these. Among the other well-owners in this section are Robt. Kimble and the Fitzwilliam ranch, where there are several wells.

PLENTY OF TOOLS ON FARM SAVE REPAIR BILLS.

[Written for Pacific Rural Press.]

"How do you like your baby Samson for orchard work?" we asked of Joseph Wolf in Santa Clara county.

"I hired a big tractor last year. They said it would pull four or five bottoms. It did, but the orchard wasn't half plowed—the lower half. They just skinned the top off. This year with my 5 horse-pull tractor I'm cultivating my 27 acres of orchard for the sixth time (May 28), after plowing with a two-disk plow. And I've done considerable work for my neighbors. I have $585 invested while the bigger tractors cost upwards of $2200.

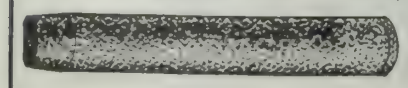
"With this little tractor, which is 40 inches high to the top point, we plow close to the trees lots easier than ever before. We hook the plow over as far as possible by a chain. It has a 12 inch offset. I drive the engine straight ahead. A man guides the plow in a practically straight line right along the tree trunks—no bobbing in and out and barking the

No Pit
is required with the
Krogh Deep Well Turbine Pumps

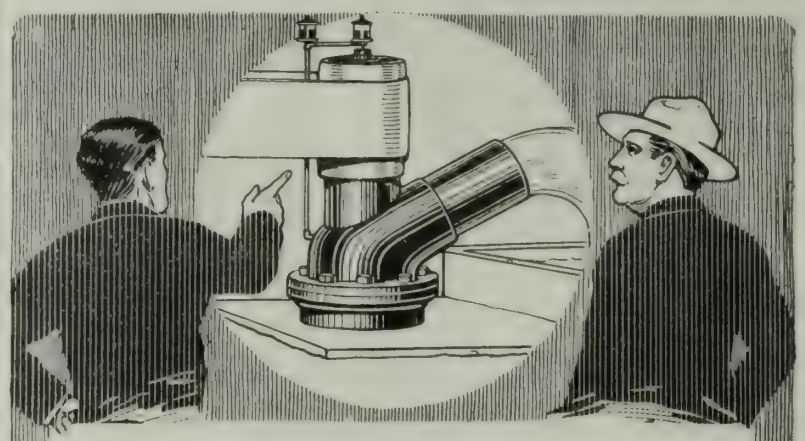
For bored or drilled wells from 10 inch inside diameter up; and for capacities of 250 gallons per minute up to 3000 gallons per minute. Built for pumping from any depth to and including 250 feet. They are absolutely water balanced and are self-aligning. More water can be obtained from such wells than with any other type. Built in belted or direct motor driven types. If interested, write for Bulletin.

Krogh Manufacturing Company
SAN FRANCISCO, CAL.
Branch at
LOS ANGELES, CAL.

You Know



American
Surface Irrigation Pipe.
is RIGHT
—then why experiment with any other? Lasts a life time.
AMERICAN STEEL PIPE & TANK CO.
Suite 354-56 Pacific Electric Bldg., Los Angeles.
Branch: 1228 "H" St., Fresno.
Also, single and double Well Casing.



Your Decision

The five big points you should consider when buying an irrigation pump are—Economy, Durability, Simplicity, Efficiency and Dependability. Select the pump that operates at the least cost; that's built of the finest materials, to give years and years of perfect service; that's of the very fewest parts; that has a high efficiency; can be depended upon at all times, requiring no attention—one that produces the full capacity of your well at least cost. Don't gamble on a pump. Install the one that has a reputation for meeting every requirement perfectly. If you do this you will be sure to install the

Layne & Bowler Pump

Write for valuable pump and irrigation booklet No. 25. It's free. See exhibit at San Francisco Exposition.

Layne & Bowler Corporation
900-910 Santa Fe Ave. Los Angeles, Cal.

Jr. Monarch Hay Press

Horse or Gas Power. Any Size Desired.
Capacity 40 to 100 tons. Guaranteed to excel any Press made.
Bales most of the Hay on the Coast. Now Fed Continuously.
Junior Monarch Hay Press Co.
OFFICE AND FACTORY. SAN LEANDRO, CAL.

"Campbell" Gates — Anderson Flume Gate Company — Diamond Gates

Redlands, Cal. Phone Black 96
"Campbell" and Diamond Gates will reduce your cost of water and labor to a minimum. Our specially adjusted Gate for pressure system when used in capped stands requires no valves. Send for price list today. Sample Gate postpaid 10c.

CAMPBELL
IRRIGATION
We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Tubo-Irrigator, and the new Automatic Oscillator for overhead pipes.
J. P. CAMPBELL,
230 Union Terminal Building. Jacksonville, Fla.

Luitwieler Pump
Exhibit at Both Expositions.
Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.
Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

trees for the peach tree borer to lay eggs in.

Troubles Fixed.—"But they have several improvements to make on this tractor. They give us all improvements free of charge as they are invented.

"Here are the twisted wires running from the battery box to the timer along the cylinder base. They got so soaked with oil that they short circuited. So I put a new pair of wires into a small rubber hose I found on the place, and connected them up. They are now entirely protected from oil.

"The 'exhaust rod' extends back alongside the cylinder to the cam wheel run by a cam gear inside, which works the exhaust rod forward and backward to make connections on the front end of the cylinder. Its back end is supported by an arm which works back and forth on a horizontal pinion into the engine base. The pinion is of ¾ inch iron where the arm works on it, but is only 9-16 inch where it is supported in the engine base. The continual vibration crystalizes this pinion so two of them have broken for me.

"That doesn't bother me much for I turn out a new one on the lathe very shortly, but I hate to lose the time when the tractor ought to be going. So the next one I make will be enough longer so I can fit a bracket over the end of it and down to the engine base below its regular connection. This will relieve some of the strain.

Carbureter Air Moistened.—"This new moistorizer is a great thing, but it didn't work till I fixed this spring on it. All the air that goes to the carbureter passes through a jacket around the exhaust to get warm, and then goes into the carbureter. The moisture makes the engine run lots smoother with less carbonization and the water strains the dirt out of the air. That is considerable—it would surprise you. I clean out the moistorizer every day by directing the hose into it and opening the lower outlet. A stream of muddy water runs out for a minute or two.

"But it didn't work very well. Instructions say to fill with water till the pet cock on the side drips. When we did that, and then run over the orchard soil, there was so much rough motion that the water splashed up through the pipes into the carbureter because the float would rise, and fall with a splash. Now I've hung the float to a light wire coil spring from a bracket arm fastened around the pipe, and it can't splash the water up through the pipes. Once filling the moistorizer half full runs the tractor all day.

Lathe and Drill Shop. — "Every farmer ought to have a lathe. It saves so much time running to town for repairs. I do all kinds of wood work on mine besides the iron turning. I got it cheap after the earthquake. It doesn't have the automatic cutter. I fasten my wooden stick or iron pin in, then hold the chisel or tool against it over an improvised rest. It has three speeds. I run with a 1½ h.p. portable gas engine. For wood, the high speeds are useful until it gets down pretty close to the right diameter—then the low speed. It has a back gear to further reduce the speed and increase the power for iron work. When the iron pin is nearly at the required diameter, the speed is reduced and a file held on the pin for the accurate finishing. I need the automatic cutting machinery that usually goes with a lathe—but a new lathe at $150 to $200 is too expensive for an ordinary farmer. I'll try to get one that the fine-working machine shops in the city have had to discard. It will still be accurate enough for farm work."

In the same room is a power drill, a complete outfit of carpenter's and pipe workers tools including a set of bolt and pipe threading dies, a work bench, and a circular saw which is used to rip boards, etc. It is run by the gasoline engine which pumps water for the house.

At some distance is the galvanized iron blacksmith shop containing a revolving-blower forge, an anvil, tools, workbench, and vise. "It makes machinery breaks lots less expensive."

Will Have Line Shaft. — In the lathe shop, a line shaft would be installed to be run by the pump engine, but a better scheme is on hand, to furnish power for a combined blacksmith, machine, carpenter shop, and irrigating plant. For, a little aside from the farm buildings, is a gasoline engine pumping plant for irrigation. By enlarging that, using a line shaft, and collecting all the tools and equipment together, much economy of time will be gained and the cost of insurance decreased.

ELECTRIC SILO FILLING.

A rural community mentioned in Electrical World found that the daily rent, including cost of energy consumption, of a 15-horsepower electric motor with transformers mounted on a truck when used for filling silos was considerably less than the expense of using a traction engine. The electrical outfit was rented for $5 per day, while the actual total cost of steam-engine drive was about $12.50 per day. The average energy required per ton for silo filling was said to be 1.17 kilowatt hours.

The first car of cantaloupes was shipped to New York from Brawley on May 26.

Be Free To Try An Arnott Cultivator

You have heard about the ARNOTT Cultivator, but possibly you never saw one work. Why don't you try it in your own orchard? Free trial costs you nothing. More ARNOTTS sold than any three other styles combined. Made with fore truck as shown or with pole. Curved rear standards allow good trash clearance. Made in Los Angeles as result of eleven years experience with California orchards. Cultivates deeper. Pulls lighter. High-grade steel construction. Write today for free trial offer. Cultivators shipped everywhere. None returned.

ARNOTT & CO. EST. 1892 112-118 S. Los Angeles St. LOS ANGELES, CAL.

In answering advertisements mention the Pacific Rural Press.

CUSHMAN Gasoline Engine

for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.

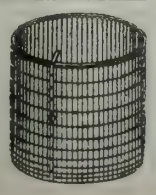
Light Weight

Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

REDWOOD TANKS SILOS.

Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.

BROWN & DYSON, 640 So. Center St., STOCKTON, CAL.



THE WINSBY PUMP

Our New 1915 Type Pump

Best Model for Low Lift Pumping

Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars.
Price	$16.00	$20.00	$25.00	$30.00	Oakland

Larger Sizes at Proportionate Prices.
Complete Pumping Plants of Any Size or Type Furnished and Installed.
WE MANUFACTURE
Pumping machinery of all kinds and for all purposes.
Mining, Milling, Concentrating and Rock Crushing Machinery.
Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.
Water Wheels, Dredges and Hydraulic Machinery.
Fire Hydrants and Cast Iron Fittings.
WRITE FOR CATALOGUE AND PRICES.
WE CARRY IN STOCK

Pipe Casing Valves and Fittings	Belting Leather Rubber and Canvass	Pulleys Wood Steel and Cast Iron	Shafting Hangers Collars and Boxes	Boilers Steam Engines and Supplies

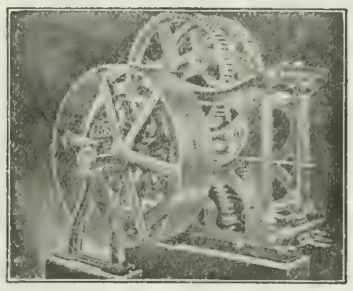
UNITED IRON WORKS

Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.
GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.
We are the largest manufacturers of pumping machinery on the Pacific Coast.

Pomona Deep Well Pumps

For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.

Write for Catalogue 104,



Do not get oil into the water. Consume less power per unit volume of water pumped.

Write for Catalogue 104, with valuable information on irrigation.

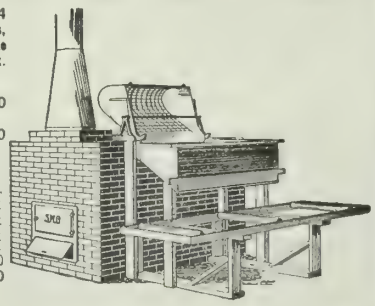
Pomona Mfg. Co., Pomona, Cal.

PRUNE DIPPERS with all the latest improvements. Best and cheapest on the market.

..Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

Hopper and Spreader	$15.00
30 in. Green Grader, 3 grades, suitable for above	85.00
Large Power Dipper and Grader, capacity 75 tons per day.	
24 in. Hand or Power Dry Graders:	
3 grade	$55.00
4 grade	60.00
5 grade	65.00
Field cars, wood or steel frame	6.00
Transfer cars	8.50
Turn Tables	8.50
8-lb. steel rails, 7 cts. per foot.	



SMITH MFG. COMPANY,, 200-224-226 THE ALAMEDA, SAN JOSE, CAL.

If you want the most for your money ask for, insist on, and demand that your dealer furnish you with

TEST SPECIAL RUBBER BELT

Take no other "Just as Good"—it cannot be furnished. Every sale carries with it an unqualified guarantee.

Your name on a postal card will bring you a vest pocket Memorandum Book FREE.—This book gives Power Tables, Belt Speeds, List Prices, etc.

New York Belting and Packing Co. of New York

Established 1846. Capital Paid in $2,000,000.
519 MISSION STREET, SAN FRANCISCO, CAL.

PIPE

For Every Purpose NEW Threads & Couplings. Hot Asphaltum

Second Hand and NEW

Screw Casings Fittings and Valves Guaranteed for Pressure

PACIFIC PIPE CO. San Francisco, Cal. Main and Howard Sts.,

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

In our issue of May 22 we printed the following item: "Ben Putnam of Dixon will shortly plant 100 acres to lemons, oranges, and pomelos." Mr. Putnam has just written us as follows: "I am not planting any citrus trees, but was instrumental in placing a large order for them. About 14,000 orange, lemon, and pomelo trees will be and are now being planted on the ranch of Geo. T. Dunlap adjoining the town of Winters."

The navel orange season has practically closed in Pomona, with a record of 3,600 cars. Although prices have not been as high as in some other seasons, it is expected that the season's crop will bring in $3,000,000.

The packing of Valencias in the Pomona district is about to commence and it is expected that about 600 cars will be shipped.

A plant for the manufacturing of the by-products of oranges and lemons is being considered by the California Fruit Growers' Exchange. A trip of inspection through Orange county in search of a suitable site was recently made by members of the Association and railroad men.

Twenty-two cars of oranges were recently exported to London, Liverpool, and Glasgow by the Redlands-Highlands Fruit Exchange.

A strenuous effort is being made by the citrus growers of Tulare county to organize an association to be known as the Citrus Protective League of Tulare County for the purpose of fighting the gray scale, which has been seriously infesting the orchards of that county.

GRAPES AND SMALL FRUITS.

Berry shipping by the Sebastopol Berry Growers has commenced.

April 30 is to be the date for Raisin day in 1916, and the sum of $2,000 is on hand with which to start next year's celebration. The treasurer's report shows a net profit of $1900 from the 1915 Raisin Day.

Strawberries on the Sacramento markets are selling cheaper than they have for several years, and shippers attribute the low prices to competition that the berries sent to other states meet with the berries from the Northwest, and the damage done to California berries by the damp weather.

DECIDUOUS FRUITS.

Vernon Campbell of Porterville has been appointed manager of the California Growers' Association, an organization to sell deciduous fruits direct to consumers in the Middle West States. Regarding the rumor that the Porterville and Tulare canneries would not operate this season, Mr. Campbell writes that not only will they operate, but two other cooperative plants will work in conjunction with these.

Sacramento county orchards were recently visited by Earl Morris, Santa Clara county horticultural commissioner, A. J. Cook, State Horticultural Commissioner, and several extensive pear growers of Santa Clara and Lake counties. The object of the visit was to learn the methods used in Sacramento county of destroying pests peculiar to pears, that they might be employed to good advantage in the other counties.

In 1892 the first train of green fruit was shipped from Fresno to New York. It consisted of ten cars of Bartlett pears raised in Fresno county.

The season's first mixed car of California fruits was shipped last week by the California Fruit Exchange. It contained Mayflower peaches from Newcastle, Clyman plums from the Sacramento River section, apricots from Winters, and cherries from Placer county.

Thirty cars of fruit have been shipped from California this year as against 92 up to the corresponding date last year, according to the California Fruit Distributors.

Salt Will Save Your Hay

MAKE 5 TONS EQUAL 6 TONS.

The salt more than pays for itself in the weight of the hay. There is a further gain in weight through moisture held—and the stock will eat up salted hay clean where unsalted hay will be mussed over and wasted. Twenty pounds of salt should be used to each ton of hay. Stack three feet of hay, sprinkle the salt over this by hand, then another layer of hay, more salt, and so on.

The same directions apply when baling hay.

SALT
Increases Weight.
Prevents Musty Hay.
Cattle like the taste.

Have you ever lost a crop of hay through musting—or your barn and hay through spontaneous combustion?

Use Salt

when you stack the hay.

Leading dairymen use salted

ALFALFA HAY

all the year round for feeding dairy cows, to increase the flow of milk.

1915

Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.

LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.
1st & St. James Sts., San Jose.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson
A. Block Fruit Co.
Earl Fruit Co.
Geo. D. Kellogg & Son.
Newcastle Fruit Co.
Penryn Fruit Co.
F. B. McKevitt Co.
Pioneer Fruit Co.
Producers Fruit Co.
Schnabel Bros. Co.
Silva & Bergtholdt Co.
Vacaville Fruit Co.

California Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

PHOSPHORUS Makes FRUIT

Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn out soils and Maintains and Increases the Fertility of good soils.

Write for Our Literature.

United States Phosphate Co.

405 Marsh-Strong Bldg., Los Angeles, Cal.
Our Mines are Located in Utah, Idaho and Wyoming.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

EUCALYPTUS SEEDS.
Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each, 4 for 50c. Special prices on large quantities.
THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

Improvements in the way of a new dried fruit plant, machinery, and equipment are being made in the Kings County Packing plant at Armona in preparation for a heavy run this season.

Shipping Fresno dried fruits to South American countries is one of the means of disposing of the surplus crop under consideration by the Peach Committee of Fresno. The California Cured Fruit Exchange has taken an interest in the work of the committee, sending a representative to their meetings.

GRAIN AND FIELD CROPS.

If the proper support is received from the citizens of Colusa, the Colusa Rice Milling Company will build a rice mill there.

The 1915 bean contest among the members of the agricultural club of the Salinas High School has commenced. It is under the auspices of the University of California and the U. S. Dept. of Agri., and the winner will make a trip to Washington.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.

Absolutely free of scale and insect pests. In exceptionally vigorous condition. Large stock of both Olive and Citrus Trees. Grown in our own nurseries.

Orders Now Being Booked.

Write for prices and particulars.

THE RICE CITRUS NURSERIES.

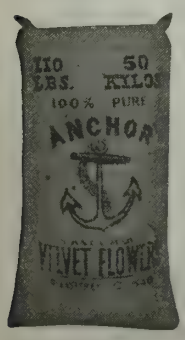
Main Office:

608 Haas Bldg., Los Angeles, Cal.

Phones A 3029; Main 3252.

Nurseries: Lindsay, Cal.

Phone: Farmers 1235.



SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy, the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET, also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.

624 California St., San Francisco, Cal.

Frank Troxel is planting two carloads of spineless cactus slabs near Elk Creek.

Marysville shipped the first cucumbers from that district on May 27.

MISCELLANEOUS.

A colony of Vedalia, the Australian lady bird beetle, is expected from the State Horticultural Department by Fred K. Howard, county horticultural commissioner of Kings county, for use in eradicating cottony cushion scale.

A saving of $350,000 a year in raisins and $55,000 on fruits and other commodities will be made by the growers of the San Joaquin valley under the new rates applied for by the Southern Pacific Company in a petition to the Interstate Commerce Commission.

An arrangement of lights which gives the effect of rain succeeded by sunshine in quite a realistic way attracts attention to a bungalow at the Panama California Exposition at San Diego, surrounded by a well-kept lawn, with mountains in the background, and a generous fence of rows of Pioneer Roofing.

"I'm getting five times as much feed per acre from several acres of prune orchard sowed last Septembe to purple vetch inoculated with bacteria as I am from two acres sowed beside it at the same time in the same way and grown under the same conditions except that it was not inoculated," says A. P. Marston of Santa Clara county.

Of interest to music lovers are the announcements that on May 18 to July 12 Conway's Band will give daily concerts at the Panama-Pacific Exposition; May 22 to July 24, Sousa's Band; June 17, massed band concert, Sousa, Conway, and Cassasa; June 18, Swedish Singers of the Pacific Coast, concert; June 30, concert by the California School for Blind.

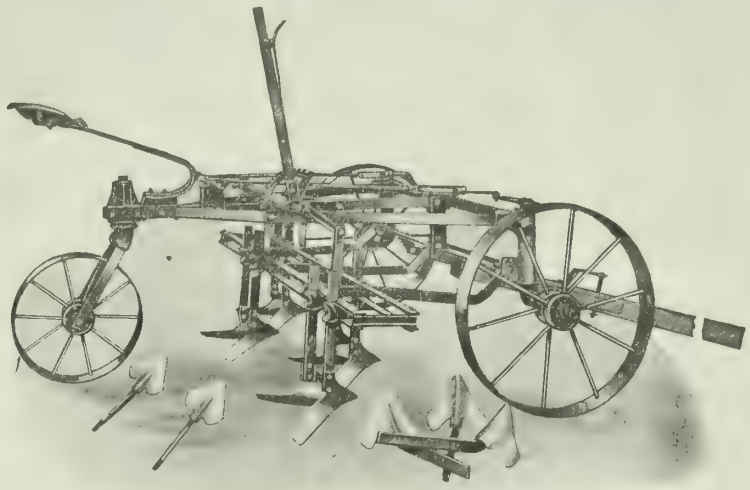
A soil survey of the Russian River Valley, California, is being made by representatives of the Bureau of Soils of the U. S. Dept. of Agri. A few months after the completion of the investigation, a map will be made showing the kinds of soils and their location, the location of the principal roads, schools, churches, railroads, and water courses, together with a complete report on the soils and what they are good for.

A remarkably complete topographical map of San Francisco bay and the hills surrounding it has just been published by the U. S. Geological Survey and may be purchased from them at Washington or from San Francisco dealers. It shows with minute detail the layout of San Francisco and the transbay cities, the hills of the Peninsula, and the country back of Oakland, as well as lower Marin county and part of Petaluma creek.

Canneries do not want sunburned or withered peaches, which happen when the foliage is light. It makes dark spots on the meat which show through the skin sometimes 1½ inches in diameter. It behooves peach growers in hot sections to apply enough fertilizer, irrigation, and cultivation to produce vigorous foliage. And this is not all; if a tree cannot make good foliage its behavior the following year is not likely to be profitable.

Beet and Bean Hoe Cultivator

Killefer Quality — Killefer Efficiency



The frame of this Cultivator is made of one continuous piece of high carbon steel with a truss connecting it to the main castings, supporting the two steering wheels. This construction make a cultivator that is almost impossible to break down in the center and in consequence the wheels are always in line and under easy control.

The lower frame or tooth bar is from the same quality of steel, with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows.

The foot control of the front wheels is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns. An important item for the beet-grower is that the sweeps, hoe steels, chisel points and all repair parts, are carried in stock. You do not have to wait for them to be sent from the Eastern manufacturer.

Four Row Beets. Two Row Beans.

The Killefer Manufacturing Company

2209 Santa Fe Ave. . . Los Angeles, Cal.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of **ALFALFA, BEANS,** Peas, Vetch, and ***all other Legumes***—inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

TRADE MARK REG'D DEC. 6, 1899 NO. 32212

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans

Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the ***original*** Pure Culture—***a granular*** medium (***not*** a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take ***no*** nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN" — the ***Original*** Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for ***any*** legume.

See your seed dealer or write for FREE BOOKLET.

Armour Fertilizer Works, Dept. 137, 803 Central Bldg., Los Angeles; 1019 Front Street, Sacramento

GOLDEN GATE WEED CUTTER AND MULCHER

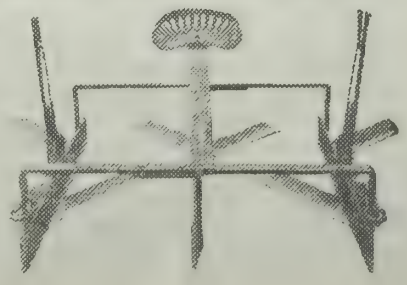
Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.

See them at the Exposition, Block 1, Agricultural Palace.

Write for Circular.

C. G. SIGURD,

CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



Rural Credit on "Building and Loan" Plan

The statement comes from Topeka that the new rural loan law promises to become popular in Kansas. More than a dozen associations already have planned to operate under it and many more have written to the state banking department for information as to how to proceed. In effect the new law extends the operation of the building and loan associations to the farms. It enables them to make long time loans on farm lands.

During the many years building and loan associations have been operating in the larger towns they have enabled thousands of laboring men to acquire homes. Now it is proposed to enable people to buy farms through such associations.

"The new law will be of special benefit to farm renters," said the Kansas bank commissioner. "In the past the renter has been greatly handicapped in acquiring a farm of his own. Farm mortgage companies have had a rule to loan only 50 per cent on land. Some of them even fixed the limit at 40 per cent.

"As a result a renter would have to accumulate enough to pay for half the farm before he could buy it. That meant a long, tedious drag for him. Under the new law an association can help him acquire a farm for about the same amount of ready cash that is required to buy a good home in a city. In other words, if he wants a small farm, he will only have to advance from $500 to $1000. The larger the farm the more advance money he must put up, just as buying a house in town. The integrity and industry of the renter will be taken into consideration in making the loan."

Many retired farmers are planning to invest their money in such associations. It promises good returns and the investment is regarded as absolutely safe. The system also will enable the retired farmers to dispose of their farms to their tenants.

VENTILATE ROLLED BARLEY.

To the Editor: How long can rolled barley be safely stored and what is the best way to store it?—F. L. L., Bethany.

[Answered by Scott, Magner & Miller, San Francisco.]

[Rolled barley is usually stored in sacks ready for shipment, while whole barley is often stored in bins in bulk. Rolled barley absorbs moisture much more easily than whole barley, and so must be stored to prevent collection of moisture and development of mold and heat. When rolled barley leaves the mill, it is hot and must be cooled off before storing closely. The best way is to stand the sacks on end with space for circulation of air until thoroughly cool. Then if stored in a dry place where moisture cannot come up from underneath, it may be safely piled four or five sacks high, standing the sacks on end in winter time, leaving space between the stacks for circulation. In summer, if dry and cool before storing, it can be piled higher and closer together. Too much weight on the lower sacks if they are damp would pack them and have greater tendency to make them spoil.]

[We would roll it in small quantities for early consumption on account of the acari, mites too small to see until they have multiplied into millions. They may be avoided by thorough cleaning of the storage house and perhaps fumigation with sulphur two or three times before using if previously infested. — Editors.]

WHEAT ACREAGE IN THE WORLD, THE U. S., AND CALIFORNIA.

[Written for Pacific Rural Press.]

Continued wet, cool weather all over the State is making the winter sown crop loom up very favorably.

No more full cargoes have been shipped since last week, largely on account of the scarcity of ships, and the high freight rates. There is no question that Australia would use large quantities, if boats could be obtained.

The U. S. Department of Agriculture estimates 41,263,000 acres of winter wheat in the United States, whose condition on April 1 was 88.8 per cent of normal, as compared with 95.6 per cent April 1, 1914, and 87.6 per cent for a ten-year average. One hundred per cent condition would mean an average of 16.9 bushels per acre for the United States. The California acreage is estimated at 10 per cent greater than last year, or 463,000 acres, whose condition was 95 per cent on April 1, the same as last year.

The world acreage in wheat seems not to have been increased. United States, British India, and Canada have eight and one-half million acres more than last year, but the contending countries of Europe, which usually have about 55,000,000 acres may have reduced their acreage by more than that much. England, Germany, and Russia have not reduced much, but France, Austria, and Servia, whose normal acreage is 29,000,000, may have considerably less than usual.

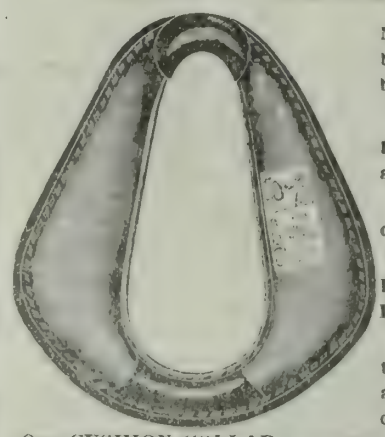
STACK-SILOING ALFALFA.

To the Editor: I write you for information about stacking green alfalfa. Some say if stacked too green it will burn up. Others claim if salted it will not burn but make excellent cow hay. But can you tell me how green and how much salt to use to get this semi-silage stacked hay?—O. A. P., Stratford.

[Stacking green alfalfa for silage is wasteful because the outside foot or two must rot in order to form the air-tight cover which is in modern days supplied by the silo. Wherever the air penetrates in the stack, you will lose your alfalfa. It is not likely to burn when stacked outdoors, though we think that salt has very little effect on the burning. Salt, however, is good for stock if not spread on too thick. It would be better to use far too little than any too much in stacking alfalfa.—Editors.]

It is reported that the Dairymen's Associated Milk Co. of Washington will build a $75,000 condensed milk factory at Salida, Stanislaus county. Work on the buildings will start immediately and it is expected that the plant will be ready in six months.

BEWARE OF CHEAP, EASTERN MADE HORSE COLLARS



More shoulders are being ruined by poorly-constructed collars than by the work the animals are doing.

W. DAVIS & SONS' FELTFACE COLLARS are guaranteed to prevent sore shoulders.

Look for the felt at the edge of the stitching.

Made to sell as follows:
FELTFACE, medium draft, $5.00
FELTFACE, heavy draft... 6.00

If your dealer does not have them, we will tell you where they are to be had, or send direct if no dealer is within reach.

Our CUSHION COLLAR, a canvas and leather Boston Team Collar, is now to be had for $3.00.

ANOTHER GOOD SORE-SHOULDER PREVENTER.

A selling agent (dealer) in nearly every town. If none in your town, write us.

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.

California's Largest Manufacturers of Harness, Collars, Saddles.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade of pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornbyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal

"THE NAME GIBSON INSURES QUALITY."

Hillcrest Stock Farm

THORNTON S. GLIDE, Prop., Davis, Cal.

Breeder of

Short Horn Cattle

Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

22 Hereford Bulls 22

AT SACRIFICE

These bulls were purchased in the East, to be used on pure-bred Hereford cows to produce range bulls. The owner having sold his ranch with the cattle on it, has now no use for this load of bulls, and will sell them at a sacrifice. Their ages run from 20 to 24 months, registered tuberculine tested, and are splendid individuals. Will sell in lots to suit purchasers.

For particulars, address

W. M. Carruthers

218 Hearst Bldg., San Francisco.

Alfalfa and Artesian Water in Desert.

[Written for Pacific Rural Press.]

After sinking $600 on a homestead and having to give it up because he could not spare the price of developing sufficient water, B. Rozenski took $1200, a cow, a horse, and the carpenter's trade to the desert Antelope Valley in Los Angeles county. He bought 20 acres of sagebrush near Lancaster at $25 an acre on part payments in July, 1907. He put up a shack to sleep in, leveled two and one-third acres, sowed alfalfa, borrowed irrigation water to give his alfalfa a start that fall, cut eight or nine tons of hay the next year, and fed it to his cow and horse. He sold five or six pounds of butter per week from the cow, and worked at his carpenter trade among the neighbors and townsmen.

The year after buying the place, he developed his first artesian irrigation well and sowed six acres more of alfalfa. The following year he bought another cow and made eighteen and twenty pounds of butter per week.

Has Made Good.—Last winter, when the Pacific Rural Press representative visited Mr. Rozenski, he had a good looking home with plenty of room for himself, his wife, and daughter. He had erected the house at odd times during the past three years when he had money to spare. On the occasion of the visit, he was erecting a big barn to shelter his eight grade Jersey and Ayrshire cows, a bull, six yearling heifers, a bunch of eight calves, four horses (of which one is a colt). He also had two Poland-China sows and five shoats. There were eight acres sowed to alfalfa and he planned to sow ten more. He has put down two artesian wells at a cost of nearly $500; one was sunk 147 feet deep in 1908, the other 280 feet deep in 1911. Another will be drilled 500 feet deep at a cost of about $600, for the ten acres yet to be sown. These wells flow in summer as well as in winter. Mr. Rozenski has kept up his payments on the ranch, being in debt only $250 now with all his improvements paid for. He made it all from his work at the carpenter trade and from his ranch income. He raised alfalfa to feed his cows, has sold milk, butter, and vegetables in Lancaster.

He has a concrete-block milk house, ten feet square and seven feet high in which he skims whatever milk is left over, with a hand separator, and ships the cream to Los Angeles or makes butter from it.

About all his expense is for the living and ten tons of hay which must be bought to tide him over the winter when the alfalfa is not growing much.

The hogs are raised on alfalfa leaves picked up from around the hay stacks and mixed into slop with skim milk. They are fattened with one or one and a half sacks of corn which must always be bought.

The calves suck a week in order to give them a good start and are then fed fresh warm separator milk.

Well Pleased.—"I wouldn't take $8,000 today for what I have, but wife and I are workers, and daughter is, too. It is a lot of work to fix up a ranch and a man must have money to live on while developing it. One ought to have $4000 to start on, though less would be enough if water is easy to get. But after the ranch is fixed up, it makes an independent living which beats any other kind of work."

Mr. Rozenski has money with which to buy stock when he sees a bargain and has hay to feed it so he can dispose of it whenever a profitable chance comes. This, with his milk, butter, and vegetables, and the little carpenter work that he does now, makes him a good living on what was a few years ago dreary sagebrush desert.

How the Alfalfa was Sown.—Before sowing his alfalfa, he plowed up the sagebrush about eight inches deep, leveled the land with a Fresno scraper, wet it thoroughly, cultivated it as soon as he could get horses on, seeded it at once with a hand seeder, sowing twenty pounds of alfalfa seed per acre rather than the usual sixteen, and about the same amount of barley with the alfalfa. Then he harrowed the piece and got a good stand which has never been reseeded except a couple of spots requiring five or ten pounds of seed. The alfalfa is renovated every spring with a spike harrow instead of a disk, which would cut the plants. The spikes dig up the ground, cut out most of the foxtail so that this weed is not nearly so bad as if he did not renovate.

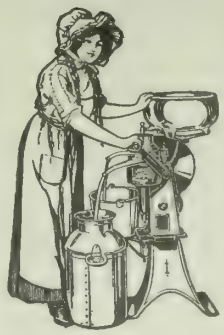
Irrigation comes sometimes in February and most always in April. Usually the best hay for the cows is cut in May and later. Much of it will be stacked under cover in the new barn handy to the cows and in front of them.

Antelope Valley still looks quite dreary, but with more of such settlers it could be made into a very productive farming country; for in all directions from Lancaster may be seen the flowing artesian wells.

GROWS PIG FEED ALL YEAR.

Winter feed for hogs, which was a serious drawback to hog raising heretofore, has been solved by Henry Webb of Madera county, according to Farm Adviser T. C. Mayhew, who reports the following:

Mr. Webb planted 7 acres of barley and vetch and 3 acres each of mangels and turnips in October, 1914. He pastured his brood sows and pigs on the barley and vetch, 55 in number, for 3 months, feeding the turnips with it. The pigs were changed to alfalfa pasture and beets March 20. The barley and vetch were then irrigated, and have made an excellent crop since then. He now has returned the pigs and older stock to this crop to harvest it, and is also trying to feed the enormous crop of mangels. The land will be cleared for feterita and cowpeas in June. All the pigs have made a very good growth and are in excellent condition to be fattened on the spring barley. Field corn, feterita, cowpeas, soy beans, and alfalfa will be the crops raised this summer. Mr. Webb says he can more than double the stock this year. Five of his neighbors are copying his work and many farmers have visited his ranch recently. We are planning an excursion out there with the directors of the Farm Bureau at their next meeting.



SEEING the Difference BETWEEN THE DE LAVAL AND OTHER Cream Separators

IT DOESN'T TAKE AN EXPERT knowledge of mechanics or a long working test to tell the difference between the De Laval and other cream separators.

ON THE CONTRARY, WITH A 1915 De Laval machine placed beside any other separator the difference is apparent at first sight to the man who never saw a separator before.

IF HE WILL THEN TAKE FIVE minutes to compare the separating bowl construction; the size, material and finish of the working parts, particularly those subject to wear and requiring to be occasionally taken apart and put together; the manner of oiling, and everything which enters into the design and construction of a separator as a simple durable machine, he will still further **see the difference.**

IF HE WILL GO A STEP FARther and turn the cranks of the two machines side by side for half an hour, particularly running milk or water through the bowl, he will see still more difference.

AND IF HE WILL TAKE THE two machines home, as every De Laval agent will be glad to have him do, and run them side by side in practical use, the De Laval one day and the other machine the next, for a couple of weeks, he will see still greater difference in everything that enters into cream separator practicability and usefulness.

THE MAN WHO TAKES EVEN the first step indicated in seeing for himself the difference between the De Laval and other cream separators doesn't put his money into any other machine one time in a thousand.

THE COMPARATIVELY FEW buyers of other separators are those who merely read printed matter claims or listen to the argument of some dealer working for a commission, and who do not think it worth while to **see the difference** for themselves

THE WISE BUYER OF A CREAM separator today does see this difference when buying his **first** separator, while the unwise or careless one usually finds it worth while to do so when he comes to buy a **second** cream separator a year or two later.

EVERY DE LAVAL AGENT CONsiders it a privilege to show the difference between the De Laval and other separators, and to afford every prospective buyer the opportunity to try out and prove the difference to his own satisfaction, if on first examination he feels the slightest doubt about it.

THAT'S THE REASON WHY four buyers out of five are buying De Laval Cream Separators in 1915, and why the use of De Laval machines will, before long, be nearly as universal on the farm as already is the creamery and milk plant use of power or factory separators.

De Laval Dairy Supply Company

165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

CAUSTIC PREVENTS HORNS.

To the Editor: Will you kindly tell the best method of dehorning young calves when the horns are just budding out? Is there a preparation that can be applied to stop the growth?—Subscriber, Bethany.

[One method of removing horns is to apply caustic potash to the budding horn as soon as it can be felt beneath the skin on the head of the calf. The hair should be clipped off, the skin over the horn wet and then rubbed with a stick of caustic potash (the fingers being well protected from it). In applying the caustic, care should be taken to cover the whole surface. After the horn is well started, it is difficult to remove with caustic. A small gouge is sometimes used to remove the immature horns. Another way recommended by Dr. Wintringham is to take a sharp knife and cut out the horn stubs, being sure to cut away the horn-forming tissue at the base of the horns, then apply Stockholm Tar.

The Western Meat Company recently purchased five hundred head of steers from the Oakdale district.

Hopland Shorthorns
Hopland Berkshires

All Stock Registered.
Bulls of Highest Quality
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.

Hopland Stock Farm
HOPLAND, CAL.

RHOADES & RHOADES
Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

Durocs Cholera Immuned

Durocs out of R. D.'s Beauty, U. F. Advance, and other prize-winning strains. Good individuals at right prices. Shipped to you before you pay.

ED. E. JOHNSON, TURLOCK, CAL.

Blake, Moffitt & Towne

Dealers in PAPER — 37 FIRST STREET, SAN FRANCISCO — Blake, Moffitt & Towne, Los Angeles — Blake, McFall & Co., Portland, Oregon

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

Querists must sign full name and address to all communications. We publish only initials.

PREVENTING SELF-ABUSE.

To the Editor: Can you advise me what to do for a bull that masturbates?—M. F., San Francisco.

[This is a bad habit to break an animal of. Mechanical means are the only methods which offer any hope of results. Prevention of erection or pain on erection are the two methods open to use. A sack-like wire screen held in place over the penis by girths and straps answers the purpose of the former method, while the latter method may be accomplished by making a leather pad through which nails are driven and holding this just in front of the penis with the sharp points projecting downward.]

SODA FOR NON-CONCEPTION.

To the Editor: I am a constant reader of the inquiries of the Press and I notice several ask what is wrong with a cow that has been taken away to mate so often and does no good. We had two cases of the same kind. One we had taken away several times and I spoke to a neighbor about it. I thought she could not be got with calf on account of having had abortion. He told me she was in perfect condition, only dirty. He told me to take one tablespoonful of baking soda when she came around again, dissolve it in a ten-pound pail of water as warm as you think a cow can stand it, and run your hand inside of her. Grease your hand so you won't make her sore. Clean out clean; then take your syringe, use entire 10 pound pail of water slowly so she can pass it out after each syringeful. Let her stand for one hour after washing. Take her then and let the male serve her and you will not have any more trouble. This remedy saves doctor's bills.

Ceres. H. H. Ward.

[There is no doubt that bicarbonate of soda is of aid in certain instances of non-conception where the secretions of the vagina have an acid reaction. Semen is neutral or alkaline in reaction; and its contained spermatazoa are easily destroyed by acid substances. It therefore stands to reason if from various causes the secretions of the female are of an acid nature, conception will not take place, but if these discharges are neutralized by the use of soda bicarbonate, conception will take place provided the acid condition is the primary cause to be overcome.]

CALVES BREATHE HEAVILY.

To the Editor: I had 18 calves, one of which died. They are from six weeks to three and a half months old. They are all affected with some sickness, three or four worse than the others. They are fed skim milk and grass. They breathe heavily, but eat good and chew their cud.—Subscriber, Elk Grove.

[Get a thermometer and take temperatures per rectum. Separate all those who have a temperature over 102.5 degrees. Give sick animals one ounce doses aromatic spirits of ammonia three times daily.]

FIRE RING BONE.

To the Editor: I have a horse nine years old that has a ring bone on its fore foot of about one year's standing. Can it be cured or lameness reduced? If so, how should he be treated?—Subscriber, Sebastopol.

[Have this fired and blistered. If this does not entirely relieve the lameness, have animal shod with a roller shoe which will make it serviceable.

BLISTER FOR DISTEMPER.

To the Editor: We have a young horse that got distemper last January and whenever she runs or works she has a thick, heavy breathing. A swelling first broke under her throat and then one formed on her breast, which we had lanced. Otherwise, she seems to be in perfect health. What can be done for her?—A. A., Escalon.

[Apply a good blister to the throat such as the following: Powdered cantharides, 2 drachms; red iodide of mercury, 2 drachms; lard, 3 ounces. Rub this in well and wash off at the end of 48 hours, and apply vaseline. If this does not relieve trouble in one month the only remedy left will be an operation for roaring, which should not be performed until animal is 6 years old.]

Boys of the high school agricultural club of Woodland are raising purebred hogs for their annual contest.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also gandsons of the world's record cow, Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

REGISTERED HOLSTEIN BULL—Age 2 years. Has had very light service. Fine individual. W. S. Murphy, Milpitas, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BARGAIN—A Holstein Bull Calf from same dam as 26-lb. A. R. O. Cow. K. W. Abbott, Milpitas, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Roung males for sale. O. J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested Linwood Farm, Santa Cruz, Cal.

HIGH GRADE GUERNSEY Bull Calf for sale, $25. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAllister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

W. H. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Pe kins, Cal.

FOR SALE—Registered Short Horn Bulls. L. A. Macomber, Tipton, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sac amento county, California.

BEST BIG TYPE Duroc Jersey sows. Will farrow from "Red Wonder" or "Chief." As we must have money we are selling these fine thoroughbred sows at sc ub prices. You can make 500 per cent in one year. Order at once. Also pigs ten weeks old very cheap. Pedigree sent with each animal. Western Hog and Land Syndicate, 919 Hearst Building, San Francisco.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by **Iowa Wonder**, who is a son of **A. Wonder**, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corco an, Cal.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

GOLD MEDAL HERD DUROCS—Weaned pigs, either sex, from prize-winning sows and boars State Fair, 1914. I have Grand Champion sow, Champion sow bred by Exhibitor, second prize boar. Pigs of these sows, mother and sisters. Priced right. Elmer Lamb, Ceres, Cal.

BERKSHIRES—Headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Farm at San Mateo. Address W. M. Carruthers, 218 Hearst Bldg., San Francisco.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D McCarty, 201 Sansome St., San Francisco.

BLATCHFORD'S PIG MEAL weans easily and safely no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D W. Hobson Co., 819 J St., Sacramento

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif

REGISTERED BERKSHIRE SWINE— All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A B Humphrey, Prop., P O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale From $15 up. Chas. E. Hanna R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son Morgan Hill, Cal.

BERKSHIRES—Bred for size and bone and quality Herd boar won gold medal at Nevada State Fair, 1913 Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

25 POLAND CHINA SPRING BOARS—Jan., Feb., March, farrow. Prices, registered and crated, $20, $15, $10. Edwd. A. Hall, Watsonville, Calif.

REGISTERED POLAND-CHINAS—Prize-winning Nebraska stock. Large type. Young pigs for sale. Hale L Ma sh, R. 4, Modesto, Cal.

HAMPSHIRE SWINE—Registered weanling boars. Choice, se'ected stock. Add ess C. B. Laughlin, Mark West, Sonoma Co., Cal.

BERKSHIRES—Young boar and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 172 Santa Rosa, Cal.

BERKSHIRES—Utility and Choice Registered Pedigree stock Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED POLAND-CHINA HOGS—Large and medium type. As represented or money back. W. A Young, Lodi, Cal.

REGISTERED BERKSHIRES for sale. All ages Boars ready for service. Stanislaus Ranch Co., Crow's Landing, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows Six months gilts and boars. S. S. Southworth, Napa, Cal

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock In State. $30 up. M. Bassett, Hanford

REGISTERED BERKSHIRES—Young stock for sale John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS — Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal

REGISTERED DUROC-JERSEY SWINE—Las Palmas Ranch, El Cajon, Cal., M. S. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington

REGISTERED POLAND-CHINAS—Young stock for sale Hewitt & Hewitt, Hardwick, Cal.

READAKS RANCH herd of registered Poland Chinas W. J., Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

REGISTERED O. I. C. SWINE—C. D. CONWAY, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller. Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boudler & Son Napa, Cal.

REGISTERED DUROC-JERSEYS — T. H. Beckman. Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electric car at Santa Rosa or Petaluma for Live Oak.

J. H. GLIDE, Dixon, Cal., Breeder of French Merino and Shropshire sheep. Stock for sale at all times.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. R. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets, Hanford, Cal.

MISCELLANEOUS.

OWING TO THE MANY requests of our customers to give them information as to where they can buy or sell dairy stock, we have established a livestock bureau in connection with our office. For anything in this line write us. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. O. I. Sayre, Madera, Cal.

FOR SALE—1 to 100 mules from 1 to 7 years old Will trade for cows or heifers. Holsteins preferred C. A. Kelley, R. 3, Box 93, Lodi, Cal.

Get your harness dealer to dip your harness occasionally in Eureka Harness Oil. Costs little and is quickly done. But it will save you many a dollar.

EUREKA HARNESS OIL

adds years to the life of your harness; and good harness costs money. It's poor economy to leave it at the mercy of sweat, dust, moisture and heat—leather's worst enemies. If you prefer, you can apply Eureka yourself by hand. Dealers everywhere sell it.

Standard Oil Company
(California)
San Francisco

With the Live Stock Men.

DAIRYING.

Five hundred gallons of cream daily is the amount shipped from Angiola by the Los Angeles Cream Supply Company, which recently began operations there.

A carload of Holstein cows was recently purchased from the Santa Ysabel Dairy of Paso Robles by J. L. Napton of Roseburg, Ore., and shipped to Montana.

Fred Hart of Exeter purchased fifteen head of grade Holstein heifers and a purebred Holstein bull at the Geo. A. Smith auction sale at Corcoran.

Two representatives from the Churchill Creamery, Inc., of Fallon, Nev., are in Yolo county for the purpose of purchasing dairy stock as an addition to their herds.

Last week a meeting was called by the Dairymen's Association of San Joaquin to which all the dairymen of the county were invited to hear lectures by Prof. True of the University Farm and Dr. B. C. Cady of the U. S. Dept. of Agri.

HORSES AND SWINE.

Mr. R. B. Peters of the firm of Peters and Lamson, who own a large herd of purebred Duroc Jerseys near Holtville, Imperial county, called at this office last week on his way to Napa county in search of registered Duroc Jerseys. Mr. Peters stated that conditions in Imperial valley are improving, the cotton market being firmer, and the beef men feeling more secure now that no quarantine has been placed on cattle from Arizona by this State. He states that there is a bigger demand for purebred hogs than ever before and that the breeders of the valley are unable to supply it at present. His firm has 75 registered sows, keeping about 700 head of hogs altogether. Mr. Peters thinks that the valley has a great future for hog raising now that the farmers have learned to feed better and protect themselves against cholera by the hog cholera serum, which is now manufactured at a plant in the valley.

CATTLE AND SHEEP.

An auction sale was recently held at Portland, Ore., of the Roselawn herd of Shorthorns, formerly the property of T. B. Gibson of Woodland. The averages of the sale are as follows: 58 bulls sold for $12,620, average $207.58; 31 females sold for $6,105, average $196.80; 89 head sold for $18,725, average $210.39.

MISCELLANEOUS.

A successful auction sale was held recently by Geo. A. Smith at Corcoran. The 75 head of high grade cows and bred heifers averaged about $100 each, some going as high as $112.50. Registered bull calves brought as high as $100. About one-half of the registered hogs were sold, $30 being the highest price paid for an individual hog.

During the summer of 1915, 12,000 cattle and horses and 25,000 sheep in round numbers will graze on the El Dorado National forest; 4,197 cattle and horses and 4,950 sheep will run within the Caldor district; 3,636 cattle and horses and 7,105 sheep will graze within the Georgetown district; 3,985 cattle and horses are pastured within the Pacific District, together with 12,325 sheep.

Receipts of the Portland Union Stock Yards for the week ending May 27th were: Cattle, 1687; Hogs, 2582; Sheep, 3699. While the cattle run was not heavy, the demand was somewhat lighter. Good light killers sold at $7.30 to $7.50; cows, $6.35 to $6.60. Hog prices declined to $7.75. Yearlings sold at $7.00; ewes at $5.50 and the highest price paid for lambs was $8.25.

The latest addition to the livestock exhibit at the Panama-Pacific International Exposition is in the form of 11 registered Shire horses by the Blackhawk Stock Ranch of Easton, San Mateo county. Included in the exhibit are the stallions, Dovecote King and Blackhawk Barn King, both recent winners in England, where they were imported direct by Manager Ward. The stud will be on exhibit from now until the competition for prizes starts in the fall.

The Carnation Stock Farms with California headquarters at the Panama-Pacific Exposition grounds report that they have made the following sales in the past week: 100 cows and heifers and two bulls to the Owens Registered Hog and Cattle Association, San Joaquin county; a bull to Chas. Wm. Lucas of Honolulu; a bull to E. M. Brown of South San Francisco; 5 registered heifers to a prominent Los Angeles breeder; and 5 Guernsey cows to L. D. Smith at Berkeley. The above report indicates that there is a tremendous demand for high class stock in this state at this time.

Alfalfa twenty-four inches high from seed in two months is the record made by G. H. Kilbeck of Oakdale. The seed was not inoculated and the land was only the average.

Mr. Dairyman and Farmer

You Are Interested
in any plan which actually means an increased profit from your labor. The medium through which you may realize the maximum net returns from your investment is

PORTER
Perfect Barn Equipment
hence you are overlooking an opportunity if you fail to send for complete catalogue today. IT IS FREE.

Detailed blue print floor plan furnished without obligation if you will advise us of your needs; thousands of barns have been equipped with

The World's Standard Line
of fixtures which are high grade and strictly sanitary.

Our barn plan experts can offer many valuable suggestions regarding the economical and efficient arrangement of your barn, whether you expect to build or remodel, and their experience is placed at your disposal.

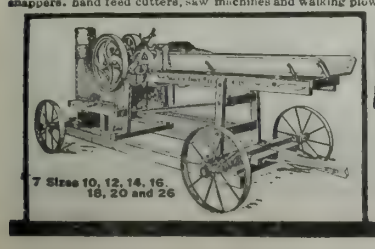
PORTER EQUIPMENT means the best barn equipment money can buy; such an installation assures a clean and sanitary barn, cow comfort which increases the milk yield, less labor, thereby solving an important problem, and finally added profits which are acceptable to all.

Send in Your Requirements Now
J. E. PORTER CO.
642 Fremont St., Ottawa, Ill.

Your Silo Will Pay

you more profit if you spend less for *cutting* and *filling*.
Save the day wages and board of at least *one* hired man by getting a *Smalley*—the only *real* self-feeder—the only machine with Grip Hook and Paddle Roller outfit.
Save costly *breakdowns, repairs* and *delays*. Smalley machines are built to stand the smashing work of silo filling. They are one-fourth heavier than others and have *steel* in their castings. Sixty years of honesty and capability behind each Smalley Filler.
Even on Gas and Kerosene we make you a saving. That's because of our low speed chain-drive blower.

Smalley
Grip Hook Silo Filler
Send for Free Book that tells all about the remarkable construction of Smalley machines; and names of well-known users. Sample of Alfalfa Meal, ground by our new recutting Device can also be had for the asking. Write
PACIFIC IMPLEMENT CO., San Francisco, Cal.
We manufacture a complete line of silofillers, alfalfa cutters, corn snappers, band feed cutters, saw machines and walking plows.



Building to a HIGH Standard, Not Down to a LOW Price
IS OUR MOTTO.

If a better silo than the
Ideal Green Feed Silo
could be built, we would build it.

Our TWENTY YEARS of practical experience in silo building has enabled us to discover and eliminate the faulty features of design and construction and to manufacture a silo that is a thoroughly practical piece of equipment.

WE COULD CHEAPEN the IDEAL GREEN FEED SILO:
- BY putting on ½-inch hoops instead of ¾-inch.
- BY furnishing a door that would leak instead of the patented refrigerator, air-tight type that is an exclusive feature in the IDEAL.
- BY not furnishing a 3-ply circular plate at the top to hold the silo rigid and round and prevent its collapsing.
- BY not supplying an acid-proof, water-proof paint for the inside of the silo.
- BY making the doors serve the purpose of a ladder instead of furnishing a ladder complete within itself fastened to the silo at one side of the doors.
- BY faulty design and inferior material and construction and omitting a galvanized steel ventilator for the roof.

But if we did, you would not be satisfied with it. A silo to be of any value must be absolutely air and water-tight and of such design, material and workmanship that the shrinkage, while standing empty, can be readily taken up and the silo made just as serviceable as when first constructed without its being necessary to re-build it every year, or to use pitch to chink up the cracks, as is necessary in others.

SEND FOR SPECIAL SILO CIRCULAR B.
Save Your Rusted Grain By Putting It Into An Ideal Green Feed Silo.
DE LAVAL DAIRY SUPPLY CO.
SAN FRANCISCO. SEATTLE.

Copro
Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

Pure Cocoanut Oil Cake Meal
An Economical and Palatable Food For Dairy Cows, Hogs and Poultry

WAR has advanced the price of wheat and other food staples, but it has not advanced the price of Copro. Feeders will find this superior feed the most economical and most nutritious they can buy.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B
PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.

Stock Ranches!

3200 A. open grassy Range. 600 A. level meadows. Water. Good Bldgs. 35 mi. Stockton. Carries 500 cattle. $13.50 per acre.

5000 A. Sonoma Co. Fine range. Water. Bldgs. 200 A. hay land. $10.00 per acre. Will trade for ALFALFA RANCH.

1280 Acres Open Grassy Range. Well watered. Fenced. Finest Feed Carriers. 170 head Cattle. $9.50 per A.

W. W. WILLIAMS,
110 Sutter St., San Francisco

Redwood Tanks
I sell to the consumer, Box Shook and Boxes, Trays, Lumber, Millwork, Doors, Windows, Mouldings, Wagon, Tanks, Spraying Tanks. Independent.

R. F. WILSON, Stockton, Cal.

A Mountain Herd of Holsteins.

[Written for Pacific Rural Press.]

In the heart of California's oldest mining district, surrounded by a country largely taken over by beef cattle growers, the Panama-Pacific dairy at Sutter Creek, Amador county, presents a striking illustration of the inroads which purebred dairy cattle are making on sections which are not commonly supposed to be interested in that class of stock.

To the Holstein-Friesian enthusiast, the sight of black and white herds grazing on cultivated forage plants where once only weeds, chaparral, and Manzanita grew is alluring.

Of the 40 acres of this ranch, 10 have been planted to Peruvian alfalfa, that variety having been found best for that particular climate since it is more thrifty and much earlier than any other that has been tried. Arrangements are being made to build a silo this fall and an effort will be made to raise all that goes into the silo on the ranch. When the present herd is increased to 20 head of females, a milking machine will be tried out.

To quote Mrs. Laura J. Frakes, Secretary of the company, "we are Holstein-Friesian enthusiasts." They made up their minds in the beginning to start with the very best foundation stock that their finances would permit, fully realizing that the demand for purebred sires is rapidly increasing and that the present supply is inadequate to the demand; also that such will undoubtedly be the case for many years to come.

Many of the ancestors of this herd are world record cows, among which is Wooderoft Pontiac Prince Inka, a descendant of Pontiac Korndyke. This bull is showing his worth as a herd sire through his offspring; the calves being remarkably straight and large; the heifers having large udders with a promise of making great cows; while in the sons may be seen all the characteristics of the sire, grandsire, and great grandsire.

There are few purebred undertakings which more completely demonstrate the general recognition that the purebred cow today is receiving by farmers of all districts, and it is to be hoped that more of our mountain sections where dairying is carried on will take up this line of work.

THINKS STEER COMPARISON UNFAIR.

To the Editor: I was struck by the inconsistency of your article "Exhibiting the Most Profitable Steer," in issue of the 15th inst.

In making this comparison, it seems to me the "native" and "Mexican" steers were given very much the worst of it. The tale would be different, had the Angus been raised the same way the native and Mexican were raised, and figured as eight year olds, and the native and Mexican had had the feed and care of the Angus and figured as two-year-olds. How do you suppose the figures would have read under such conditions?

I'm not defending the native or Mexican steer, but your comparison seems ridiculous to me.

If two steers of each breed were raised under exactly the same conditions and judged at exactly the same age, then the comparison would be just and correct. I am satisfied the Angus, Shorthorn and Hereford would greatly outclass the native and Mexican, but that is not the point. "Give the devil his due." The Lord knows the native and Mexican would make a poor enough showing under just and equitable conditions, but such comparison rubs it in a little too much.

Angels Camp. F. J. Martin.

[To a certain extent your point is well taken, as there is no question but that if these steers had all been the same age and all raised and fed under the same conditions, there would have been a marked difference shown by the exhibits. The exhibit, however, is not only made to show the results of breeding, but also what proper care and feeding may do. While the Mexicans and natives may have a place, this exhibit shows quite conclusively that that place is not in the feed lot, or on the average California range. It would have been rather a hard matter to have found cattle with which to make the exhibit ideal as you suggest. Packers simply took two average head of each breed, and we believe that the exhibit teaches a lesson that all stockmen should learn. Perhaps Mr. Martin or some other subscriber has data showing a more just comparison. If so, we will be pleased to print it in order that the "devil may be given his due."—Editors.]

HOLSTEINS AND COLOR.

To the Editor: Will you please tell me how a thoroughbred Holstein bull should be marked; if more white than black, and how his calves should be marked if the mother is not a thoroughbred? I recently bought some cows from parties who told me they were both Holsteins; but they are mostly black, are good milkers and large cows, but are not marked with much white.—A. E., Turlock.

[There is no particular way in which a purebred Holstein bull should be marked. In recent years there has been a tendency among some breeders to favor animals with more white than black, but this is simply a fancy and has nothing whatever to do with the quality of the stock. When a burebred bull is used on grade cows, the calves usually show considerable white, providing their sire also carried considerable white. The cows you bought may both be purebred Holsteins, whether they be marked with much white or not.—Editors.]

INBREEDING INADVISABLE.

To the Editor: What is your opinion of breeding a mare to a horse that is half brother to her? Are they too closely related to expect a good colt?—G. F., Santa Rosa.

[Answered by Henry Whentley, Napa.]

[Unless there is some very good reason for inbreeding in this way, such as inability to get mare to another horse, or exceptionally good individuality on the part of both mare and stallion, I should consider it a mistake.]

The Butte County Spring Exposition was successfully held in Chico last week. Five breeds of cattle were exhibited, the judging being done by Prof. Gordon H. True of the University Farm. Encouraged by the success of the exposition, it is planned to make it a yearly event.

Short Horn Bulls

7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.

H. L. MURPHY, PERKINS, CALIF.

Breeding, Feeding and Gains of Hogs.

To the Editor: Please tell me how old a sow should be before she is bred. What is the best and cheapest ration to fatten hogs on, and how much should be fed daily for the best results? How much should a pig gain per month? On the average, how much should a five month Poland-China weigh?—A. P., Dixon.

[Sows should not be bred to farrow until they are at least twelve months old and many breeders contend that it is better to have them farrow at 14 to 16 months. This means that they should be bred at 8 to 12 months, for the period of gestation is approximately 4 months.

The best and cheapest ration to fatten hogs depends on the market price of feeds. In a general way it may be said that alfalfa pasture is the cheapest and best feed for growing hogs, but should be supplemented with grain. If barley is not too high in price, it should be fed either rolled or ground. Corn is just as desirable as barley, but is not available in many parts of the State at present. When the above are high in price, oats will do, but is rather too bulky to be as valuable to hogs as either barley or corn. Skim milk is valuable for hogs at any age, but is most economical when not more than 3 or 4 pounds is fed for each pound of grain. If pasture is not available, some concentrate high in protein, such as tankage, should be fed with the grain.

The rate of gain made by a pig quite naturally varies with his breeding and age. Henry found at the Wisconsin Station that the rate of gain of pigs from birth was as follows:

Age	Average Gain Lbs.	Per cent Gain
First week	1.9	76
Second	2.6	59
Third	2.8	40
Fourth	2.7	28
Fifth	3.1	25
Sixth	3.0	19
Seventh	4.0	22
Eighth	5.2	23
Ninth	5.3	19
Tenth	5.4	16

He further shows that the older the hog, the smaller the per cent of gain by the following table:

Average Weight	Per cent of Gain
78	7.4
128	6.0
174	5.0
226	4.1
271	3.8
320	3.1

A well bred Poland-China pig at 5 months should weigh 100 to 120 pounds, provided he has been well cared for and properly fed.—Editors.]

WHICH GOAT IS BEST?

To the Editor: My business is cattle raising, but I heard so much about goats paying better acre for acre than cattle that I bought fourteen "hair" goats last February to experiment with in a small way before changing from cattle to goats. Around here, hair goats are said to pay better than the better grades of Angoras; are said to raise more kids; are larger for mutton; and are also hardier. Is hair goat a local name for a mixed Angora and a common goat? The hair goat does not pay to shear; but is some heavier than his higher grade brother, say 35 to 50 cents per head heavier. Now if this is so, and as in a former article in the Press you said the Angoras only averaged 55 cents per head for mohair, it would seem to me that the lower grade of Angora or hair goat would be better to raise, as a man would not have to shear. Being hardier also, this ought to run the difference up to 75 cents per head. I am writing this for information. I want to get the goat men stirred up and I also want to find which is the best goat to raise, the pure or high bred Angora for both mutton and mohair, or the poorer grade of mixed Angora or hair goat just for mutton alone. Also, what do you think about the future of the goat mutton market?—W. T. J., Shawmut.

[It is ordinarily thought that goats cannot compete with sheep on land that the latter would be able to live on, for the reason that the better grade of Angoras shear but three or four pounds of mohair worth about 25 cents a pound, whereas a sheep will shear seven to eight pounds, which at present prices is worth 16 to 25 cents per pound. This, coupled with the fact that goats on good land do not attain any greater weight than sheep, leads most farmers to handle sheep in preference. From our observation, we would say that the well-bred Angoras would be a more profitable venture than the hair goats as they do not cost very much more in the first place; the annual clip of mohair is in their favor; when killed, their skins are worth $1.75 to $2.50 for making chaps, whereas the hair goats' skins are of considerably less value. As to the future of the butcher demand for goats, the present outlook is that mutton will command good prices, and as goats come under this classification, there is every reason for assuming that the market side would be satisfactory. The butcher trade does not desire the older goats, however, and to cater to their wants you should endeavor to turn off your young goats. If any of our subscribers who are raising goats can get stirred up, and, as our subscriber suggests, give more detailed information, we will be pleased to devote some space to their communications. —Editors.]

BEEF-FINISHING PAYS.

[Written for Pacific Rural Press.]

At different times we have given in these columns the results of beef-finishing tests made on California ranches where corn silage and alfalfa hay were the chief feeds used.

In this connection it should be interesting to give data secured last winter by A. S. Goode on his ranch near Bakersfield. While Mr. Goode is among the large dairymen of the San Joaquin valley, supplying as he does the Santa Fe eating houses with milk, he has for the past two years had a surplus of both alfalfa and Indian corn, which he found a market for through range steers.

In October of last year, Mr. Goode purchased several hundred head of native two and three year old steers, the average weight of which was 925 pounds. This stock was placed in the field corrals where they were given liberal amounts of Indian corn silage and alfalfa hay for the first 60 days. After that, 4 pounds of rolled barley was added to each steer's ration, which amount was continued until the end of the feeding in February. In all, the steers were fed for 110 days when the entire lot was sold; the average weight at that time being 1200 pounds per steer, or an average gain per head of 275 pounds for the 110 days.

Considering that no culls were cut out of the corrals, but all went straight through, the gain in this instance was considered rather remarkable and showed a nice profit to the owner.

CHUTE AND LADDER FOR SILO.

Silos should be furnished with a chute through which the silage is dropped to the ground, and it should be large enough to enclose the doorway and the ladder. This chute is said by the O. A. C. dairymen to be of very great convenience in feeding and of value in saving feed. It should be at least three feet square, and preferably four feet. In silos having continuous doors the ladder is formed of the gas pipe spacers in the door frame and the silo hoops. In silos of the intermittent type of door the ladder should be built onto the side of the chute at right angles to the door.

Several carloads of Yolo county's best racing stock recently left there for the Panama-Pacific Exposition to be entered in the meet to be held this month.

Swineland

TAMWORTHS, DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

"The Farmer's Friend"

In Handy Buckets
Also Small Cans
Ask your Dealer

Oak Grove BERKSHIRES
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

HORSE OWNERS! USE

GOMBAULT'S CAUSTIC BALSAM
A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

$1.50 Per Acre
For Rental of Fertile Farm Lands
5,000 Acres can be rented for a term of years at $1.50 per acre per year, and up.
Located 11 miles from Dixon, "the Dairy City" in Solano County. Excellent transportation facilities are afforded by the O. A. & E. Ry. Electric freight and passenger service to all parts of the United States.
Other lands in Solano County, splendidly located, can be leased or rented for various terms of years at low prices.
FULL INFORMATION WILL BE FURNISHED ON REQUEST.
Oakland, Antioch & Eastern Railway
Address L. H. RODEBAUGH, Traffic Manager,
40th and Shafter Ave., Oakland, Calif.

Steady Going
There's satisfaction when your engine hums along without a hitch. And good fuel helps a lot—good old-fashioned gasoline like

Red Crown
the Gasoline of Quality
The kind that's clean, quick-burning, with snap in every drop—every drop the same.
Standard Oil Company
(California)
San Francisco

UTILITY poultry at the Universal Poultry Show in November will be one of the greatest attractions. Thousands of people upon the Pacific Coast and throughout the country are making their living with purebred poultry. These are anxious to know the best methods of selecting the laying hens. For these and other reasons, there has been added a Utility Department. A well-known expert has been engaged to judge the utility poultry. He will give demonstrations in judging and selecting the laying hen each day. An entry fee of 50 cents per bird will be charged for either male or female. The Exposition will give first, second, third, fourth, and fifth certificates or ribbons in several classes.

Utility Purebred Fowls Endorsed.

[Written by Geo. H. Croley.]

Of what value is a thoroughbred horse that cannot walk or a prize cow that gives no milk?

Morris Brooke, owner of a large egg farm in Sacramento county, on which he breeds only purebred White Leghorn fowls, stated sometime ago that he was through with exhibiting at poultry shows. "What benefit do I get," says Mr. Brooke, "by placing my utility fowls in our local shows? True they are purebred fowls selected because of good looks, symmetry, vigor, etc., and their known or indicated ability to produce a large number of big, perfect eggs. And when I have birds on exhibition and am offered for the best of them—which I do not wish to sell—much higher prices than are asked for the prize winners that beat my fowls on "points," it seems to me the present system of judging is out of joint. We want symmetry, beauty, and all that; but unless accompanied by practical merit, these fancy qualities are of little value."

A few days ago when a copy of the statement at the head of this article was shown to Mr. Brooke, he said, "Now, that appeals to me and will be welcomed by many breeders in this locality. As yet we don't brag much about the vastness of our poultry population in the Sacramento Valley, but with this opportunity to show what we have in the way of good, purebred utility fowls, the rest of the State will have to get up early to beat us. You may depend on me to boost for the Universal Poultry Show at the Panama-Pacific Exposition during the next five months. I will make preparations at once to select a good string of my best fowls for this show and will help by encouraging my neighbors and others in the Sacramento Valley to do so."

The above expresses the sentiment of a large number of poultry keepers, not only practical farmers but fanciers as well. The fancy side of poultry culture is decidedly important and desirable; it will be a great step backward not to encourage and give it respectful consideration; it was the fanciers of yesterday who made it possible to systematize the present day poultry ranch, but the practical value of these domestic fowls must not be neglected if the appreciation of poultry shows by the public is to be maintained.

DON'T ASK THIS RABBIT QUESTION ANY MORE.

To the Editor: Will you please inform me through the columns of your paper what ails my rabbits? They are three months old now and up to the time that they were two months old they were fed crushed barley, nice clean oat hay, alfalfa, and bran as a mash once per day. During that time some got the slobbers, but are cured of it now. I took the barley and mash away and fed filaree, clover and occasionally a few turnip and carrot tops. They are now dying off three and four a day from some peculiar ailment. First they appear dull in the eyes and get so weak that they can't stand up. For awhile in the start they lie on their stomach and try to eat. Finally they tumble over on their sides and have fits. That lasts about an hour before dying. I have opened several of them, and found one with hard white lumps on his liver, but all the rest have appeared perfectly sound inside except their bladders, which are full of urine and about the size of a small hen's egg. Just before dying, they seem to make an effort to urinate, but can't.—Miss B. T., Acampo.

[This is Coccidiosis. Mature rabbits seldom die of this trouble, though they are carriers of the disease. Treatment is of no avail and prevention is the only means at our disposal to combat the trouble. Separate the young from the old animals at the earliest date possible, also the sick from the healthy. Disinfect the pens and keep them absolutely clean, as the feces of the affected animals carry the disease.—Editors.]

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

ROOFDEN RANCH Chicks are good chicks the kind that satisfy you in quality and price. Special for June: Our best grade White Leghorns from first-class breeding stock, heavy laying strain. $8 hundred, $70 thousand. Brown Leghorns, quick growers and everlasting layers, $9 hundred. Our R. I. Reds and Black Minorcas at $11.00 hundred are some bargain. Write for delivered prices Safe arrival guaranteed and our interesting circulars Roofden Poultry Ranch, Box 176, Campbell, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay First-prize winners at leading California shows. Eggs for hatching. Baby chicks Wm Larm, 3854 39th Ave., Oakland, Cal.

BARRED ROCK EGGS from Prize strain, extra large vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W Buckley, R D Box 71, West Berkeley.

50 FINE LAYING PULLETS R. I. Reds. $1.25 each. Any number. R. H. B., Box 72, Los Altos, Cal.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H Croley Co., Inc 651-657 Brannan St., San Francisco

SINGLE COMB WHITE LEGHORN Pullets two months old, also breeding cockerels and yearling hens at reasonable prices. Model Poultry Farm, Corning, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorcas and Carneaux Pigeons Susat Swaysgood Route 2 Pomona, Calif.

BARRED PLYMOUTH ROCKS—"The kind that Win and Lay." Choice stock for sale. Catalog free. Chas. H. Vodden, Box 396, Los Gatos, Cal.

PETALUMA HATCHERY—We have chicks every Monday. Five varieties. Send for May and June price-list L. W. Clark, Petaluma, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock Eggs, chickens. Arthur R. Schroeder, Box 179R, Mountain View, Cal

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded Toms recently from East. Inquire today, John G. Moe, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

PIGEONS AND PHEASANTS.

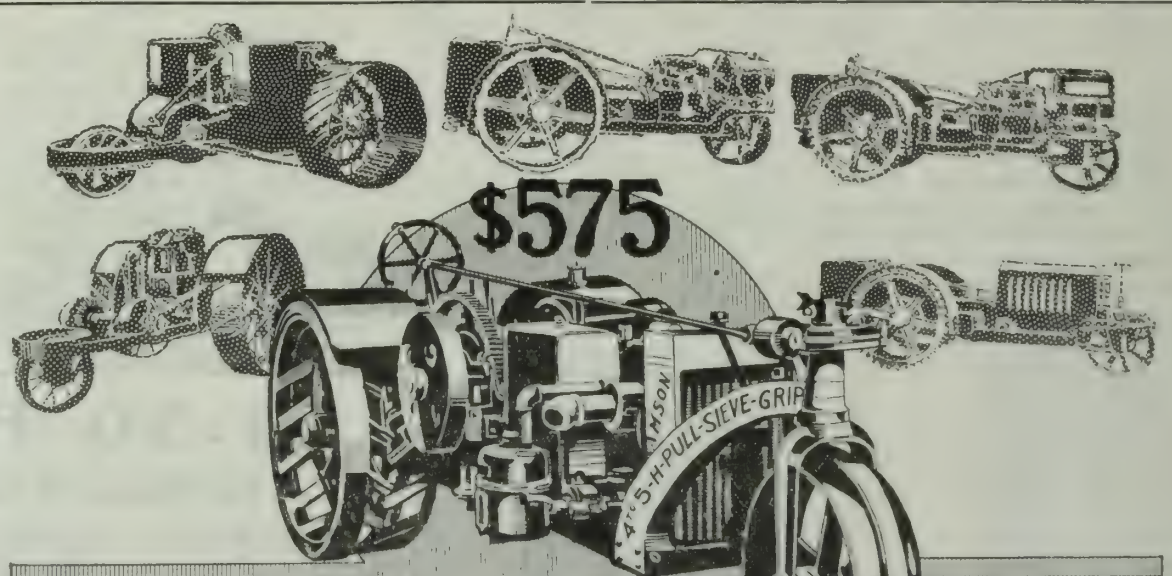
PHEASANTS—Ringneck and Golden. Also eggs. T. D Morris Agua Caliente, Cal.

BELGIAN HARES.

FORCED TO CLOSE OUT entire Rabbitry of 125 Purebred Belgian, New Zealand, Flemish Hares. A bargain in fancy stock for a starter in any quantity. Does $1.00 to $1.50 Young ones 25c to 50c. Must sell within a week. FIR CRAGS RABBITRY, Sonoma, Cal.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M Bosworth, Geyserville, Cal.

BELGIAN HARES Young stock for sale Hurd Bros., St Helena Cal



Six Tractors in One

THE four to five horse-pull Samson Sieve-Grip is the sixth tractor perfected by us in sixteen years. It contains none of the mistakes common to beginners and all of the good points and experience gained in building the five which have gone before.

SAMSON SIEVE-GRIP

The sixth Samson is a strong, sturdy, wholly dependable small tractor. Steel takes the place of cheaper metals wherever needed. Good design and construction, ample power, a motor which has stood the tests of sixteen years and the Samson Sieve-Grip wheel, ours by right of patent, are combined into a machine which will uphold the Samson reputation.

The fuel consumption costs about seventy cents a day of ten hours and oil and grease twenty-five cents each day. One man is sufficent for tractor and tools.

The welfare of Samson owners is cared for by one hundred and thirty-two Samson agents throughout the state. They will respond to your call any hour, day or night.

'The Price of Harness and Two Good Mules", our new book, may be secured on request. Complete mechanical descriptions and full information is contained in it.

Samson Iron Works Dept. B-4 Stockton, Cal.

Farm Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

Moist ground under the poultry house sills, the brooder house, the old store box with the hen and chicks in, the barn where chickens and horses fraternize, and in fact any old place where there is a little piece of wood that smells chickeny, makes a "sure hatch incubator" look like thirty cents when it comes to hatching mites. If you don't look a "little out," the mites will kill your baby chicks this season and you will never be the wiser. When you look in the daytime there is nothing visible; the mites have crawled into their holes.

Don't think that because you clean out at stated intervals your houses are immune—they are not. This weather will breed and hatch out mites almost while you turn around, so get after them in time. Several people have brought chickens to me lately to see what ailed them. I could not find a thing the matter with them except that they were bloodless. Mites had got on the little things during the night and sucked every drop out of them; then, of course, they died. Crude oil and crude carbolic acid together make a good combination for spraying houses that are so troubled, but for brooder houses or boxes where less than week-old chicks must be put, such a spray is entirely too strong. Kreso Dip No. 1, or creolin, either one mixed about ten to one parts, will be the safest and surest for little chicks.

If your little chicks are listless, and do not eat and thrive as they should, look well into this mite business. It is so unusual for us to have this kind of weather that the best of us are likely to be caught napping. Give the grown fowls a little tonic once a week until the weather gets settled, and feed little chicks more dry grain than the usual mash and other things.

Give Fresh Feed.—Be careful to feed only what will be eaten up while it is dry and fresh. Feed left out in wet weather soon sours and then begins bowel trouble. Spade up the ground as often as possible when it is dry enough, and keep the feeding grounds in as sanitary condition as possible. But say, the same conditions that hatch mites will grow green feed galore for your hens and chicks later on when the warm, dry days come.

Nearly every day there are cases brought to my notice of things people do that are so flagrant a breach of all reasonable methods of doing that I almost despair of saying anything to the contrary; but I keep trying to help those who want help and are really willing to do when they know how.

Clean up Old Runs. — The first is, "Don't put little chicks on the same ground one batch has been running on, at least not until you have thoroughly spaded up and disinfected every inch of it." The older stock always contaminate the ground enough that it is unhealthy for younger ones.

If time is given to start some green feed on the ground, it will be perfectly safe to put one flock after another, otherwise it is a risk. Good clean new ground is half the raising of chicks and this should be the aim of every one who wants to raise healthy stock.

The average person just rakes up a little of the rough filth and scrapes out the brooder; then puts the newly hatched chicks into the foul smelling close brooder where every breath they take is laden with the poison from the last hatch. If you value your own time and labor, to say nothing of the money side, don't do it. Spray out the brooder with Kreso Dip, or creolin and water, and move every bit of furniture, such as feed boxes, water vessel, and scald them until they smell wholesome. Having done this and spaded up the ground your conscience will be clear, anyway.

Don't Fill Lamps Full. — When filling lamps for incubator or brooder don't fill them too full. Many brooder houses and fires in dwelling houses have been caused from this one little thing. Firemen say that every spring they are called to fires caused by incubators and brooders, and there is no doubt that in nearly every case the fire was caused either through the lamp being filled too full, or the burner being dirty and the wick old. It costs only one cent to put in a clean, new wick every time the incubator is set, or every time you put a fresh lot of chicks into the brooder, so why take any risks? It certainly is not because any Californian cares about a cent, or even five of them. No, it is not the money, but they look at the little trouble.

I saw a man starting his incubator the other day and my curiosity prompted me to ask him if he did not wash the machine out before putting in his eggs. He said, "No, it is nothing but dry dust and down of the last batch of chicks, and it won't hurt." I said I was not any too sure about the hurting part.

"Why," he said, "what can it do?"

"Well, it can cause diarrhoea in the chicks that hatch from those eggs, because while this appears just dry dust and down, it very likely harbors a good many nests of germs that will find their way through the pores of the eggs."

That set him to thinking, and when I left, the incubator was washed out with a good strong solution of lye and hot water. Creolin or any other disinfectant he did not have, so I told him to use what he had on hand. Most likely he looked on me as a nuisance at that time, but he may think differently some time when he finds out his chicks are better for that little hot water and lye.

On the big poultry ranches everything is clean and sanitary—that is, on the successful poultry ranches. They found out long ago that filth is costly. In time the small poultry man and the farmer will find this out too, but a great many have not done so yet.

Don't forget the lessons on egg losses that appeared in the Press a short time ago. These articles were written by an expert egg handler, who knew what he was talking about, and they were written for the benefit of Press readers who want to make money on their produce. I know a great many people think that it is no use putting themselves to extra trouble, because they won't get any extra price for their produce. These people are just putting a spoke in the wheel of progress. The same idea prevails in all other walks of life, but the people that hold them are standing instead of marching onward with the procession. I know that on the face of things it does look as if there is a premuim on carelessness, and that the careless person seems to get along as well in the matter of prices for his products as the painstaking, careful person, but it is only a seeming. In reality he does not keep above water very long, and even if he did, that is no excuse for you or me to be careless.

The loss affects all of us no matter who is to blame, and we should all do the best we can to market our eggs and poultry in a clean, wholesome condition for human food. A great responsibility rests on the producer; in truth he is in a great measure his "brother's keeper," the keeper of his health, and for aught I know of his morals; for insanitary, diseased food is most likely the cause of diseased morals and minds.

Cactus will do better in the interior valleys than on the Coast if it is irrigated properly. It will yield more with less water if planted close together so it shades the ground, for cultivation is difficult after the slabs have grown to any extent.

Classified Advertisements.

Rates, 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY

BEEKEEPING instruction book free for dime to pay printing, etc., which we will refund with your first order. Explains care bees, profits, size packages we ship, with prices, supplies, bees, etc. Spencer Apiaries, Gloss Ave., Nordhoff, Cal.

WANTED.

AMERICAN, 28, educated, refined, desires employment on lady's or elderly couple's ranch. A pleasant home more desirable than financial remuneration. Box 60, Pacific Rural Press.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

MISCELLANEOUS.

SUCCESSFUL FARMERS are buying Lumber from us at wholesale prices. No. 1 dimensions, $9 at the mill. Send us your lumber bill for figures. Our prices are lowest in the country, on quality lumber. Write today for free price list. Buy while prices are at bedrock. Pacific Mill & Timber Co., First National Bk. Bldg., San Francisco, Cal.

SHARPLES MECHANICAL MILKER OPERATORS are in demand. We offer complete course in modern dairying on our own farm. Further particulars, write: The Sharples Demonstration Farm, Geo. W. Lucy, Superintendent, Stockton, Cal.

SECOND-HAND WATER PIPE and screw casing. New threads and couplings and dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. K. 8, Fresno, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal

AVOCADO TREES—Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budding trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties Melrose and Special. Strong, mature slabs $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others Geo. S. Weinsbank, 425 Magnolia Ave., Whittier, Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 ft.; on rented ground and must be moved; prices greatly reduced. Our loss, your gain. Magnolia Nursery, Whittier.

LAND FOR SALE.

50,000 ACRES LEVEL OREGON LAND now on sale, open for settlement in beautiful South Walker Basin, Klamath county, along right of way Natron Cutoff Southern Pac. Ry. Deep soil, every acre tillable, pure water, enough timber on every forty for farmer's use. 21 years' time, $2 per acre down, balance in 42 semi-annual payments. 5½ per cent interest. We operate demonstration farm. Want settlers and agents. Hunter Land Co., Title & Trust Bldg., Portland, Oregon.

CALIFORNIA LAND — Money-making little farms High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FOR SALE—Highly productive small fruit ranch Well located edge of small city in Sacramento valley Fine buildings, excellent modern home, good income from property. I want to retire on account old age For particulars address Box 387, Corning, Cal.

GOVERNMENT AND STATE LAND County Sectional Maps, showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark Sacramento.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

A BARGAIN on Lincoln highway. Seven-room furnished bungalow; barn, other buildings, stock, tools machinery, pumping plant, fruit. Everything goes. Address, Owner, Ireland, Galt, Calif.

FOR SALE—A choice Dairy and Fruit Ranch of 25 acres, 2½ miles from Modesto on Dry Creek Road, at a fair price. S. K. Anderson, R. 3, Box 225, Modesto Stanislaus Co., Cal.

FOR SALE—Santa Clara Valley Ranch. 90 acres all level; 40 acres in alfalfa. Improved. Address owner for circular. F. E. Romie, Edenvale, Cal.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

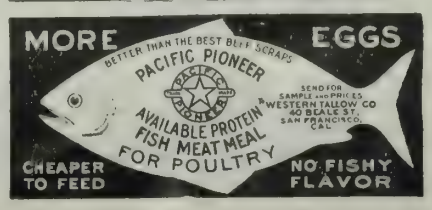
WANTED GOOD FARM, or unimproved land from owner. H. L. Downing, 145 Palace Bldg., Minneapolis, Minn.

DAIRY RANCH—Six miles west of Napa, to lease 1400 acres. Cross fenced. F. L. Morehouse, Napa.

STOCK RANCHES for sale in Eastern Oregon. Principal only need apply. 2509 Prince St., Berkeley, Cal.

NOW is the Time to Feed
Coulson's Egg Food
to your pullets as well as your hens, commencing at the age of three months.
Write for free book "Chickens" from shell to market.
COULSON CO.
Petaluma, Cal.

Visit our Main Exhibit, Block 12, Palace of Transportation, Panama-Pacific Exhibition.



The Home Circle.

ON A SEVENTEENTH BIRTHDAY.

Today my tall, broad-shouldered lad,
With such a grave, protective mien,
I watched with eyes grown strangely sad—
Though proud these mother eyes had been;
For brave and bonny seventeen
Is not a saddening sight to see,
Yet I have lost, long years between,
My little boy that used to be!

How well-remembered and how glad
That hour when, happier than a queen,
A rosy infant son I had,
When all the singing world 'was green!
With what deep gratitude serene
I welcomed my maternity!
He was the sweetest ever seen—
My little boy that used to be!

I see him now in velvet clad,—
And just a trifle vain, I ween!—
Showing his new suit to his "Dad,"
As male birds their fine feathers preen!
His curls had such a golden sheen!
And by his crib on bended knee,
I'd ask God's love from harm to screen
My little boy that used to be!

ENVOY.

O son, upon whose strength I lean,
Be very patient, dear, with me;
For mothers miss, with anguish keen,
The little boy that used to be!
—Anne P. L. Field, in Youth's Companion.

THE GIFT OF FLAX.

The Norsemen used to say that the white clouds in the sky were the beautiful robes of Frigga, the wife of Odin. When the clouds were dark, they would say: "Frigga is angry. Soon we shall fear her chill breath blowing in the storm." When it rained, it was, "Frigga is doing her washing," and when it snowed, it was, "Frigga is plucking her geese."

One of the pretty Norseland legends is about the discovery of flax and how Frigga helped the earth to it.

Once upon a time, very long ago, says the tale, there was a poor man and his wife, who had many children. It was hard to feed and clothe them; but the man never complained, though he often went hungry to bed so that the children might eat.

Frigga, looking down from her home in the sky, loved this good man, and determined to help him.

So one morning the poor man saw a wonderful reindeer, who looked at him so strangely that he followed it, and it led him to a hole in the side of a mountain and disappeared. He did not know what to do, but could not resist the desire to follow the beast, so he crawled into the hole. There he came upon a sudden blaze of light and found himself before a beautiful woman, who told him to look about him and choose anything he saw.

Now when the poor man looked around he saw that the walls of the cave were covered with jewels. Then he looked at the beautiful woman, and he saw that she carried a bunch of lovely blue flowers in her hand, and, because he loved flowers and had never seen that kind before, he said:

"O most wonderful lady, I will take of your kindness only the dainty blue flowers which you hold in your hand."

The woman smiled and gave the poor man the flowers, and then there was a clap of thunder, and he found himself on the outside of the mountain with the flowers in his hand, but nothing else to remind him of his adventure.

The poor fellow looked ruefully at the little blossoms, thinking that he might better have had some of the jewels. He took the flowers home, however, and his wife and children admired them, and when they were withered they threw them out.

A week or so afterward some pale green shoots came up where the flowers had lain, and in a little while there were pretty delicate blue blossoms, like those which had so mysteriously been given the poor man, for they had sown their own seed as they withered.

The poor man did not know what to make of the new flower; but one night Frigga came to him in a dream and showed him how to use the withered flax stalks,—how to spin them into thread, and weave the thread into linen,—and soon everybody was coming to the man for the wonderful new cloth, and his days of poverty were over.—Selected.

MANY USES FOR HONEY.

Various ways in which the housewife can use honey to advantage are suggested in a new publication of the United States Department of Agriculture—Farmers' Bulletin 653, "Honey And Its Uses In The Home." In this country honey has hitherto not been in as common use as in Europe, especially in cookery. It is, however, a comparatively simple matter to substitute it in many recipes for common sugar or for molasses, and when this is done the resulting flavor is often both novel and agreeable.

One of the great advantages in the use of honey is that cakes made with it will keep much longer than those made with sugar. A honey cake made with butter, for instance, will keep its quality until the butter grows rancid, and one made without butter will keep fresh for months. For this reason honey is especially useful in recipes that call for no butter. Icing made with honey has the same advantage.

The experiments conducted by the Department indicate that many of the instructions in the old cookbooks for the preparation of honey are unnecessarily elaborate. For example, it used to be thought that honey had to be brought to the boiling point and then skimmed and cooled. Since honey is extremely likely to boil over, this process requires great care. Experiments showed, however, that it appears to be quite unnecessary, and it is probable that the notion arose at a time when ordinary commercial honey contained more impurities than at present. As a matter of fact, a little experience will enable any competent cook to substitute honey successfully for sugar in bread, cake, preserved fruits, sauces, and candies. It is safe to estimate that a cupful of honey will sweeten a dish about as much as a cupful of sugar, but since honey contains water in addition, there is less need for milk or other liquids. For practical purposes it is accurate enough to consider that for

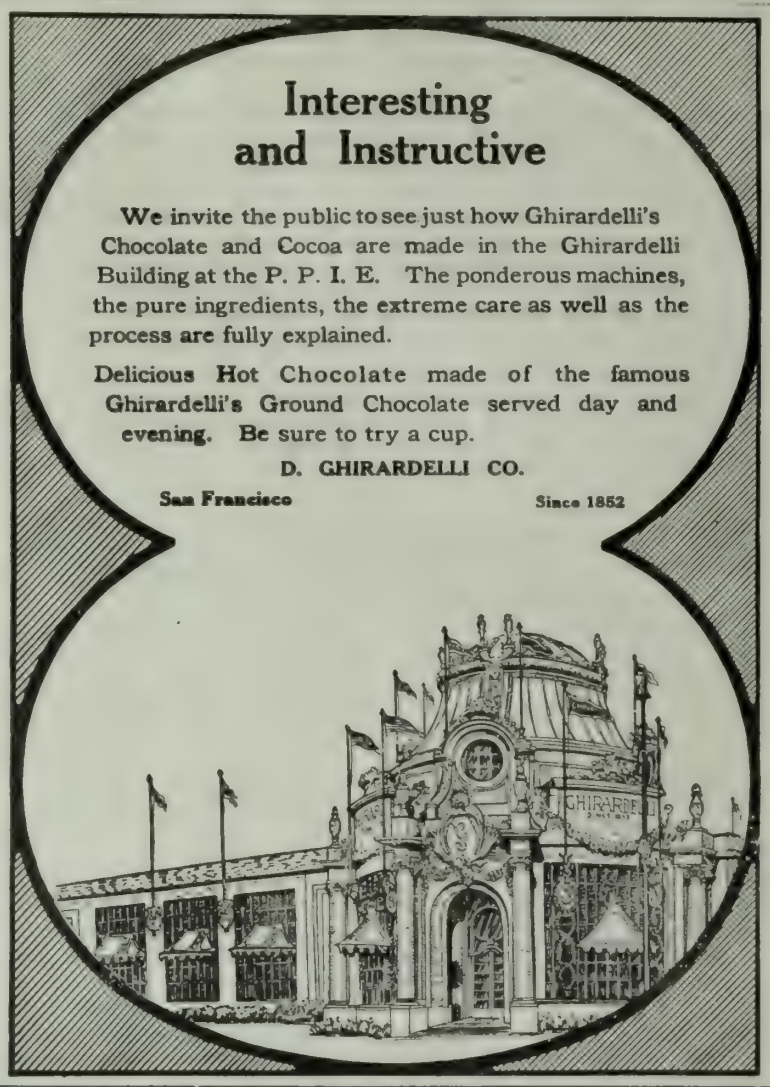
Interesting and Instructive

We invite the public to see just how Ghirardelli's Chocolate and Cocoa are made in the Ghirardelli Building at the P. P. I. E. The ponderous machines, the pure ingredients, the extreme care as well as the process are fully explained.

Delicious Hot Chocolate made of the famous Ghirardelli's Ground Chocolate served day and evening. Be sure to try a cup.

D. GHIRARDELLI CO.

San Francisco Since 1852



Which? —for Easier Cooking

Kerosene	vs. Wood and Coal
Heat concentrated on the cooking, not spread through the room.	Heating up the kitchen when it's already 90 in the shade.
Ready, like gas—full heat in a minute.	Bothersome — waiting for the fire to burn.
Adjustable heat — a slow fire or a hot one.	Difficulty in getting the right heat.
Heat only as long as you need it.	Waste of fuel before and after actual cooking.
A clean, cheap fuel — easy to handle.	Wood and coal to lug—dirt and ashes.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

The convenience of gas for homes without gas. No odor. Does not taint the food. Convenient sizes. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

CALIFORNIA POULTRY PRACTICE
By Mrs. Susan Swaysgood.
PACIFIC RURAL PRESS, Publishers.
525 MARKET STREET, SAN FRANCISCO, CAL.

each cupful of honey a quarter of a cupful is added to the recipe. If these facts are kept in mind special honey recipes are unnecessary.

Honey and Nut Bran Muffins.—½ cup honey, 1 cup flour, from ¼ to ½ teaspoon soda, ¼ teaspoon salt, 2 cups bran, 1 tablespoon melted butter, 1½ cups milk, ¾ cup finely chopped English walnuts.

Sift together the flour, soda, and salt, and mix them with the bran, Add the other ingredients and bake for 25 or 30 minutes in a hot oven in gem tins. This will make about 20 muffins.

Butter Honey Cake.—1½ cups honey, ½ cup butter, 3 egg yolks, 5 cups flour, 2 teaspoons ground cinnamon, ½ teaspoon salt, 1½ teaspoons soda, 2 tablespoons orange flower water, (water may be substituted), and whites of 3 eggs.

Rub together the honey and butter; add the unbeaten yolks and beat thoroughly. Add the flour sifted with the cinnamon and the salt; and the soda dissolved in the orange-flower water. Beat the mixture thoroughly and add well-beaten whites of the eggs. Bake in shallow tins and cover with frosting.

Nut Honey Cake.—2 cups brown sugar, 2 cups honey, 6 egg yolks. 3 cups flour, speck of salt, 1½ teaspoons soda, 3 teaspoons ground cinnamon, ½ teaspoon ground cloves, ½ teaspoon ground nutmeg, ½ teaspoon allspice, 1 cup chopped raisins, ½ ounce citron cut in small pieces, ½ ounce candied orange peel cut in small pieces, ½ pound almonds coarsely chopped, whites of 3 eggs.

Mix the sugar, honey, and the yolks of the eggs, and beat thoroughly. Sift together the flour, salt, spices, and soda. Combine all ingredients but the whites of the eggs. Beat the whites of the eggs till they are stiff and add them last. Pour the dough to the depth of about half an inch into well-buttered tins, and bake in a slow oven for one-half hour.

Honey Charlotte Russe.—1 quart cream, 6 lady fingers, ½ cup delicately flavored honey. Chill the honey by placing the dish containing it in a pan of ice water. Whip the cream and add it to the honey, mixing the two well. Line a dish with lady fingers and fill it with the honey and cream. Serve very cold.

PHOTOGRAPHING INTERIORS

[Written for Pacific Rural Press.]

Where inexpensive but good looking interior finishing is desired, some of the several ready made veneer or other kinds of finishes may be applied with little trouble by anyone who can handle a hammer. Such finish is quite suitable for California conditions where extremes of cold are not known, and they may be made quite artistic. One of our advertisers tells how those of our readers who are handy with the camera may make a nice little nest egg by decorating a room finished with their patent material and taking a sharp, clear-cut picture of it.

Do not point your camera toward a window; but have all the windows and doors open behind the camera so as to have plenty of light. Do not have a grown person in the picture, but a child may give the picture the touch that will win the prize. Arrange furniture so that light and dark articles will be close together for contrast, but light articles should be against a dark background and vice versa. Direct sunshine on part of the pictured objects only will spoil the photograph, and it must be remembered that pretty colors will show up only in the black and white of the photograph.

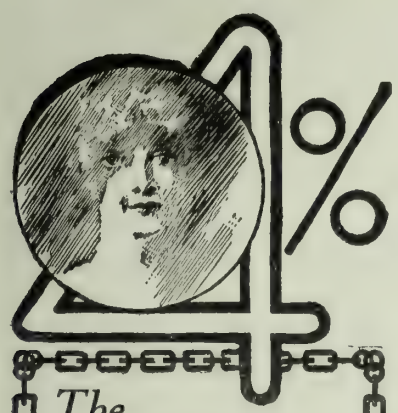
"Mrs. Smith always has abominable weather for her teas, doesn't she?" said a woman to a man guest. "Yes," said the man confidently, "she never pours but it rains."—Windsor Magazine.

Mary was seven and she didn't want to take her music lesson. "Why, Mary, don't you like your music?" asked her mother, anxiously. "No," sobbed the little girl; "I just hate those little black things sittin' on the fence!"—Harper's Magazine.

"Now, boys," said the schoolmaster, "suppose in a family there are five children, and the mother has only four potatoes to divide among them. She wants to give each child an equal share. What is she to do?" Silence reigned in the room. Everybody was calculating in the room. Finally one little boy put up his hand. "Well, Johnny, what would you do?" asked the teacher. "Mash the potatoes, sir."

As Sandy holed out on the first green, his friend asked, "How many strokes did you take?" "Eight," replied the Scot. "Ah," said the Englishman, "I took seven, so that's my hole." When on the second green the Englishman repeated his question, the other shook his head wisely and said gently, "Nay, nay, my mannie; this time it's my tur-rn to ask first."

"Mark Twain was visiting H. H. Rogers," said a New York editor. "Mr. Rogers led the humorist into his library. 'There,' he said as he pointed to a bust of white marble, 'What do you think of that?' It was a bust of a young woman coiling her hair,—a graceful example of Italian sculpture. Mr. Clemens looked and then he said, 'It isn't true to nature.' 'Why not?' Mr. Rogers asked. 'She ought to have her mouth full of hairpins,' said the humorist."



The Stenographer's Share

THE "lion's share" of the cost of your typewritten letters goes into your stenographer's pay envelope.

One stenographer at $15 a week (or $780 per year) costs 4% on $19,500.

In other words, you are investing approximately 4% on $20,000 in the bank—to pay ONE STENOGRAPHER'S SALARY.

Let the New Model

Royal

cut down the high cost of your typewritten letters

By installing the master-machine built to turn out MORE letters in the same working day—the new ***Royal Model 10*** with its new adjustable touch—its all-day speed without fatigue! And its new Triple-Service Feature—*it writes, types cards and bills!*

Price $100

Write Direct

for our new brochure, ***"BETTER SERVICE,"*** and a beautiful Color-Photograph of the ***New Royal Master-Model 10.***

ROYAL TYPEWRITER CO., Inc.
Royal Typewriter Building,
New York.

20.000

DEWEY, STRONG & CO.
SCIENTIFIC PRESS — PATENTS — PATENT AGENCY
311 Crocker Bldg., S. F.

Circular containing 100 mechanical movements mailed free.

Relief From Ants

How to Cope Effectively With This Intolerable Nuisance.

If you are one of the thousands of women whose homes are over-run with ants, you will be interested to know that an absolute riddance for this plague has been discovered. After long experimenting, a Los Angeles baker, whose shop was infested with ants, prepared a paste which not only drove every ant out of his place in one day, but prevented their ever getting a foothold again.

So great a sensation was caused by this discovery that he was obliged to put up the paste for general use—and a large factory is now required to manufacture the remedy in the tremendous quantities necessary to keep pace with the demand.

This little remedy is known as Kellogg's Ant Paste and can be obtained at all modern druggists. Try it today and you will always keep it in the house.

The STEPHENSON PATENT COOLER

NO ICE REQUIRED

Perfect Ventilation Absolutely Sanitary

Award first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.

MARTINEZ, CAL.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, June 2, 1915.

WHEAT.

The local market remains stationary after the sharp drop of last week, but the tendency is still downward, and reports of large crops have caused further declines in the east. Trading is accordingly very quiet, being limited to current needs for feed and milling purposes.

Cal. Club, ctl.	$2.05@210
Forty-fold	2.10@2.15
Northern Bluestem	2.15@2.20
Northern Club	2.05@2.10
Northern Red	2.00@2.20

BARLEY.

Another slight decline is noted in the spot quotation, with no demand beyond the routine movement for current consumption. Futures also are weak, and new-crop barley for July delivery is quoted about the same as spot.

Choice Feed, ctl.	$1.12½@1.15

OATS.

A good sized Government order has been placed in Portland, but supplies are ample both there and here, with little local demand, and both red and white are slightly lower.

Red Feed	$1.50@1.55
White	1.75@1.80

CORN.

The current demand for feeding is much lighter than it was a few months ago, and while there is a fairly steady jobbing movement the amount wanted is not large. Values, however, are fairly steady at the old level.

California Yellow	$1.75@1.80
Eastern Yellow	1.80@1.85
Egyptian White	1.75@1.85
Milo Maize	1.75@1.80
Manchurian	1.40@1.60

BEANS.

Owing to the late rains, a good deal of the bean crop in the river district is going in late, causing some uncertainty in the crop outlook, though a large acreage is expected. In the south, the lima situation is decidedly weak, with a very large acreage and favorable crop conditions, while stocks on hand remain rather heavy; and the outlook for united marketing on the part of the growers is not encouraging. Spot prices have dropped rather sharply in the past week. In other lines, the spot market shows little change, the demand being light but steady, with fair supplies on hand.

(On wharf.)

Bayos, Cal., per ctl.	$4.75@4.90
Blackeyes	5.50@5.65
Cranberry Beans	4.25@4.50
Horse Beans	3.50@4.00
Small Whites	4.65@4.75
Large Whites	4.50@4.65
Pink	3.50@3.85
Limas	4.65@4.80
Red Kidneys	5.75
Mexican Reds	2.90@5.00
Garbanza	7.00

SEEDS.

The movement of alfalfa is over, and this line is practically nominal. A little mustard is offered, but prices are unsettled, and in other lines there is little movement.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½c
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

The hay situation here shows some slight improvement, though values are unchanged. Arrivals have increased a little, but a considerable portion of the shipments are taken for export, preventing the usual congestion here, and while the city trade is not very active all offerings are well taken. Cutting is now well under way, and new hay is expected soon. Dealers are now attributing the low prices of the past season to the poor quality, as well as the excessive quantity of hay cut, and predict better values if the proportion of first-class hay in the new crop is normal. Recent arrivals of alfalfa have been light, and offerings find ready sale.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$9.50@11.00
do No. 2	7.00@ 9.00
Barley	5.00@ 8.00
Tame Oats	6.00@12.00
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.30@ .45

FEEDSTUFFS.

This market continues dull and rather easy in most lines, though bran has unaccountably stiffened up to $30, and middlings are also higher, while rolled barley has dropped slightly and rolled oats are weak.

(Wholesale prices per ton, carload lots, San Francisco.)

Alfalfa Meal, ton	$14.00@15.00
Alfalfa Molasses Meal per ton	18.00@19.00
Bran, per ton	29.00@30.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	34.00@36.00
Rolled Barley	25.00@25.50
Rolled Oats	33.00@34.00

VEGETABLES.

Favorable weather of the last week has brought larger offerings of many seasonable lines, causing some reduction in the general range of prices. Southern cucumbers have dropped to a low level again, eggplant has dropped sharply, and okra and summer squash are much cheaper. Tomatoes from southern California are offered more freely, while bell peppers are still coming from Florida and bring rather high prices. Asparagus is weaker, with rather light demand, while rhubarb holds about as before. Peas and beans have both dropped to seasonably low levels, with heavy offerings.

(Wholesale prices, San Francisco)

Asparagus, box	$1.00@2.00
Peas, sack	.75@1.00
String Beans, lb	1 @ 3 c
Peppers, bell, lb	15 @20 c
Tomatoes, Southern	1.25@1.75
Celery, crate	.50@1.25
Lettuce, crate	.75@1.25
Rhubarb, box	40 @75 c
Cucumbers, S'thern, bx	35 @60 c
Eggplant, lb	5 @ 9 c
Summer Squash, crate	25 @65 c
Okra, crate	.75@1.00

POTATOES AND ONIONS.

Old Burbank potatoes are a little easier, as the demand is turning more to new stock. The latter, though coming in more freely, is somewhat higher than last week. A few red onions have come in, but hardly in quotable quantities. Other onions remain plentiful and easy.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75@2.00
River Burbanks, ctl	1.25@1.50
New Potatoes, ctl	1.50@1.75
Sweet Potatoes, ctl.	2.00@2.10
Onions, yellow, sk	65 @75 c
Australian, ctl.	2.50@3.50
Bermudas, crate	1.00@1.25
Garlic, per lb, new	7 @12½c

POULTRY.

Plenty of outside stock is coming in, and with more desire to clean up on account of the hot weather the market is easier. Extra hens hold up fairly well, but small hens, broilers and fryers are all lower. Ducks and Belgian hares also show a decline.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @18 c
Broilers	19 @23 c
Fryers	23 @28 c
Hens, extra per lb	17 @18 c
Small Hens, per lb	15 @16 c
Smooth Young Roosters, per lb	24 @27 c
Squabs, per doz.	$2.00@3.50
Geese, per pair	2.50@3.00
Ducks, young, lb	15 @16 c
Old	14 @15 c
Belgian Hares	7 @ 8 c

BUTTER.

Arrivals are quite heavy, and the usual northern demand is said to be entirely lacking. Extras and firsts, however, after standing unchanged for about a week, have been marked up ½c.

(S. F. Dairy Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extras	23½	23½	23½	—	23½	24
Prime	23	23	23	—	23	23
Firsts	22½	22½	22½	—	22½	23

EGGS.

Firsts have lost ½ cent, being the only grade to show any change from last week. Extras, however, have been a little easy, opening after the holiday at 1c down on heavy arrivals.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extra	23	23	23	—	22	23
Firsts	20½	20½	20½	—	20½	20½
Sel. Pul.	20	20½	20½	-	19	20

CHEESE.

Monterey cheese is slightly firmer, while other grades show no change, with current offerings fairly well absorbed.

(S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy	12½c
Fancy Calif. flats, per lb	10½c
Monterey Cheese	9 &12 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu	Fri.	Sat.	Mon	Tu
Butter	23	23	23	23	—	23
Eggs	22	22	22	21	—	21
Cal. Cheese	12	12	12	12	—	12

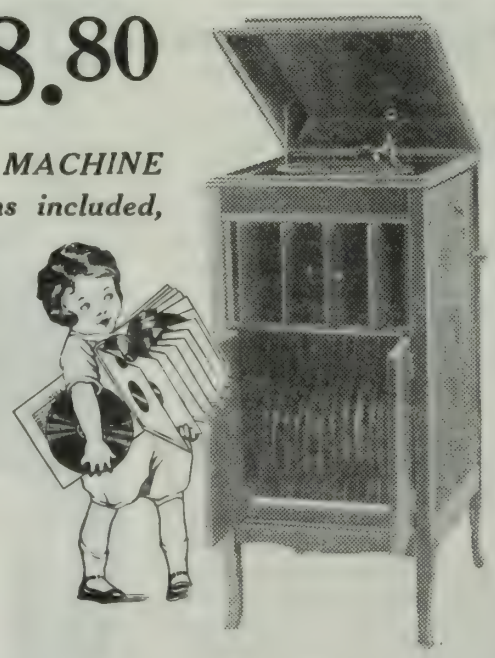
DECIDUOUS FRUITS.

Arrivals have increased greatly both in quantity and variety. All kinds of berries have dropped rather sharply on heavy receipts, and loganberries and currants have been added to the list. Both cantaloupes and watermelons have also been coming in for the last few days, the former doing fairly well, while the latter are easy, being not well ripened. Apples are no longer much of a feature, though a few are still held in storage. Some figs are coming in and sell readily at high prices. Loquats are becoming plentiful and are easy in price. Cherries are doing fairly well, and apricots and peaches still bring rather high prices, with limited supplies.

Loganberries, red, crate	50@60c
Strawberries, crate	40@60c
Longworth, chest	$3.50@5.00
Banner, chest	2.00@4.00
Raspberries, crate	75 @90 c
Gooseberries, lb	3 @ 6 c
Blackberries, crate	75 @85 c
Currants, drawer	40 @50 c
Figs, box	$2.00@2.25
Loquats, crate	50 @75 c
Cherries, lb., fancy blk.	2½@ 5 c
White	2 @ 3 c
Apricots, box	$1.00@1.15
Peaches, crate	1.25@1.50
Small box	50 @75 c

ALL FOR $88.80

A MAGNIFICENT NEW TALKING MACHINE with 40 vocal and instrumental selections included, at an heretofore unheard of low price.



Send for the machine, try it—then if you like it send us $18.00 as an initial payment, and take ten months if you wish to finish paying for the balance—and have a superb new talking machine that is equal in tone, quality and finish to any $200 instrument anywhere. Order one today, and we will make the shipment at once.

Send for actual photograph, and list of records.

Beautiful Mahogany, Mottled Walnut and Golden Oak or Fumed Oak Cases.

EILERS MUSIC CO.,
San Francisco, Cal.

Gentlemen: Please send me, without obligation on my part, actual photographic illustrations and full detailed particulars of your offer to out-of-town buyers.

Name .....

Street or Route No. .....

City ..... P. R. P.

Eilers Music Co.

The Big Piano House

975 MARKET STREET,
San Francisco.

Talking Machine Headquarters.

Apples, Newtown, fancy 1.25@1.50
Cantaloupes, pony crate 3.00@4.00
Watermelons, lb ..... 3 @ 6 c

DRIED FRUITS.

There is no longer much interest in the spot market, as most lines are well cleaned up and little more than nominal. For such odd lots of apricots as may still be offered prices are lower, and peaches are a drug on the market. Spot prunes find a little more demand, and prices hold up steadily, with light offerings. Packers, however, say that the outlook for the new prune crop is much better than was expected, some making an estimate of 225,000,000 lbs., and offers have accordingly been reduced; though growers show considerable hesitation in selling at the present quotations. Peach growers are making strenuous efforts to find an outlet for their surplus fruit, and it is reported that many will not pick the fruit. Offers for future apricots have also been reduced, as the crop is turning out well in some places. The New York Journal of Commerce says: Little business is being done at present in any line of California dried fruits for either spot or future delivery, less in the latter than in the former. The market on peaches is demoralized. Under the circumstances it is believed in well-informed quarters that comparatively little of the prospective large Coast peach crop will be dried this season. Apricots also are dull and nominal, with conditions, according to some reports, hardly better than those affecting peaches.

About the only article on the list of California fruits showing indications of strength is spot prunes, and the firmness in these seems to be confined to 40s and 50s, supplies of which are said to be light as compared with that of other sizes. There is a steady consuming demand for the more popular counts, which comes chiefly from interior distributing points.

Raisins are having a quiet sale in small lots as needed for present consumption, and the market has a steady tone, backed, as it is, by the guarantee of prices to August 1 by the Associated.

Evap. Apples, 1914 .....4½@5 c
Apricots, 1914 .....4 @6 c
Prunes, 4-size basis, '14 4½@5½c
Peaches .....2½@3 c
Pears .....6 @8 c
Raisins (in sweatbox):
Loose Muscatels .....4 @4½c
Seedless Sultanas 4½c

1915 CROP.

Apricots .....5½@6½c
Figs, white .....3¾@4¼c
Black .....2¾@3 c
Prunes .....2½@3 c
Peaches .....3 @3½c
Pears .....6 @9 c

CITRUS FRUITS.

Valencia oranges are now arriving in the San Francisco market in considerable quantities, and sell at about the same prices as navels, which show no change since last week. Grapefruit shows a narrower range of values. There has been a good demand this week, especially for lemons.

(Wholesale prices, San Francisco.)
Oranges, navel, box ...$1.75@2.75
Valencia, box ..... 1.75@2.75
Grapefruit, seedless, bx 1.75@2.25
Fancy ..... 2.50@2.75
Lemons, box ..... 1.50@3.25

NUTS.

Both almonds and walnuts are getting quite scarce, as the larger holdings have been disposed of and there are few small lots now left in the country. While the demand is not especially strong, values are steadily maintained.

(Prices f. o. b. San Francisco)
Almonds, 1914 crop:
IXL .....11 @13 c
Ne Plus Ultra .....11 @13 c
Drakes ..... 8 @11 c
Texas Prolific ..... 8 @11 c
Walnuts, new crop:
Jumbo, lb ..... 19 c
No. 1 Softshell 16½c
Budded ..... 18 c
Ungraded ..... 8 @10 c
Manchurian ..... 6 @11 c

HONEY.

A little new comb honey has appeared this week, being disposed of at good prices, though a decline is expected as offerings increase. The old stock of low-grade extracted honey is now pretty well cleaned up, a market having been found elsewhere, and it is now reported that some Hawaiian honey is also being shipped, though prices are low.

Water White, comb,
new ..... 18 c
Old .....10 @12 c
Light Amber ..... 8 @10 c
Water White, extracted 5 @ 6 c
Light Amber ..... 3½@ 4 c
Dark ..... 2 @ 3 c

LIVE STOCK.

There is no change in live stock quotations this week, though dressed hogs have dropped rather sharply. Beef cattle are now coming in freely, and there is little firmness as to prices, though the old level is maintained.

(Prices at San Francisco.)
Steers, No. 1 ..... 6¼@6½c
No. 2 ..... 6 @6¼c
Cows and Heifers, No. 1 5¾@ 6 c
No. 2 ..... 5½@ 5¾c
Bulls and stags ..... 4 @ 5 c
Calves: Light ..... 9 c
Medium ..... 8 @ 8½c
Heavy ..... 6 @ 7 c
Hogs: Grain-fed:
225 to 300 lbs. 7¾c
100 to 225 lbs 8¼c
Prime Wethers .....6½@ 7 c
Ewes ..... 6 @ 6½c
Shorn sheep, less by .. ¾@ 1 c
Suckling lambs ..... 7¾@ 8 c

DRESSED MEATS.

Steers .....10½@11 c
Veal, large .....12½@13 c
Small .....14 @15 c
Prime Wethers .....13 @14 c
Ewes .....11½@12 c
Suckling Lambs .....15 @16 c
Hogs .....12 @12½c

WOOL.

The prices offered are still quite generally unsatisfactory to growers in this vicinity, but a good many scattered lots have been changing hands lately, at about the same prices as formerly quoted.

Wool, Sacramento Valley, lb 18@22c
Southern, year's staple ....16@20c
Six months .....14@17c

HORSES.

Little stock has been shipped in to the local market this week, and there is practically nothing of any interest going on, buyers being decidedly apathetic. Local values stand nominally unchanged, with hardly enough business to establish definite figures.

(Approximate values at San Francisco, based on auction sales.)
Heavy drafters, 1700 lbs. and up .....$275@300
Light drafters, 1550 to 1650 lbs. ..... 175@200
Chunks 1350 to 1500 lbs 150@175
Wagon horses, 1050 to 1350 lbs. ..... 100@140
Green Mountain range horses, 950 to 1200 lbs 50@ 90
Farm workers ..... 60 @ 75

MULES.

1200 lbs and up .....$225@250
1100 lbs. ..... 200@225
1000 lbs. ..... 150@175
900 lbs. ..... 125@150

HIDES.

The demand has revived considerably in the last week, and with light offerings prices show a general advance.

(Country hides, delivered S. F.)
Heavy steers, over 56 lbs .....15½@16 c
Medium .....15½@16 c
Light Steers, under 48 lb 15½c
H'vy Cows, over 50 lbs 15½@16 c
Light Cows, 30 to 50 lb.15 @15½c
Kip .....16 @16½c
Veal 16½c
Calf 16½c
Dry Hides .....26½@27½c
Dry Kip, 10 to 15 ....25½@26½c
Dry Veal, 5 to 10 .... 30 c
Dry Calf, 7 down .... 30 c
Horse Hides—
Salt: Large $3.00
Medium 2.50
Small 1.00

HOPS.

There is practically nothing doing in old hops, though there is a good deal left in the State for this time of year. Business in new hops also is quiet, as dealers here say it is impossible to make the usual export shipments and offer only 7 to 8c per lb., which growers are unwilling to accept. A report from Sonoma county, however, says that some contracting there has been done at 12c.

1915 crop, lb ..... 7 @ 8 c

Almond Growers

Membership books will soon close. Those who desire to become members should make application at once.. California

CALIFORNIA ALMOND GROWERS' EXCHANGE,
311 California St., San Francisco, Cal.

Publisher's Dept.

Last week John Silbersack of San Martin, in a short letter to this paper, discussed the article in the Publisher's Department referring to advertising. Mr. Silbersack thinks that growers' co-operative associations should get out of the beaten track and by advertising create a demand for the surplus California farm products, with which we heartily agree. To take care of an ever-increasing production the farmers of this State must themselves take the matter in hand and help create an ever-enlarging market.

But we believe that more individual work must be done in that line. Manufacturers of the State must let the farmers know of the value and merits of California made goods and the farmer must understand that when he or his wife purchases a bed spring, a cake of soap, a musical instrument, overalls, or a thousand other items made here, in preference to an article imported into the State, that he is directly helping to build up a larger consuming market right at home.

No matter how good your product may be, you must create a demand before people will wear a path to your door. The new farming means that you must produce and prepare for market the very best article possible, then advertise it. We don't care what form of advertising you do—newspaper, booklets, bill board, personal solicitation—any kind, but advertise. Keep up your standard like all good business men do and success will be yours.

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Sacramento, Cal. May 31, 1915.

On account of the warm weather during the last few days, deciduous fruits have ripened rapidly and assorted cars are being loaded daily with peaches and cherries from Placer county, plums from the Sacramento River and apricots from Winters and Vacaville.

The season being about two weeks later than usual, early varieties will meet competition from Eastern fruit districts that California has escaped in the past.

Though reports were current the past week that frost did considerable damage to crops through the East and Middle West, it is safe to estimate that the shipment of peaches alone from the different fruit districts of the country this season will aggregate close to 20,000 cars.

Market firm at prevailing prices. Demand active but on account of cherries moving from the northwest there will be a tendency to lower the prices this week; furthermore, receipts from California of other varieties will be heavier, which will have its effect upon the market.

Early apricots will move in car lots from Arizona and the Imperial Valley this week.

The following prices have ruled for the week:

New York — Tartarians, plain packs, $1.35 to $2.50; cartons, $2.25 to $4.50; Pontiacs, $1.30; Bigarreau, $1.40; Royal Anns, $1.75 to $2.25; $1.20.

Chicago — Tartarians, $1.40 to $2.60; Royal Anns, $1.50 to $2.35; Bigarreau, $1.25 to $1.60; Centennials, $1.20; Rockports, $1.60; Mayflower Peaches, $2.35; Pringle Cots, $1.50. The total shipments to date is 22 cars as against 204¾ cars to the same date last year.

FRUIT MARKET AND CROP REPORTS.

(Continued from page 655.)

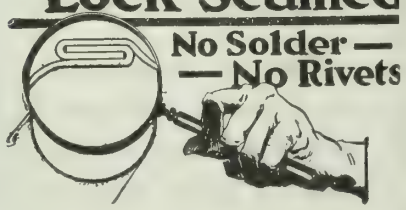
mountain districts expect a little more than 75 per cent. Damage by thrips has been great in some sections of the State.

Prunes.—Full crop reported from most producing sections, though Santa Clara reports 65 per cent of a crop, and Kings county, 90 per cent. Northwestern prunes about half a crop. Their normal crop is about one-third that of Santa Clara valley.

Wheat.—Presence of aphids in great numbers in many of the fields in Madera is reported, though it is not expected that they will reduce the yield greatly.

The American lemon market has been low-priced on account of the closing of European markets to Sicilian lemons which diverted them to America where they were dumped at $1.80 to $1.85 per box delivered at New York. This is considered below the cost of production in Cal."

Lock Seamed



Nothing But the Sheet of Metal Itself is Used to Make

Ames - Irvin Irrigation Pipe

Neither solder or rivets are used in its construction. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Such a seam will not break or leak. It is simple, solid and strong, with no holes in the steel.

Ames-Irvin Lock-Seamed irrigation pipe was the first prize-winner against all competitors at the Sacramento State Fair in 1913 and the Fresno and San Jose County Fairs in 1912.

SEND FOR BOOKLET.

It gives full information about irrigation pipe and its construction. Get it—today.

Ames-Irvin Company
8th and Irwin Sts., San Francisco, Cal.

$550.00 in Cash For Photographs

OF Amiwud ROOMS

(TRADEMARK REGISTERED)

Amiwud is the world's most famous wall board. It is used for interior work---Takes the place of lath and plaster. Used in finishing every room from attic to basement.

There are hundreds of Amiwud Rooms in California. There will be hundreds more built this year.

Here's What We'll Pay for Photos of Amiwud ROOMS

(TRADEMARK REGISTERED)

$25.00 each for the 11 best pictures
$15.00 each for the 11 next best photos
$10.00 each for the 11 third best photos

EASY CONDITIONS

If You Have an Amiwud Room

—Take a photograph or shapshot of it, write us what you think of AMIWUD and mail both to us. (Be sure to write name and address on photo.) We will enter the picture you send in the big contest.

If You Haven't an Amiwud Room

—and intend to build, or refit a room, you'll want to know about AMIWUD.

—Fill out coupon below and mail to us. We'll send you full information and name of local dealer selling AMIWUD.

Amiwud

(TRADEMARK REGISTERED)

—was the first wall board made. It is widely imitated.
—we have $3,000,000 invested in factories on this Coast.
—**Amiwud** is tough and durable. Is cheaper than wood. Takes the place of lath and plaster.
—comes in several wood grains, or plain to be tinted any color.
—is easy to put up, lasts indefinitely.
—can be used in every room in the house.
—saves dirt and damp plaster in installing.

Contest ends November 15th. To every woman sending us a picture of an AMIWUD Room in her house we'll send a stamped sofa pillow top, guest towel or doll outfit or a further selection from the famous Royal Society Package Goods.

California is divided into ten districts---three prizes for each district. Three prizes awarded outside California.

ON EVERY PHOTO

Write name and address.
When **Amiwud** Room was built.
And name of store or contractor, who supplied you with **Amiwud.**

The
Paraffine Paint Company
36 First St., San Francisco
Box 455 Los Angeles, Cal.

(Manufacturers of the Famous Malthoid and Ru-ber-oid Roofing and P. & B. Products.)

Paraffine Paint Co., 36 First St., San Francisco, or Box 455, Los Angeles.

I am interested in your **Amiwud** Contest. Please send details.

Name.....

Address.....

If interested in roofing check here.....

PRP

Vol. LXXXIX—No. 24 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, June 12, 1915 LOS ANGELES

State Library 7-1-16

State Wide Good Roads Popular.

[Written for Pacific Rural Press.[

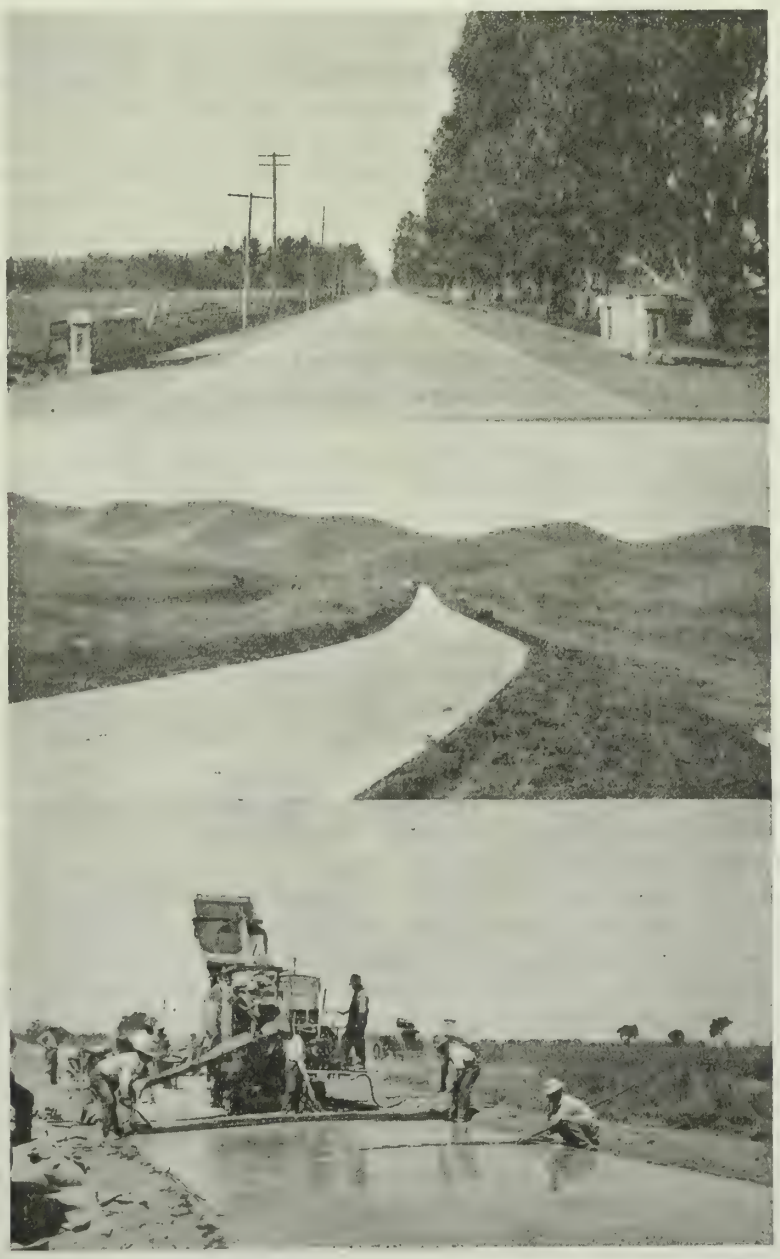
It may have required a great deal of agitation to secure the bond issue of $18,000,000 for California's State Highway, but since the first link was completed it has been apparent that the public knows how to take advantage of a good road when it is accessible.

This is especially true of the rural population, good roads to them meaning such a variety of benefits that it is impossible to estimate all the functions that this great system of highways will ultimately be called upon to perform. Suffice to say that at this writing the farmers have found more ways of using the highways than was previously thought possible; although on December 1, 1914, but 1,036.3 miles of the 2,062.84 miles surveyed were finished or under construction.

Financial Administration.—When the bond act for $18,000,000 was passed in 1909, it carried a provision that two main trunk lines should be constructed from one end of the State to the other, serving county-seats and connecting centers of population by the most direct routes through the Coast counties and through the great interior valleys.

This meant that nearly 3,000 miles of highway must be constructed, of which almost 1800 miles must be trunk lines or main arteries; and the remainder, laterals or roads connecting county-seats. Figured into average cost per mile, the problem of financing soon became apparent as the appropriation provided for only $6,000 a mile, including engineering and administration expense.

It was obvious that that rate per mile was very close; and that all possible expense must be eliminated. With that end in view, the counties were requested to provide rights of way for the highway without cost to the State and to construct along the route all bridges having spans in excess of 20 feet. Other savings were made by omitting from the system all streets in incorporated cities and towns, securing extraordinary reductions in freight rates on materials, and making contracts with supply men for large quantities of material at reduced rates, and supplying such materials to the contractors at cost.



Concrete-based Highways through Deserts, Grainfields, and Orchards Permit Mud-hole-less Transportation of Joy Riders and Farm Products.

The Maintenance Fund.—Financial problems in road making do not stop with construction alone. In fact, it has been said that in planning a system of roads the first thing to do is to plan for keeping those roads in repair.

Fortunately in recent years the automobile, with its universal use, has created a new road fund by the Motor Vehicle law, which requires that every auto owner pay an annual license. One-half of this fund, after administration expenses are paid, is turned over to the counties in which the automobiles are owned. The other half, or nearly one-half million dollars at present, goes into the State road fund, one-sixth to be paid to the State Engineer's office for construction of State roads not included in the highway system, and five-sixths to the Highway Commission for maintenance of the Highway system. This allows about $139 a year per mile for upkeep, which, while less than the estimated maintenance costs made by the State Highway Engineer, will greatly reduce maintenance appropriations, especially in view of the increasing number of motor vehicles.

System of Routing.—Much dispute has arisen over the routes that the highway should follow, but in the main the endeavor has been to make the routes as direct from north to south as possible, laterals being planned for those sections not touched in this manner.

The following figures will give the reader a comprehensive idea of the surveys made and the work completed to December 15, 1914; also the general trend the trunk lines will take when completed:

Route 1, along the Pacific Coast north of San Francisco Bay, through Marin, Sonoma, Mendocino, Humboldt and Del Norte counties. Route 2, along the coast south from San Francisco to San Diego, through San Mateo, Santa Clara, San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange and San Diego counties. Route 3, through Sacramento, Placer, Yuba, Sutter, Butte, Tehama, Shasta and Siskiyou counties. Route 4, from Sacramento to Los Angeles, through Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kern and Los Angeles counties. Route 5, from the San Joaquin Valley system to Santa Cruz via Oakland and San Jose. Route 6, from Sacramento across

(Continued on page 679.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - - Subscription Manager
R. E. Hodges
J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p. m., June 8, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.00	42.65	45.36	60°	46°
Red Bluff...	.00	34.72	24.73	100	62
Sacramento.	.00	17.16	20.02	92	56
S. Francisco	.00	27.41	22.18	83	50
San Jose...	.00	22.72	16.76	86	48
Fresno.....	.00	10.89	9.67	102	56
Ind'p'dn'ce..	.00	3.47	9.53	92	56
S. L. Obispo.	.00	28.13	20.50	82	46
L. Angeles..	.00	17.03	15.58	80	58
San Diego..	.00	14.43	10.01	70	60

The Week.

It would be hard to over-measure the advantage of the settled summer weather, the advent of which we hailed with delight last week. Even the light touches of north wind have very wholesome to plants, so long besotted with the sparkling wine of the Weather Bureau and so grievously beset by the oozy parasites, which largely lose their chance of injury in a dry country. And the change came just in time to save the State a lot of money. Take, for instance, the grain crops of the Sacramento Valley. The plants have made large stem and leafy growth except where the land was actually full of water. If the abnormal spring weather had continued there would have been great loss through lodgment and rust, but the change came just in time to transform the abundance of soil moisture from a menace into an assurance of large production. The report which comes from Glenn county as we write, no doubt broadly reflects the valley conditions. "It is now certain," says the report before us, "that the grain crop will eclipse those grown in many years. Wheat is looking exceptionally well and the acreage is larger by one-half than that of the previous ten years. Eighteen and twenty sacks per acre predictions are almost general. A little rust is noticeable in some of the fields, but only on the lower leaves and where the grain is lodged. The north wind and dry weather of the past few days has put an end to the blight. The barley crop will also be a record breaker. The grain is ripening and heads are long and very heavy."

The coast will have plenty of grain this year and though prices at some Pacific ports are now depressed by lack of ships, there is no reason to think that this condition will continue. The United States will stand for the freedom of the sea to merchant ships, and will be backed by the world to that end. Those who believe their only way to fight is to make war on peaceful ships will have to stop fighting, and that will not only be good for the world, but for themselves, as soon as they can see it and we believe that idea is dawning upon them. There was a man once who, to protect himself, caught a bull by the tail, and did not know how to let go until he was whirled up against a fence, which he in great joy jumped over. And there was another man who, also to protect himself, caught the world by the tail, and he, too, is being whirled toward a safety-barrier, which he will jump over—into the Hague tribunal, and we hope he will be the happiest man alive, as he sips his medicine under the white dove. But while this is going on, there will be a great cry for food for all European nations, and our surplus grain will be sent for and steamers by Panama will speed a turn in values proportional to their speed of delivery as compared with wind-jammers around Cape Horn. The weather favors the grain; get in all you can of it in the best possible condition.

Will the War Teach Marketing?

Speaking of grain and the war, wonder naturally arises whether the way nearly all belligerent nations are regulating sales of food during the war may not teach something about the same thing after the war. If we are not mistaken, fierce and inhuman speculation in food supplies, which is common to war-times, has been prevented in this conflict as never before in the world's history. England began with a colossal deal in sugar, which has given every Englishman normal tea-sweetening without interruption. Germany has pushed regulation of food, in substance and price, to the scientific exactness which one might expect of them, and no doubt all Germans have been well and economically nourished during their trying experiences. Other nations have moved strongly and effectively against sharks and cormorants which fatten in war-times. So far as we know, the producers of these regulated foods have been well paid; we have heard nothing of confiscation; only gambling and cornering have been made possible. If this has saved millions of people from suffering and hardship during war, cannot similar methods prevent them also in peace times? It is surely worth thinking seriously about; and to have something concrete to cogitate over, take the testimony which comes this week about the experience of the last few months with the government's handling of the Indian wheat crop. Up to May 29 ult. the government control had handled over 4,180,000 bushels of wheat and the report says: "The government's scheme for the control of the export of wheat is working smoothly and for the most part successfully." The system is to be continued with the new crop, which is now coming into market, and is expected to aggregate over 382,667,000 bushels—for growing and harvesting conditions have been fine. The report, which comes through the regular news agencies, says: "Purchasers are proceeding steadily and prices are reduced to a level which gives the cultivators a reasonable profit without pressing too heavily on the consumer. Freights have been engaged by the Indian wheat committee in London at a rate appreciably below those paid by Indian shippers." In other words, speculators have been prevented from crying, "There are no ships; there is no money; deliveries cannot be made," and all that, to make buying good and selling hard. Has anyone ever surpassed the wisdom of Solomon in this matter, when he wrote: "It is naught, it is naught, saith the buyer, but when he is gone his way, then he boasteth"; or, as we might say, in more modern phrase, then he boosteth. Having skinned the producer by paying too little, he proceeds to flay the consumer by charging too much. It is often claimed that these "natural laws of trade" transcend science, humanity and law. But it seems clear enough that war can worst them. Perhaps, after all, we owe something to war—if it can teach us how to behave in peace!

Suppose the People Do It.

But we are not contending that the nation should, through its constituted governmental agencies, conduct distribution and sale of food products. We are not ready to preach that, for we doubt the truth and practicability of it, even though some readers, whom we greatly respect, can see no other solution for the problem. It seems to us that the lesson of the war is that pernicious food gambling and trust control of food supplies by associated speculators can be prevented. We believe that such prevention can be secured at all times by two forces acting together, viz.: by governmental regulation and inspection to detect and penalize specified efforts at extortion and by popular organization or co-operation to promote producers' and consumers' interests in food supplies, under such governmental regulation and protection. In brief, the people should do it for themselves and secure such laws to exclude control-speculation and to promote fair exchange and distribution, as they find needful. This will exclude bureaucracy with all its social and political hatefulness and dangers, and install democracy in the most fundamental of all the affairs of life. In our issue of April 24 we alluded to a resolution originating with David Lubin, and now before Congress, "providing for the creation of a national marketing commission to devise a better system for the distribution of agricultural products, to investigate conditions of warehousing throughout the country, and to work out all problems affecting the nation's food supply and demand." This proposition is being regularly promoted by a union of Eastern farmers' organizations. It has been formally approved by the California Legislature, and is strongly favored by Governor Johnson, and will doubtless be upheld at the coming session of Congress by a number at least of our California representatives. It has headway, and therefore should be fully understood and supported as at least an initial move in the right direction. The proposition is not to embark upon an untried venture or visionary experiment, but to introduce into operation in this country, with such modifications as local conditions may require, a marketing method of distribution and sale, which has worked well in Germany. This, and other regulatory things which are undertaken for the promotion of Imperial German agriculture, is accomplished by the Council of Agriculture (Landwirtschaftsrat), which is not a department of the government, in a bureaucratic sense, but is a popular body, because its membership consists of representatives of agricultural organizations in which all farmers may, and generally do, have membership, for German farmers are the most thoroughly and com

pletely organized in the world. And what has this organization done for Germany? In a pamphlet which we have just received from the International Institute of Agriculture at Rome is a letter from Mr. Lubin, in which he says:

"The main cause of Germany's strength, of the terrible power of resistance which she now puts forth, does not really lie in the "goose-step" of her soldiers, nor in the Krupp gun factory, but in the orderly working of her national marketing system, her Landwirtschaftsrat. There is not a single food trust in Germany, and this is altogether due to her Landwirtschaftsrat. We have in the United States so many food trusts that we cannot count them; this is abominable; it weakens producers, it weakens consumers, it weakens the nation. When a way is shown whereby the United States may free itself once for all from these trusts through the adaptation of the Landwirtschaftsrat, why shall not we take hold, adapt and adopt?"

It is this well-tried system of co-operative information, direction and control which the resolution now before Congress contemplates establishing in this country through appointment by the President of the United States of a "national marketing commission" of twenty-nine members, of whom fifteen shall be farmers and fourteen selected for their eminence in commerce, land, finance and transportation. This will be the organizing body, and it must build downward through States, counties, and townships until it reaches the only possible foundation for its success and influence, and that is its direct contact with the co-operating producers of the country.

Norsemen for California.

If you were a Norseman and had a bad neighbor who insisted in exploding torpedoes in the lily-pond in your front yard, and blowing your toy-ships and gold-fish out upon the grass, would not the other side of the world look good to you? And if you could not get the thickness of the world between you and such a neighbor by chasing him around to the other side, would you not chase yourself around? We guess, yes—and that is just what is going on. More than 20,000 acres of land in Sutter, Yuba and Placer counties have been secured by the Norwegian Lutheran Colonization Syndicate, and soon will be subdivided, settled and developed by colonists of Scandinavian origin. We are told that for some time the organization named above has been inspecting lands in Western States with the colonization scheme in view. Their consideration was finally confined to California and then by elimination to the Sacramento Valley. And now, if Mt. Lassen will keep quiet we shall land them all right. A living volcano would not be an attractive exchange for North Sea submarines.

Let the Women Settle It.

We have not much patience with a lot of men with whiskers of various lengths or none, and with coats of various tails or none, meeting in solemn conclave to decide whether women should wear chest-covers and skirts of various heights and depths or none. It is true they reached a wise decision, for they resolved: "Let them cut their collars low, and their skirts high. Let us assume that they do it for comfort and nothing else. Give them the benefit of the doubt." That is perfectly right, but why should a man think he knows anything about a woman's clothes? If he becomes thus insane he ought to be tied to her apron-strings for the rest of his life. She will probably have convictions about your envelopment and say something about it, but don't reciprocate. That is her affair.

Queries and Replies.

Querists must give name and address.

Rape and Alfalfa.

To the Editor: Kindly advise me if rape grows well in this country, which is irrigated, or if it would be better than alfalfa for hog pasture. Must it be planted each year, and how do the plants compare as to feeding qualities?—Subscriber, Modesto.

The chief advantage of rape in California is that it is a winter grower and will make much green forage at temperatures which keep alfalfa dormant. It is often good to turn rainfall to account. Irrigation water is far better used in growing alfalfa because the latter plant is much richer in nutritive substance and can be made into hay, which rape cannot. Rape is an annual growth. Alfalfa is perennial. For California a winter-growing legume, like vetch, is much better feeding than rape, because it is nearer to the alfalfa standard of nutritiveness.

Elm Scale on the Walnut.

To the Editor: I send a piece of a walnut limb with some kind of a scale. What is it, and will it be injurious? Is it something new? Would like to learn all I can about this insect. —J. C. W., Sycamore.

Your walnuts are attacked by a large brown scale, about a quarter of an inch in length, and very conspicuous on the light gray bark of the walnut. This scale usually attacks the elm and is called "Brown Elm Scale," Lecanium canadense, and its injury will depend upon how it is allowed to multiply. The young insects are now running out from the old scales and Mr. Essig, in his new edition of "Injurious and Beneficial Insects of California," says they are practically all hatched out by July. After that the trees should be sprayed with distillate emulsion on both bark and leaves. It is easier to make a clean job by spraying later, after the leaves have mostly fallen, and after the scales are all on the bark, but spraying must not be deferred until winter for the scales are then mature, sealed down tight and not reached by the spray. Of course if you have only a few scattered bunches of scale scrub them off now with emulsion — treating also adjacent bark.

Peach-Blight on the Almond.

To the Editor: I am sending you almonds (green and foliage) of three varieties: Nonpareil, Peerless and Drake, which were taken from 25-year-old trees. Is it a fungus or only the damp weather that makes them drop? The nuts have not dropped yet but are gumming, while the leaves cover the ground. The trees are in excellent condition otherwise. Young trees are not affected. Is there anything one can do to prevent the leaves dropping?— L. C. L., Biggs.

We have received identical specimens and descriptions from Lodi, and we understand the trouble is widely prevalent. The fungus which is defoliating the old trees is the one which also attacks the peach and is commonly called "peach blight." Its present work is favored by the late damp spring and need not be expected under ordinary weather conditions. If it should occur regularly spraying with Bordeaux before the leaves start would be necessary. It is now too late to make treatment worth while. New foliage will appear later. We do not undertake to explain why young trees are not affected.

Potato Blight Dependent upon Weather Conditions.

To the Editor: I am sending a number of potato plants which are evidently affected with some form of blight. As my land was never planted to potatoes before the disease must have been in the seed. About 15 or 20 per cent are thus affected. This land is sandy and I would like to know if the disease can be eradicated from the soil by winter flooding or if it would be advisable to draw the infected plants from the ground. As this land is new and of splendid quality, maturing potatoes very early, I consider it much more valuable for this crop than for any other, and am very desirous of planting next season. Will you kindly advise me what to do and what I may expect from next year's crop?—K. W., Colusa.

All that you need to do is to wish for better weather next spring. It is not worth while to give the land nor the diseased plants any treatment, for this particular fungus is only able to do injury when the air remains cool and moist, as it has this spring. Ordinarily it would not trouble you and you may get a perfectly clean and satisfactory crop on the same land next year if the weather favors the potato and fights its enemy. In some normally damp places it may occur often and it may be desirable to protect the foliage by spraying with Bordeaux when the first sign of the trouble appears, but in your interior valley situation, ordinary weather conditions will bring you through. It is not worth while to speculate as to how the spores got to you; they are always loafing around waiting for a chance of weather which helps them to make a drive on the spuds.

Whoa! Emmer!

To the Editor: I sowed 6 acres of "Ammor" barley or Hammor barley; tell me which name is correct. Also please tell me what it is. I have been asking my neighbors, but nobody knows what it is. It grows finely. I sowed it in February and now it is 30 inches high, but gives no sign of heads yet. It is so soft that I never saw anything like it; besides it is so thin, like grass. Will you tell me what it is good for—for grain or for hay, and what is the grain used for?—Subscriber, Livermore.

The grain you have is probably "Emmer"; it is not barley but a near-wheat, although it does hold the husk or chaff on the grain like barley. It comes from the north of Europe where growing conditions are hard and it stands both frost and drouth better than wheat or barley and it does not rust. Some dry-farmers on uplands in southern California speak well of it, and it may be more widely useful in this state because of its drouth-resistance. It makes good pasturage because the stem is soft when green, as you describe, but it makes rather poor hay because the thin stem gets so hard when drying unless it is cut very early. It is probably poorer for hay than either wheat or barley. The grain is about as valuable for feeding as barley and can be used in the same way. Why in the world did you sow six acres of a thing which you knew so little about?

"Pedigreed" Buds for Top Working.

[Written for Pacific Rural Press by Leonard Coates, Morgan Hill.]

In "working over" old orchard trees, budding has always been employed as an auxiliary. From a long experience, I would prefer, especially with the stone fruits, to bud primarily, for the reasons given in Pacific Rural Press some time ago.

June Budding Preferred.—There are two reasons for the early June budding: One is that there is a saving of time, and the other that the buds are not likely to be injured by the twig borers if induced to start at once. Dormant buds are almost sure to be attacked by these borers, although a good lime-sulphur spray would largely prevent injury.

Regarding the selection of buds, it might as well be accepted, without further cavil, as a settled principle in horticulture, that trees, or varieties, are capable of improvement by bud selection. Note what is being done in Southern California, under the systematic direction of men connected with the U. S. Dept. Agr.

To proclaim trees as "pedigreed" simply because men are told to procure bud wood from the best, or "selected" trees, is of course reprehensible. It does no good, and tends to bring the whole nursery profession into disrepute.

To have a fair chance of getting an improved orchard by "working over," only thoe trees which are known to have borne superior fruit successively for a number of years, and which are healthy and vigorous, should be the ones from which buds are taken, and then only from young wood growing on bearing branches, and where growing, as much as possible, around the outside of the tree. Use buds from about the center of the stick.

If growers would have a little patience, and had in mind the changing of a considerable portion of their orchards, they could mark some especially good trees, or even branches of those trees, and graft buds from them onto "stock" trees, which the next year will supply plenty of buds.

No one can "pedigree" a nursery stock; the assumption itself is foolish. The most that any one can do in an ordinary life time is to specialize on some one or two varieties with a view to their permanent improvement. To follow this out, it is always possible, if not probable, that a really valuable bud variant may be found; for any one may become peculiarly expert when observing and studying along some special line.

I have harped on this with reference to the "French prune" for many years, but I believe the prune, as a commercial asset of California, is worth it. One has to "demonstrate" now-a-days, for "Thomas, surnamed Didymus, thy name is Legion." To this end we purchased last year a ten acre peach orchard, decapitated it in the early winter, and are now selecting the suckers to be budded in June, by rubbing off superfluous ones. This orchard will be budded entirely with seedlings, sports, and new importations of "French" or D'Ente prune, of which we already have grafted, and in some cases bearing trees in our experimental orchard.

[Details of the operation will appear in another article.—Editors]

IN TESTS to determine the comparative availability of nitrogen in nitrate of soda and dried blood, barley was followed by buckwheat in the same season on various mixtures on loam and sand at the New Jersey Experiment Station. Equal quantities of nitrogen in both fertilizers were applied and the crops analyzed for dry matter and nitrogen content. The average yield and per cent of nitrogen was found practically the same, with both of the crops raised in the season considered. With the first crop (barley) the highest average yield of dry matter and nitrogen came from the nitrate of soda; with the second crop (buckwheat), the highest yield came from blood, seeming to indicate that nitrate of soda gave up its nitrogen more quickly to the crop. Where the soil mixture was less than 70 per cent sand, the average availability of the dried blood nitrogen was 70.6 per cent of that in the nitrate of soda; while where the soil mixture was 80 to 100 per cent sand, the dried blood showed an availability of 250 per cent that of nitrate. This would seem to indicate that the dry blood furnishes far more nitrogen to the crops in very sandy soils than the nitrate of soda; but the nitrate furnishes more nitrogen than blood during the season of application where the soil is less than 80 per cent sand.

American Sugar Beet Seed.

California ought to produce the sugar beet seed for this country and ought to have a share in the world's trade in this article. Will California ever do it? That depends upon how the home product of sugar appeals to the people of the United States.

We find in a publication entitled "Facts About Sugar," published by the domestic sugar producers of this country an article on the subject written by W. K. Winterhalter of San Francisco, who is described in the publication as "recognized as the leading authority on beet seed in the United States," who has been actively engaged for several years in seeking to establish the industry here. Mr. Winterhalter makes a statement regarding the progress and possibilities of beet seed production in the United States, as follows:

The production of first-class beet seed in certain localities of the United States is far beyond the experimental stage; and the fact has been fully established that seed can be produced equalling, if not surpassing, in yield and quality, any such product of Europe, where the American beet sugar industry obtains practically its entire supply.

Conditions Affecting Production.—Immediately after the seed panic of 1911-1912, upon my return from Russia, I engaged in co-operation with the Utah-Idaho Sugar Company in the production of pedigree beet seed raised from imported mother seed. From the standpoints of seed quality and the resulting yield to the beet grower, the undertaking has been entirely successful. Our seed has produced very good tonnage, and beets high in sugar as recorded by various sugar companies. If it were not for the high cost of production, which is the one serious obstacle to growing seed in competition with Europe, and governs the cost to the beet grower, the industry would be conducted on a much larger scale, as the quality of the seed assures a ready sale in the beet growing sections of the country. Since hand labor plays an important part in production the difficulties of successful competition become impressive when it is known that in Europe the average wages for men vary from 50 cents to 20 cents per day, according to localities, being highest in Germany and lowest in Russia, and where women, who are largely employed in the industry, earn from 35 cents to 15 cents per day. In our operations here we pay on an average $2 per day for nine hours' work, and have been called upon to pay as high as $3.50 when weather conditions compelled us to work under pressure.

Where we operate on leased lands we are at a disadvantage of from $8 to $10 per acre rental in excess of the standard of Austria or Russia. These items materially affect the cost of production.

How to Start.—In order to produce pedigree seed whose inherited qualities are passed on to the next generation without deterioration, it is essential that we use only genuine mother seed. The use of ordinary commercial seed for propagation would result in failure. The cost of mother seed to us is $5 per pound, which is nominal considering the expense incurred in the scientific breeding and selection for its satisfactory production. These involve years of work, a large investment for equipment, and the employment of special talent adapted to, and highly experienced in this special work. So far it has seemed unwise, because of fear of the lack of stability and permanency in the beet sugar industry itself, to enter into this branch of the commercial seed industry in this country. The beet sugar manufacurers of America naturally have not felt justified in supporting an industry whose product must be purchased at an increased price over the same commodity imported from Europe. Notwithstanding the seed panic of 1911 which forced many American manufacturers to purchase large quantities of seed abroad at exorbitant prices, had it not been for the recent disturbances in Europe, little attention would have been directed to our home enterprise.

Essentials to Success.—Judging from our limited experience of the last three years, I am of the opinion that beet seed can be produced in this country in large quanties at a price which the beet grower could well afford to pay, providing the industry is afforded an opportunity to operate on a more certain and permanent basis than it has rested on in the past. If an annual market for a large output of home grown seed were assured, a perfected organization could reduce the cost of production of today quite materially; but as long as there is no assurance, from one year to the next, of a remunerative market for the product, the future of the American beet seed industry is confronted with a handicap which it cannot overcome in competion with Europe. As long as beet seed can be imported free of duty, and as long as the beet sugar industry of the United States lacks a sound permanency, our work will continue hazardous, to say the least, and will naturally be confined to a small output of seed from year to year. A protective tariff of 2 cents per pound would in my opinion result in a development of the beet seed industry in this country. I have never been able to understand why an industry, which has invested nearly one hundred million dollars in factories should continue entirely to rely on Europe for its supply of seed, the very foundation of its investment; when it has been so clearly demonstrated that we possess all the factors essential to the production of first-class seed at home. The difference in cost reduced to units per acre and pound of sugar would practically be insignificant, and largely offset by the advantages derived from the use of the home product.

Mr. Winterhalter reports that, with ordinarily favorable growing conditions during the coming season, some 800,000 pounds of beet seed will be produced in Utah and Idaho, where the industry is being developed with the support of the Utah-Idaho Sugar Company.

PAPER PEACH-DRYING TRAYS.

[Written for Pacific Rural Press]

Five thousand trays were not enough to take care of all the drying peaches put up by Landan & Clough of Merced county, so they used between three and four thousand paper trays last summer. Heavy building paper was cut to fit the ordinary wooden drying trays and was laid temporarily into them. Peaches were laid directly on these paper tray-linings by the cutters; and after being hauled to the drying yard, the paper loaded with fruit was simply slipped off from the tray onto the ground.

After the drying season, all the wooden trays had to be taken to the irrigation ditch and soaked in water before they could be cleaned. Boys were hired to walk around on the trays to submerge them once in a while; and then when the dried fruit stuck to them had softened enough, horse brushes and brooms were used to clean it off. This involved considerable breakage, besides the trouble of handling them.

Home Canning; Fruits and Vegetables—V.

[Written for Pacific Rural Press by Prof. W. V. Cruess, University of California.]

Peas.—The variety of pea chosen for canning should be small in size, tender, and sweet in flavor. Such varieties as Alaska, Early June, and Marrowfat are used commercially for canning. They should be gathered while still young and tender; and canned as soon as possible after picking. Peas deteriorate quite rapidly after gathering, especially if left in bulk, where fermentation may set in and seriously injure the quality.

Vining and Shelling.—In commercial canneries, the peas are put through a vining and shelling machine which is capable of threshing out and separating a large quantity of peas from the pods and vines per day. This apparatus is too expensive for small scale operation and on the other hand shelling by hand is very slow. Therefore, the canning of peas for market on a small scale does not appear very attractive; but enough for home use can easily be put up conveniently.

Grading.—Canneries usually grade peas into six different sizes by means of sieves. The size of the openings in the various sieves and corresponding size-grades are as follows: The smaller the peas are, the higher the grade, other things being equal.

Size of Mesh	Grade
Over 13/32 inch	Marrowfat
13/32 inch	Sifted Garden
12/32 inch	Sifted June
11/32 inch	Early June
10/32 inch	Extra Early June
9/32 inch	Petite Pois

The sieving machine is similar to the ordinary grain sieves used in fanning mills, etc. In home canning the grading may be done closely enough before hulling and three grades will be found sufficient. The first grade would be the small young peas, the second, of medium size and ripeness, and third, of large size and over-ripe. Ordinarily the largest peas will be ripest; and less desirable in flavor, texture, and appearance than the small ones. The three grades might for convenience be designated Fancy (smallest grade), Extra Standard (medium size and ripeness), and Standard (largest size and peas too hard to be included in Extra Standard grade.)

Blanching.—Peas must be "parboiled" or "Blanched" in boiling water a short time before canning to remove mucous-like material from the skin and to leach out a slightly bitter principle. The time will vary with the degree of ripeness and size of the peas. It will ordinarily be about 1½ minutes for the smallest sizes to about 4 minutes for the largest grade. When the skin becomes slightly wrinkled, the blanching has gone far enough. A pot of boiling water and a coarse weave cloth bag or wire screen will comprise all the necessary apparatus for blanching. The blanching water should be changed often.

Brine or Syrup.—The hot peas are filled into cans or jars and covered with a brine consisting of one gallon of water, 2½ ounces salt, and 3¼ ounces sugar. This brine should be clear and freed from floating particles by straining if necesary. If so desired, the brine may be flavored with a small amount of butter added to each can or by addition of a small amount of pepper. Number 2 cans are most commonly used for peas.

Capping and Extracting.—The cans are capped as in asparagus canning (see preceding article). They are immersed in boiling water 5 minutes for number 2 cans. Jars are not exhausted. The vent holes of the cans after removal from the exhaust kettle are sealed with a drop of solder.

Processing Number 2 Cans and Jars.—If a steam pressure outfit is used, process 30 minutes at 240 degrees F., or 10 pounds pressure. If a wash boiler sterilizer or similar arrangement is used at 212 degrees F., process one hour at the boiling point on each of three successive days. Immediately after processing the cans should be chilled in cold water to prevent overcooking.

Process quart jars once for 40 minutes at 240 degrees F., 10 lbs. pressure, or one hour at 212 degrees F. on each of three successive days. Before processing, the covers of the jars must be loosened to permit escape of steam and prevent breakage. The caps must be screwed down while jars are still very hot and before removal from sterilizer. They may be allowed to cool upside down to further heat the caps.

Trial Lots.—Peas carry bacteria that are very difficult to kill and in some cases cans or jars may spoil after processing; hence it is wise to first put up several cans or jars as directed and note if any of them spoil after a week or ten days standing in a warm place.

String Beans.—The finest beans for canning purposes are picked when the beans are just beginning to form in the pods. Beans picked after this stage decrease in quality with increase of maturity. They should be canned as soon after picking as possible in order to be crisp and brittle.

As many as five grades are made according to size and degree of ripeness in commercial canneries, but if all the beans used for home canning are picked at about the time the beans are forming in the pods, two grades for size will be sufficient.

The graded beans are stringed in the usual way, broken into pieces 1 to 1½ inches long, thoroughly washed in cold water and placed in a screen blanching tray or in a cloth bag.

They are blanched two to four minutes in boiling water; the time varying with the size and maturity. They are filled while still hot into number 2 cans or jars and covered at once with hot 1½ per cent brine which is made by mixing 1¾ ounces salt per gallon of water, or 1½ pounds salt to 12 gallons water.

Because the cans are filled with hot brine, it will not be necessary to exhaust them. They are capped and tipped while still hot. The number 2 cans are sterilized at 240 degrees F. or 10 pounds pressure for 25 minutes; or at 212 degs. F. for one hour on each of three successive days. The cans must be chilled in cold water immediately after each heating.

Jars should be processed (with covers laid on loosely) at 240 degrees F. 40 minutes; or one hour at 212 degrees F. on three successive days. As soon as processing is over in each case the jar covers should be screwed down at once. Stringless Beans may be treated in practically the same way as string beans.

FROM experiments conducted in co-operation with the U. S. Reclamation Service it was found that the grazing of sheep on irrigation ditches infested with Johnson grass lesesned the stand of grass; the ditch branks were well packed; the gopher holes and gophers seemingly had disappeared; the sheep had been maintained; the expense of controlling the seeding of Johnson grass was cut to a minimum; and the cost of ditch cleaning was decreased.

Pear Picking to Increase Demand.

[Written for Pacific Rural Press.]

Over in Contra Costa county is a pear growing section which is blight-free like the northern part of Santa Clara valley, though, like the latter, they have had a little of it ever since it has been on the Sacramento river. For the reasons as explained by growers in both sections, the blight has never become serious; they believe their immunity is due to the cool, foggy climate.

Among the old-timers in Contra Costa county is E. B. Anderson, who has 90 acres of orchard and 20 years' fruit-growing experience. He ships fruit East, sells large quantities to the canneries, and is the largest fruit dryer in the county.

According to Mr. Anderson, the requirements for shipping and canning pears are practically the same, though the net returns from half of his crop shipped East last year averaged about $26, while he received $50 for them from the cannery.

Watches Signs of Ripening. — In July, about the time they appear to begin ripening, Mr. Anderson goes over his orchard to form judgment as to when picking should commence. If a large proportion of them show a very slight yellow color under the green, such as an ordinary observer would overlook entirely, he observes more closely; and if the stems seem to have been constricted where they join the buds, as if a string had been tied around them and the stems had swollen above the string, the pears are tested by hand. With the open palm of his hand he lifts the fruit and swings around about to a level with the branch it hangs on; and if it breaks off easily, it is ready to be picked. If many of them are at such a stage, there will probably be some of them already dropping and picking must commence at once. Only those that are good to ship or to can are picked. The rest are allowed to fall and are dried.

Uses Rings for Picking.—For shipment, there must be none of the scab on the pears which comes from thrip injury early in the spring. No fungus scab bothers Mr. Anderson. The fruit must be of proper ripeness and regular shape. Then, if it is of the right size, it is picked. To tell the size, a ring is carried by each picker, usually hung over his ear when not in use. These rings must be inexpensive, because the pickers are careless about losing them. Mr. Anderson makes about fifty rings in an hour by bending baling wire around a thimble skeined wagon axle and twisting the ends together into a four-inch handle. For the first picking, the ring must be 2⅜ inches in diameter, and beginners must slip their rings over all fruit picked until their eyes are trained to select only the right size. Even experienced men must use the rings oftener than once an hour because their eyes "lose the focus," and a man soon finds himself picking smaller fruit. Mr. Anderson watches his pickers and insists on frequent testing with the rings. This size fruit makes a four tier pack if put up in the best way and, of course, brings the highest price.

Lets Hang as Long as Possible.—Since the pears will increase in size and sweetness without softening until they pinch themselves off, as noted above, picking is delayed as long as possible. After the first picking, a 2¼ -inch ring, however, is necessary, and this gives pears which pack five tiers. After the third picking, the rest is dried.

For canneries, the same requirements are necessary except that thrip scab is not so objectionable if it doesn't deform the fruit. Of course, no wormy fruit is picked for anything except drying.

Santa Clara Valley.—"We handle pears like eggs here," says G. M. Brown of Santa Clara county, who had a five-year contract with a local cannery, which ran out last year. Four other concerns tried to make new contracts with him, which situation was brought about, he thinks, by his careful handling. In fact, Mr. Brown almost had a row with the canner who was buying his pears because they were handled so carelessly at the receiving end of the cannery. Mr. Brown thought that after so much careful handling on his ranch, the fruit should not be spoiled at the cannery, even though it had passed out of his hands.

He makes the first picking from the ground in order to get the fruit out of the way of that which might fall and knock it off. He, too, has noticed the tendency of the pears to increase from 2¼ to 2½ inches in diameter in a single night. For this reason, the orchard must be watched closely and picked three or four times, leaving the smaller fruit, because after the first ones are picked, the others have a better chance to enlarge, both on account of increased sunshine and increased light and air, and because of diminished crowding, and more sap available for each remaining pear.

Fine Lemon Curing Equipment.

[Written for Pacific Rural Press]

"A lemon breathes the same as any other living thing and needs ventilation for its well being," says C. P. Strickland, house foreman for the Santa Paula Fruit Association, whose average f. o. b. returns were very high last year and which sells practically all to private trade; not over half a dozen cars per year to the auctions, those being the second grades.

"We always notice the characteristic smell after leaving trays of lemons covered tightly for some time. The interior of lemons confined too long turns black with an inside rot, due to lack of air and dying down of the tissues inside. Each of a dozen kinds of rot, gray, green, brown, or black inside, and blue mold—has its distinctive odor different from the good, fresh lemon smell."

Controlled Curing Needed.—Proper temperature, moisture, light, and ventilation must be maintained for lemon curing. It takes dark green fruit six to eight weeks to cure properly unless they are sweated, which is seldom done by the Santa Paula Association—probably not over three or four cars a year.

When a lemon comes in from the orchard, it has a thick skin. Properly cured, there has been a constant evaporation and the skin has shrunk gradually to fit, becoming more compact and, therefore, thinner and smoother, but always firm, fresh, and juicy. The desirable color comes in the process, and the acid and flavor are preserved. Too much air would shrivel and shrink the lemons, softening them, drying them out, and losing their quality.

To obtain the ideal curing at Santa Paula, where they have considerable fog which brings too much moisture, and many hot, dry, east winds which would shrivel the fruit, they must have entire control of the ventilation. So the packing house is built with tight sides, but with controlled ventilation in the roof, sides, and floor. At the Limoneira Ranch, not many miles away, conditions are different enough so the buildings are built open-sided, but tents are used as described below for the association.

Stacked and Covered with Tents.—The lemons are stacked in packing boxes after washing, fourteen boxes long, four wide, and ten high, containing and are covered with eight-ounce army duck "tents." A "tent" is made by stretching the canvas over and down from the sides of a rectangular frame made of 2x3's a trifle larger than enough to cover the stack. This frame is braced by six cross pieces of 1x3, and the newer ones have additional endwise braces in the end sections to prevent the sagging due to weight of the "tents."

This frame is hung from the rafters above the stack of fruit and the curtains hang on all sides, having hooks to fasten the corners together tightly. A wood curtain pole is nailed to the lower edge of each curtain to hold it in place and for use in rolling the curtain up. The end of a small rope is fastened near the corner of the frame and runs down to the floor inside of the curtain, then up on the outside to a pulley on the frame, then horizontally along the frame through two small pulleys about a foot each side of its center, and on to another pulley near the other corner. Passing through this pulley, the rope runs down to the floor, passing under the curtain pole and up to the frame where it is tied.

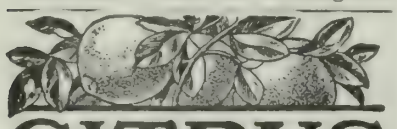
A wire seven inches long is looped over the rope between the two center pulleys and its other end is bent into a hook. When the curtains are to be raised, a pole with a hook on the end of it is caught on this hook and the rope pulled down. This rolls the curtain poles to any desired height and the hook is then caught under a box to hold it in place.

There are 81 such "tents," under a few of which the trays of graded lemons are set while awaiting the packers, because it will not do to leave them exposed to the outside air for even a few hours just before packing.

Raise Curtains According to Weather.—The curtains are lifted for ventilation according to the weather to effect the desired curing. The fruit is inspected every morning, and if damp the curtains are rolled up; or if dry, they are left down and rolled up in the evening. If warm, they are left up at night and rolled down in the daytime.

Electric lights, two-inch fire hose every fifty feet, two fire plugs outside, and hand extinguishers add fire protection to the numerous "Smoking Absolutely Prohibited" signs.

In spite of the general cry of poor markets, this house had been running, on March 2 last, day and night, seven days per week for three weeks, getting out fruit for their special orders.



CITRUS TREES

Grown by TEAGUE —in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

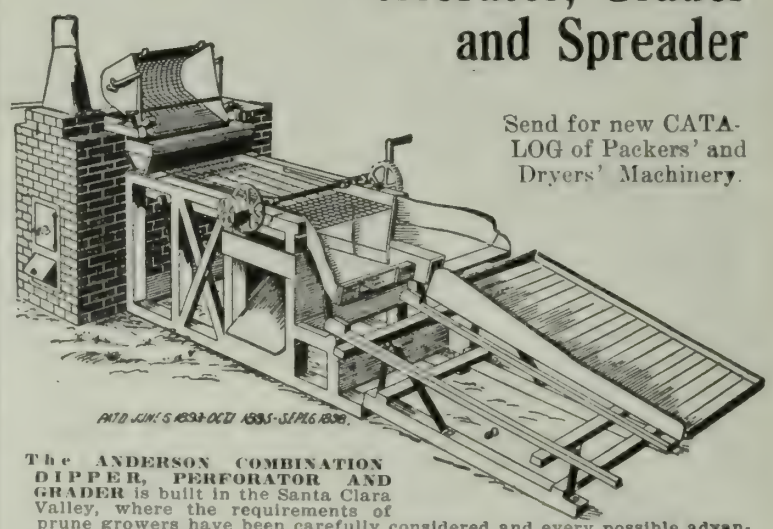
for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating, packing, and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries Inc
Established 1890 by R.M. Teague
San Dimas, Cal. U.S.A.

Anderson Combination Dipper, Perforator, Grader and Spreader



Send for new CATALOG of Packers' and Dryers' Machinery.

The ANDERSON COMBINATION DIPPER, PERFORATOR AND GRADER is built in the Santa Clara Valley, where the requirements of prune growers have been carefully considered and every possible advantage incorporated into the machine. Can be furnished with or without rinse tank. Made in various sizes for hand or power.

SEND FOR 1915 CATALOG.

It illustrates and describes the entire Anderson-Barngrover line of Fruit Packers and Dryers' Machinery. A copy will be sent free to all who are interested. A postcard will bring it.

See our Exhibit in the Palace of Horticulture at the Panama-Pacific Exposition adjoining the Cuban Gardens, which are under the Big Glass Dome.

Anderson-Barngrover Manufacturing Co., 20 West Julian St., San Jose, Cal.

Grain Bags
Twine
TENTS
Irrigation Hose
Wagon Covers—Canvas
Desert Brand Water Bags
Milk and Butter Coolers

Write for Catalog and Discounts.

W. A. Plummer Mfg. Co.
35-37 Front St., Cor. Pine, San Francisco

The Williams Patent Portable Alfalfa Mill with Sack Packer

Can be driven with steam, oil, or electricity. Three sizes. One, two and three tons. Don't Haul Hay—HAUL THE MEAL.
Address Oliver J. Williams, 25 California St., San Francisco.

State Wide Good Roads Popular.

(Continued from page 673)

the Yolo by-pass to a connection with route 7 near Davis. Route 7, from Tehama Junction to Benicia, connecting the county seats of Glenn, Colusa, Yolo, and Solano counties. Route 8, from route 1 near Ignacio to a connection with Route 7 either at Benicia or Cordelia, via Napa, through Marin, Sonoma, and Napa counties. Route 9, connecting San Bernardino with the main highway system, through Los Angeles and San Bernardino counties. Route 10, connecting Hanford with the main route and running to Visalia. Route 11, connecting Placerville with the main route at Sacramento. Route 12, connecting El Centro with the main system at San Diego. Route 13, connecting Sonora with the main system in the San Joaquin Valley through Stanislaus and Tuolumne counties. Route 14, in Contra Costa county. Route 15, connecting Colusa with Route 7 at Williams. Route 16, connecting Lakeport with Route 1 at Hopland. Route 17, connecting Auburn with the main road in the Sacramento Valley. Route 18, connecting Mariposa with the main system in the San Joaquin Valley at Merced. Route 19, connecting Riverside with the main system at Los Angeles. Route 20, connecting Weaverville with the main system at Redding. Route 21, from Richvale to Oroville, in Butte county.

Construction—So important a problem as construction naturally called for much serious thought and the technical points raised were many and varied. After studying the needs of the trunk lines and the laterals and making estimates of the cost of the work to be performed, the commission arrived at the conclusion that the roads built should have the following characteristics: (1) A right of way not less than 60 feet in width, where it is reasonably possible, and as direct between objective points as is consistently possible. (2) Gradients not exceeding 7 per cent, even in the mountainous parts of the State. (3) Curves as open as possible and in no case less than 50 feet in radius. (4) As many culverts of sufficient capacity as are needed to take care of surface and underground water. (5) A traveled way, under ordinary conditions, not less than 21 feet in width, and in the mountains not less than 16 feet wide, with the center paved or surfaced so as to be hard and smooth under all climatic conditions at all times of the year, the width of hard paving to be in general 15 feet. (6) Smoothly graded roadsides, reserved for future tree planting.

The standards of trunk line construction were set high—no grade in excess of 7 per cent, nor curves with shorter radii than 50 feet, a 21-foot roadbed, and with ideal alignment, etc. The type of construction was fixed—the concrete base, permanent type. The lateral roads, however, warranted a much more flexible policy. Some of them, as the Oroville lateral and the Hanford-Visalia lateral, will carry sufficient traffic to warrant trunk line type of construction. On the purely mountain laterals, such construction was considered folly. No one wants, expects, or needs city streets through the Sierras. An accurate study, therefore, of this problem demonstrated the necessity of varying types of construction to meet varying situations. Grades steeper than on the main routes, narrower roadbeds, surfacing of native materials, and similar reasonable economies were necessary in handling this lateral problem without a prohibitive cost; and at the same time the resulting roads will be a godsend to communities where 25 per cent grades and narrow, dangerous roads without the benefit of sound engineering are today the rule. To lay the foundation for a perfect road and out of the maintenance fund gradually perfect such roads by the addition of guard rails, culverts, retaining walls, surfacing, etc., will be the policy. By such a system, the mountain counties will be opened up by roads that lend themselves to safe and economical traffic, and the mountain counties will become a part of California practically the whole year round.

Concrete Base for Main Lines.—With the selection of the concrete base for the main trunk lines decided upon, much discussion was brought out as to the advisability of covering the base with so thin a wearing surface of bitumen material. That type, however, has been adopted and in this respect the statement of State Highway Engineer A. B. Fletcher gives the ordinary layman a thorough understanding of the situation which was presented.

"In most cases," he says, "where the traffic is moderate in volume—500 to 600 vehicles per day, at least one-half of the vehicles being business or pleasure motors, with a fair sprinkling of wagons carrying five to eight tons of produce—the concrete base with a bituminous top one-half to three-eighths inch thick is being constructed. Indeed, this kind of pavement has been called the standard type of the California State Highways.

"In general, where the subgrade is firm and hard and likely to stay so, or where the subgrade can be made to conform to such requirements, the concrete base is but four inches in thickness. There seemed to be ample precedent for a base so thin as four inches in certain eastern construction; and certainly if such a base is sufficient in the frost-bitten East, there would be little doubt of its adequacy in sun-kissed California. The experience of more than two years has proved the suitability of the four-inch concrete base under the conditions mentioned. There have been no failures even under extreme traffic." Mr. Fletcher does not favor a base so thin except under ideal conditions of subgrade with a total absence of frost conditions. "The concrete must be honestly made and laid, and reasonably rich in cement."

In the California work the concrete closely approximates a 1:2:4 mixture and it is carefully inspected in all stages. When it must be laid over adobe or other bad material, the base is thickened to five or six inches."

The Commission's estimates as to mileage of roads to be built and the cost are presented below:

Trunk Lines: 1,305 miles, requiring paving, at $8,620, $11,249,-246.00; 480 miles surfaced with local materials, at $5,944, $2,852,-905.00.

Laterals: 785 miles at $2,881, $2,-261,485.00; improved county roads, 190 miles at 0, 0; add 10 per cent for administration, surveys, and engineering, $1,636,364.00; totaling $18,000,000 for 2760 miles.

The figures of mileage are tolerably accurate, but the average prices per mile were rough only. The main trunk lines are costing about $7600 per mile, this cost being made up approximately as follows: Grading, culverts, etc., per mile, $1,300.00, 17.1 per cent; concrete base, per mile, $5,860.00, 77.1 per cent; ⅜ inch bituminous wearing surface, $440, 5.8 per cent.

This means that more than 90 per cent of the cost of the work goes into grading, culvert work, and the concrete base, all of which may be considered as practically permanent, and the remainder into the thin wearing surface.

Such a wearing surface, thinks Engineer Fletcher, should last two to four years before it requires renewal, which renewal should cost considerably less than the original application. The thin surface is best adapted to rubber-tired vehicles, but it wears well under a considerable volume of mixed traffic, consisting of both rubber and iron-tired vehicles.

A New Bond Issue.—Since the value of good roads has been demonstrated by the completion in part of the State Highway, the demand for more such roads is everywhere apparent and in November, 1916, the voters will decide as to the advisability of spending another 15 million dollars for the completion of all mountain passes that were unable to be reached by the former bond issue as well as providing connecting laterals for the main highway.

HIGH-PRICED ALMONDS EAST

According to a telegram from Dudley & Company of New York City, new crop almonds were offered there by one of the largest California packers on June 2 at the following prices f. o. b. dock San Francisco with one per cent off for cash: Nonpareils, 16 cents; IXLs, 14⅜ cents; Ne Plus, 13⅞ cents; Suisun Drakes, 13 cents; Drakes from other sections, 12½ cents; Languedocs, 11½ cents.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS.

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.

PLOW DEEP

with the

Big Bull Tractor

Price $685

Service. Few parts. Low cost of repairs.

Guaranteed like an automobile. 5500 sold first year.

Write for Catalog.

HUGHSON & MERTON,

530 Golden Gate Avenue, SAN FRANCISCO.

1229 So. Olive Street, LOS ANGELES.

PLANT NOW

Sudan Grass — Tepary Beans

Melons, Pumpkins and Squash

Special Prices on Application

WEST COAST (Cut Rate) SEED HOUSE

116-118 East Seventh St. — *Los Angeles, Cal.*

PHOSPHORUS Makes FRUIT

Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn-out soils and Maintains and Increases the Fertility of good soils.

Write for Our Literature.

United States Phosphate Co.

405 Marsh-Strong Bldg., Los Angeles, Cal.

Our Mines are Located in Utah, Idaho and Wyoming.

Mechanical Power on the Farm.

LATE PLOWING FOR HUMUS.

[Written for Pacific Rural Press]

"Don't you stop plowing at noon?"

"Not even to give the engine a drink of water. She only takes a quart and a half of water once a week. I am plowing 50 inches wide about an acre an hour. Do not have to stop even at the ends because I just run around a tree row and run back on the alternate ones. Get on the plow and have a ride."

Thus spoke A. P. Marston of Santa Clara county. We got on and noted how the four disks turned the heavy cover crop under great clods of black semi-moist dirt. Mr. Marston was driving his engine close enough to the prune trees so that the forward furrow wheel of the gang plow barely missed the trunks, and once in a while he would turn around and smile at a particularly close shave.

Basins had been dug around the trees to dig out the borers, and whitewash had been applied from the crown root to several inches above the ground. The plow was turning dirt to fill these holes and covering the knee deep growth of purple vetch in the rows between the trees, as prettily as anyone could wish.

On a gravelly streak through the orchard the disks plowed noticeably less deep and once or twice slipped sideways, but in the black dirt they went about four inches deep and did as pretty a job as could be desired.

His Midget Caterpillar was only about 4½ feet high at the highest point and the adjusting lever on the plow was pointed inward so it very seldom touched the spreading branches of the prune trees. No colters were necessary to cut the vetch stems and no chains were used to drag down the high growth.

"It's a dandy little engine," says Mr. Marston.

He had waited until May 27 to turn under his cover crop in order to get all the "substance" possible in the vetch stems for additional humus in the ground. As soon as the orchard is all plowed, it will be harrowed, worked down fine, checked, and irrigated, being finely cultivated the rest of the summer.

ENGINES ON HARVESTERS.

Gradually the gas-engine is cutting out the hard work in the harvest-field. For the past several years, the use of auxiliary engines on combined harvesters has been growing more popular, resulting in economical results to the farmer.

Now, we have the binder-drive engine for the farmer with a limited acreage in grain, or for use when the conditions of the crop and soil make need of greater power than can be developed from the traction of the wheels.

This is a light-weight engine that can be attached to any binder, new or old, at a light expense. It saves the use of two horses and the price of one will pay for an engine. Better work is done and much saving results.

The engines may be detached after harvest and put to other uses within their power on the farm. These engines have been adapted successfully to the operation of binders for rice, grain, and corn; for small harvesters, strippers, potato diggers, etc. In fact, the ingenuity of the farmer has found many uses for these engines, unthought of where heavier engines could not be conveniently used.

MOTORCYCLE POULTRY DELIVERY.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

If the boys happen to have a motor-cycle or a small runabout, what is easier than to get some egg customers who like fresh laid eggs and are willing to pay a few extra cents to get guaranteed fresh eggs.

Get a rubber dating stamp and date every egg, say three times a week. If customers are requested to save and return the carriers these can be scalded and made to serve several times. Then at the week end, orders for chicken could be solicited for the next Sunday's dinner. A pen of birds in good condition can be fed up on sour milk and oat meal or coarse flour in two weeks, so that those who purchase one will always order another. It does not do to have the birds shut up too long, but a few can be kept going all the time, also a few good fat hens. Cull out the poor layers, keep them in a yard and feed them all they can eat. In this way they lay all the eggs they are capable of laying and fatten up at the same time.

200,000 FEET CHEAP WATER PIPE

Just received several carloads of new and 2nd hand water pipe. Oil Well and Water Casing; Riveted and Surface Irrigation Pipe. Big Stock. All sizes. Prompt shipments. Lowest price. Write, phone or wire.

ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy 1264—F1917
(Under entirely new management.)

You Know

American

Surface Irrigation Pipe.

is RIGHT

—then why experiment with any other? Lasts a life time.

AMERICAN STEEL PIPE & TANK CO.

Suite 354-56 Pacific Electric Bldg., Los Angeles.
Branch: 1228 "H" St., Fresno.

Also, single and double Well Casing.

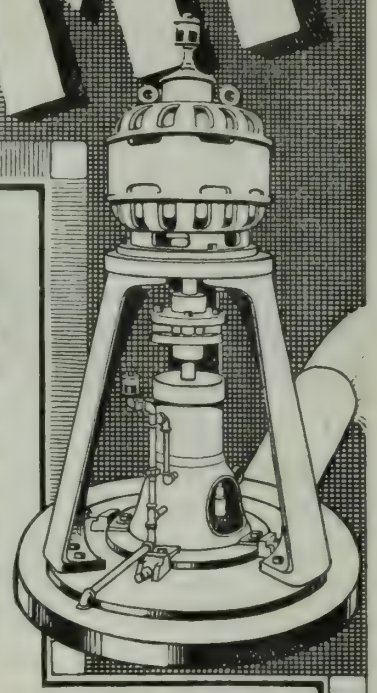
Luitwieler Pumps

Exhibit at Both Expositions.

Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.

Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

Layne & Bowler PUMP



BELT OR DIRECT DRIVEN

Regardless of the conditions it must meet, the Layne & Bowler Pump will give perfect service. For deep or shallow work, sandy work, high or low lifts, large or small capacity duty, the Layne & Bowler Pump is ALWAYS on the job.

You should have our pump booklet.

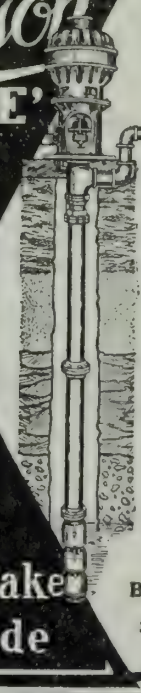
If you have any kind of water problem to solve; if you contemplate installing a new pumping plant; if you want to know how to save the greatest amount of money when installing a plant; if you want to be thoroughly acquainted with the best and most efficient means of developing water—then write for our valuable pump booklet No. 25. It's free.

Layne & Bowler, Corp.

900 SANTA FE AVENUE, LOS ANGELES.

READY-MILLER CO.

"Jackson MADE"



Write for Catalog No. 47 F

A Better Make Not Made

For Water Deep Under The Ground

Jackson Deep Well Turbine Pumps give continuous and efficient service. They do not get out of order as they have no valves or plunger rods. Very little care or attention needed as they are oiled from the surface. Are much lower in cost than other types of deep well pumps when the expense of dug pits, cribbing and timbering is reckoned. They raise water from the very bottom of the well, thus eliminating heavy vacuums and delivering all the water the well yields. They develop slow wells and increase their flow.

Like all Jackson Made Pumps These Deep Well Turbine Pumps Are the Very Best Pumps Made for the Purpose—They are Dividend Earners, Not Expense Makers

Whatever your water problems may be our Expert Pumping Engineers will help you out free of charge—write

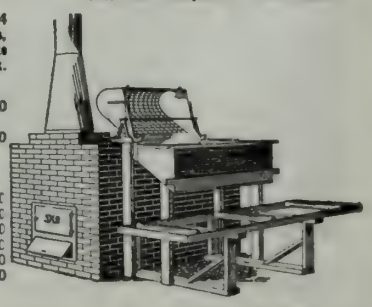
BYRON JACKSON IRON WORKS, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal.
and Visalia, Cal.
Works: West Berkeley, Cal.

PRUNE DIPPERS with all the latest improvements, Best and cheapest on the market.

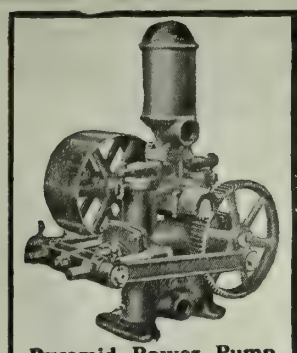
..Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

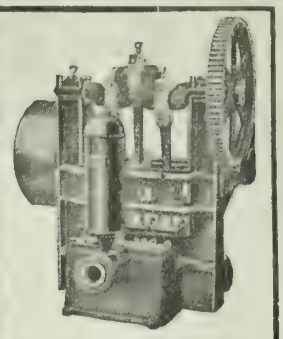
Hopper and Spreader $15.00
30 in. Green Grader, 3 grades, suitable for above 85.00
Large Power Dipper and Grader, capacity 75 tons per day.
24 in. Hand or Power Dry Graders:
3 grade $55.00
4 grade 60.00
5 grade 65.00
Field cars, wood or steel frame 6.00
Transfer cars 8.50
Turn Tables 8.50
8-lb. steel rails, 7 cts. per foot.



SMITH MFG. COMPANY,, 200-224-226 THE ALAMEDA, SAN JOSE, CAL.


Pyramid Power Pump

WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEM
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
GASOLINE ENGINES
Send for our large No. 36 Catalogue Mailed Free.
Inquire of your Local Dealer for full particulars.


Goulds Triplex Pump

MANLESS LAND
for the
LANDLESS MAN

2,000,000 Acres
of Good Land Along the
Western Pacific Railroad
IN CALIFORNIA,
NEVADA and UTAH

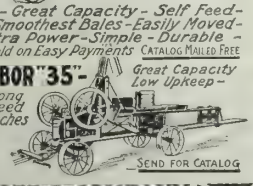
Opportunities for
The Man of Modest Means
As Well as the Capitalist

EVERY SECTION
HOLDS OUT A WELCOME

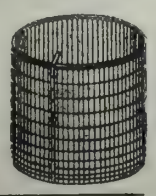
Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway
BODE K. SMITH,
Asst. General Pass. Agent,

ARNOTT & CO. HAY PRESS HEADQUARTERS
Only Two Men to Run Easy on Men and Team - THE AUTO-FEDAN - Means One Less Man"

Three Stroke - Great Capacity - Self Feed - No Danger - Smoothest Bales - Easily Moved and Set - Extra Power - Simple - Durable - Guaranteed - Sold on Easy Payments CATALOG MAILED FREE
-THE ANN ARBOR "35"-
Great Capacity Low Upkeep - Especially Strong for Alfalfa - Feed Hopper only 39 Inches from Ground - Largest feed Opening -

SEND FOR CATALOG
ARNOTT & COMPANY
118 So Los Angeles St. Los Angeles

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco

REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers, Steel and Wood. Prices the lowest.
BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.


BLAKE, MOFFITT & TOWNE
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

STUMP PULLER AND DYNAMITE.

[Written for Pacific Rural Press]

Two or three hundred old prune stumps were pulled out with dynamite and stump pullers last winter for Mrs. E. M. Blake of Santa Clara valley. At first they had a poor puller and some of the stumps could not be budged. Then they used dynamite to blow them out, but the soil was so gravelly that they commenced using "such an awful lot of dynamite" that it seemed considerably cheaper to try another stump puller.

This they did, and found it much more satisfactory than the first in that it could handle any of the stumps in the orchard and pull out the roots better than the dynamite did. Nevertheless, dynamite was used in the holes afterward, to loosen the ground for the young trees to be reset. These young resets are now very thrifty trees, seeming to show that dynamite has a good effect.

Next winter a good many more trees will be pulled out on account of their age and debility. The stump puller will be used, dynamiting the holes afterwards.

TO STOP ADJUSTING LEVER.

[Written for Pacific Rural Press]

It is surprising what a difference in the draft of a cultivator one cog deeper makes. In running four horses on a cultivator close to orchard trees you have no time to stop and count the cogs after raising the shovels on short turns; so that a contrivance used by P. D. Bane of Glenn county seems desirable.

A small clevis is placed in the cog just ahead of where the adjusting lever is to stop; and there is no danger of getting the shovels too deep, and no need to take the time to be sure the lever is set at the right depth.

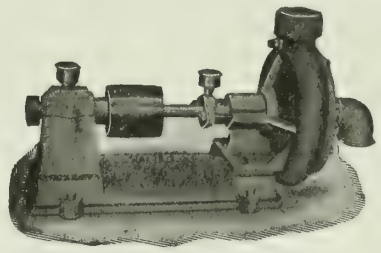
Mr. Bane had a special clevis made for the purpose, fifteen years ago. He says that new cultivators have the cogs placed too far apart, and he has new ones made with half-distance spaces which makes a surprising difference in ease of proper adjustment.

ORCHARD TRACTOR DISKING.

[Written for Pacific Rural Press]

The operator of McCray & Schofield's Samson orchard tractor in Santa Clara valley has a good habit of setting his lubricating oil can on the exhaust pipe in order to keep it warm so it will flow freely when the engine is oiled.

He was using 20 gallons of distillate per 10-hour day and two gallons of lubricating oil, cultivating steadily with a double disk. Even on the hard roadway through the orchard the double disk dug up a very serviceable mulch which would prevent much evaporation.

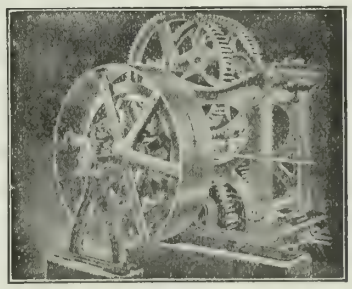
THE WINSBY PUMP
Our New 1915 Type Pump

Best Model for Low Lift Pumping

Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars.
Price	$16.00	$20.00	$25.00	$30.00	Oakland

Larger Sizes at Proportionate Prices.
Complete Pumping Plants of Any Size or Type Furnished and Installed.
WE MANUFACTURE
Pumping machinery of all kinds and for all purposes.
Mining, Milling, Concentrating and Rock Crushing Machinery.
Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.
Water Wheels, Dredges and Hydraulic Machinery.
Fire Hydrants and Cast Iron Fittings.
WRITE FOR CATALOGUE AND PRICES.
WE CARRY IN STOCK

Pipe Casing Valves and Fittings	Belting Leather Rubber and Canvass	Pulleys Wood Steel and Cast Iron	Shafting Hangers Collars and Boxes	Boilers Steam Engines and Supplies

UNITED IRON WORKS
Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.
GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.
We are the largest manufacturers of pumping machinery on the Pacific Coast.

Pomona Deep Well Pumps
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.
Write for Catalogue 104,

Do not get oil into the water. Consume less power per unit volume of water pumped.
Write for Catalogue 104, with valuable information on irrigation.
Pomona Mfg. Co., Pomona, Cal.

Commercial Engines
We Know Just What You Want in an Engine
We have studied the requirements of irrigation in this western country and have built an engine that delivers the goods. An engine that is simple and does not require an expert to operate it—that pulls its full-rated horse-power ten hours a day and every day in the year, if necessary, at lowest possible fuel consumption. And we deliver this to you direct from factory at manufacturing cost plus one small profit. The Commercial line has an engine for every requirement. Don't buy until you have seen our Catalog 18-R. Write for it today.
Commercial Engine Co., 2416- Porter St., Los Angeles Branch: 1228 "H" St., Fresno.

PIPE
For Every Purpose NEW Threads & Couplings. Hot Asphaltum
Second Hand and NEW
Screw Casings Fittings and Valves Guaranteed for Pressure
PACIFIC PIPE CO. San Francisco, Cal. Main and Howard Sts.,

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

The packing of Valencias in the Porterville district has been completed.

Eighty-six acres of citrus orchards southeast of Orange were recently sold for $179,000 by Frank Barston to M. L. Barnhersel of Chicago.

A tract of 410 acres north of Olive in Orange county is to be planted to lemons, oranges, and walnuts by Willard Smith, H. T. Thompson, and the Bixby Ranch Company.

Citrus growers of Carpinteria have been attending lectures recently by A. D. Shamel, plant breeding expert of the U. S. Dept. Agr. on the scientific breeding of lemon trees.

The Lindsay Fumigation Association was formally organized June 1. W. S. Cairns was elected president; M. White, vice-president; R. H. Shoemaker, secretary and manager. An executive committee was elected consisting of these officers and C. O. Cowles, C. J. Carle, and C. K. Towt.

To help find how to obtain normal and healthy growth of orange and lemon trees and how to keep them free from insect pests and fungus diseases, Dr. Howard Sprague Reed, for the past seven years Professor of Plant Pathology and Bacteriology in the Virginia Experiment Station, will join the staff at the Citrus Experiment Station at Riverside. Prof. Reed graduated from the University of Michigan in 1903. He won the degree of Ph.D. at the University of Missouri in 1907. He was scientist in soil fertility investigations of the Bureau of Soils of the U. S. Dept. Agr. from 1906 to 1908. In 1913 he went to the Zoological Station at Naples, Italy, to investigate problems in plant physiology, and he spent the next year at Strassburg, Germany, making investigations in physiological chemistry under Hoffmeister.

OLIVES.

A shipment of ripe olives to Australia was made recently by the Maywood Packing Company of Corning.

The co-operative handling of olives in the Chico district is under consideration. At the present time, D. R. Conliffe, a grower of Paradise, and Theo. Schwein, a Chico olive grower and manufacturer, are negotiating for the establishment of a factory at Chico for the manufacture of olive products.

DECIDUOUS FRUITS.

Students in pomology at the University of California are visiting and studying the orchards in Sutter and Butte counties.

The canning of cherries and berries began in Santa Rosa on June 1 when the California Canners' Association commenced work.

Walter Paul of Del Rey, a member of the Peach Committee, has been in San Francisco gathering data on the condition of the dried peach market.

The canning of apricots at the Armona branch of the Kings County Packing Company will commence June 15. The cannery expects to run between 500 and 600 tons of Tilton apricots this season.

On June 4, Chas. Rayburn of the Earl Fruit Company shipped the first cherries from Placerville this season. They were Black Tartarians and were shipped in a pony refrigerator.

GRAIN AND FIELD CROPS.

Over 2000 acres are being planted to beans in the Oakdale section.

A tract of 160 acres of rice, the first to be planted in Solano county, is reported by the owners to be showing good growth. The success of this venture will determine future plantings in that county.

During the last season 1,000,000 boxes of cucumbers were shipped from Yuba county, growers realizing about $150,000 on the product. This gives Yuba county the leadership of the State in cucumber production.

Over 300 acres of beans, mostly

Salt Will Save Your Hay

MAKE 5 TONS EQUAL 6

The salt more than pays for itself in the weight of the hay. There is a further gain in weight through moisture held—and the stock will eat up salted hay clean where unsalted hay will be mussed over and wasted. Twenty pounds of salt should be used to each ton of hay. Stack three feet of hay, sprinkle the salt over this by hand, then another layer of hay, more salt, and so on

The same directions apply when baling hay

SALT
Increases Weight.
Prevents Musty Hay.
Cattle thrive on it.

Have you ever lost a crop of hay through musting—or your barn and hay through spontaneous combustion?

Use Salt

when you stack the hay

Leading dairymen use salted

Alfalfa Hay

all the year round for feeding dairy cows, to increase the flow of milk.

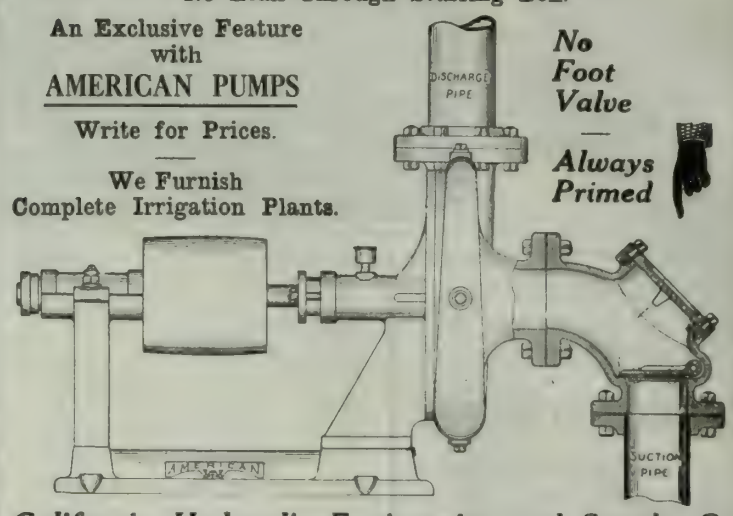
New Type "AB" AMERICAN PUMP
and CHECK VALVE COMBINED
No Leak Through Stuffing Box.

An Exclusive Feature with AMERICAN PUMPS

Write for Prices.

We Furnish Complete Irrigation Plants.

No Foot Valve — Always Primed



California Hydraulic Engineering and Supply Co
68 Fremont St., S. F.; 129 No. L. A. St., L. A.; 31 Briar St., Lindsay.

Efficiency

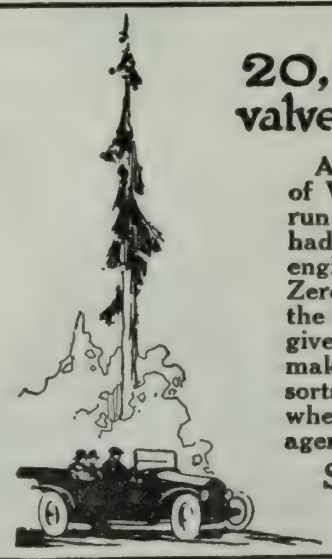
An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtheldt Co
Geo. D. Kellogg & Son	Pioneer Fruit Co.	Vacaville Fruit Co.

California Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.



20,000 miles — valves ground but once

A man in the lumbering district of Washington writes us: "I have run twenty thousand miles and only had valves ground once, and the engine has run good. Have used Zerolene all the time. It has given the best of satisfaction." Zerolene gives efficient lubrication in all makes and sizes of cars—under all sorts of conditions. Dealers everywhere and at all service stations or agencies of the

Standard Oil Company
(California)
San Francisco

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

EUCALYPTUS SEEDS.
Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each. 4 for 50c. Special prices on large quantities.
THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

Permanence

IN FARM STRUCTURES

is absolutely assured if you make them of

Concrete

Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER

That if you make it of

Portland Concrete Cement

The first cost is the last cost.

Attention Nurserymen

40,000 seedling peach trees of **MUIR** stock, in good condition.

May be budded to nearly any variety of deciduous fruits.

Excellent opportunity for the small nurseryman.

MUST BE SOLD

If bought as a whole, trees may be budded and left on the ground until next spring.

For further particulars address:

H. F. Pixley

Corte Madera, Marin Co., Cal.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

If you want the best

TREES

Write for Price List

UNITED FRUIT CO.
NEWCASTLE, CAL.

FOR SALE

Almond, Prune or Alfalfa Ranch. Will sell either part. 3000 trees 5 years old, or over 100 acres, mostly creek soil. Growing good alfalfa. Good buy for one man or as company. **ALEX T. GIBSON (Owner), P. O. Box 361, Chico, Cal.**

of the Tepary variety, have been planted in the Huron section of Kings county. The largest acreage is that of the Gifford Ascalano Olive Co., where 160 acres are growing between the rows of olive trees.

Hundreds of acres of land in the Imperial Valley is to be opened to settlers, according to A. A. Jones, first assistant Secretary of the Interior.

A series of meetings have been held at Berkeley, Stockton, and Davis by cereal experts of the coast milling interests, the U. S. Dept. Agr., the College of Agriculture of Berkeley, and the University Farm of Davis.

Since April 1, it is estimated that over 2500 boxes of asparagus are handled daily by the California Fruit Canners' Association, the Central California Cannery Company, and the Libby, McNeil & Libby plant of Sacramento.

MISCELLANEOUS.

A poultry, livestock, agricultural, and mineral show is planned for Redding in September, 1915.

Irrigating about 10,000 acres by pumping from the Sacramento River at convenient points is proposed, according to H. S. Edwards of Princeton.

During the four months ending April, 1914, 396,982 tons of potash salts were imported into the United States for fertilizer. In 1915 during the corresponding four months only 80,925 tons were imported.

An organization to handle and dispose of their farm products has been effected by the farmers of the Dairyland District of Madera county. It is to be known as the Dairyland Growers' Association.

The Modesto Farm Bureau was organized June 5, being the sixteenth bureau in Stanislaus county. Officers elected for the bureau are: W. M. Way, president; W. F. Duffy, vice-president; Howard H. Huls, secretary-treasurer, and J. W. Davison, supervisor.

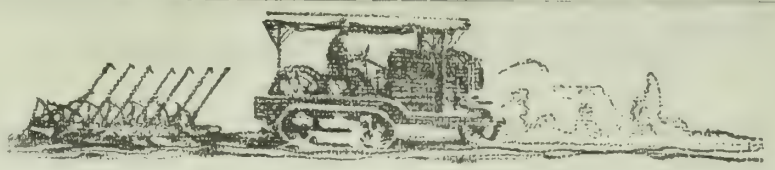
Tuber moth infection is not serious in this state, according to the State Horticultural Commissioner. It is scattered through different sections of the State, though most prevalent in southern California. The department has been fighting this pest for many years.

To reclaim one million acres on the west side of the San Joaquin valley is the work to be undertaken by the San Francisco Land Owners' Club of the San Joaquin Valley West Side Irrigation Association in cooperation with the Federal Government. E. T. Mitchel is president of the organization, and S. T. Manard, secretary.

We spent a most delightful week one summer in Russian River Canyon in Sonoma county. A booklet, called Vacation 1915, just issued by the Northwestern Pacific Railway, describes this glorious country and contains complete information as to accommodations for vacationists there, as well as in Mendocino and Lake counties and the North Shore. The booklet is free to those who ask for it.

SOLD PRUNES 4½ CENTS.

A grower in southern Santa Clara valley sold his prunes a few days ago at 4½ cents basis and his apricots on the tree at $30 per ton. This begins to look like 5 cent prunes and good apricot prices.



Little Stories of Success

No. 8.

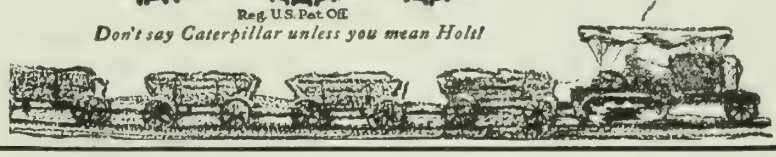
R. F. Schmeiser of Winters, who bought a 75-h. p. Caterpillar back in 1913, wrote us recently: "I am farming 1500 acres and I have used nothing but my Caterpillar to do the farm work with since I have had it; and besides my own work, I have done work on the outside which amounted to over $10,000 for the year 1914. This outside work consisted of plowing, harrowing and harvesting for my neighbors, and hauling rock and sand for the State Highway."

Mr. Schmeiser has some interesting figures on work done with his Caterpillar—harvesting 3100 acres in 60 days—hauling in one week 1596½ tons of rock and sand for an average distance of 2½ miles—plowing 260 acres in 4 days, pulling 6 three-gang 10" plows. All this with an upkeep cost of less than $200 since he bought this machine.

"The Caterpillar is the only practical farm tractor built today," is the way Mr. Schmeiser sums it up.

The Holt Manufacturing Company
(Incorporated)
San Francisco Stockton Los Angeles
Both Expositions—San Francisco and San Diego

CATERPILLAR
Reg. U.S. Pat. Off.
Don't say Caterpillar unless you mean Holt!



Do It Electrically

PACIFIC GAS AND ELECTRIC COMPANY — PACIFIC COURTEOUS CONTINUOUS SERVICE

ELECTRIC APPLIANCES in the household not only add to the convenience of all members of the family, but they are economical and times-savers. **ELECTRIC APPLIANCES** include **CHAFING DISHES, COFFEE PERCOLATORS, VACUUM CLEANERS, ELECTRIC IRONS** and every other appliance that is needed in the modern home, not forgetting **ELECTRIC FANS.**

We carry these appliances in many of our branch offices, and will be glad to have you call and inspect them. Where we do not carry them we will be just as glad to give you our expert advice.

"PACIFIC SERVICE" is always "At Your Service."

Pacific Gas and Electric Company

HEAD OFFICE, 445 SUTTER ST., SAN FRANCISCO.

Branches in all principal cities and towns of North-Central California.

SWIFT
SAFE
SATISFACTORY
SERVICE

Excellent Freight Facilities

Oakland, Antioch & Eastern Ry.

Direct Service Between
SAN FRANCISCO— OAKLAND
and
SACRAMENTO

Through Electric Trains to Chico, Marysville, Oroville, Colusa, Woodland and other Sacramento Valley Points in connection with Northern Electric Railway.

Low Round-Trip Rates Each Week End and On Holidays.

Key Route Ferry, in San Francisco Phone Sutter 2339 | **Third & I Sts. in Sacramento Phone Main 261** | **Fortieth & Shafter Av. in Oakland Phone Piedmont 870**

Split Figs and Irregular Water.

[By G. P. Rixford of U. S. Dept. Agr.]

One of the defects of the Lob Ingir fig, though not a very serious one, is that of splitting just before maturity. This trouble is not confined to the Smyrna variety, but is even worse in the Adriatic. It is more prevalent some years than others. I am satisfied that the cause is partly climatic and frequently due to injudicious irrigation. By some, the cause is attributed to over pollination, thus causing too great a production of seeds and consequent pressure from over internal development. I have grave doubts as to this being the principal cause for the reason that some of the seedling Smyrna trees in the Maslin orchard at Loomis always split, while others equally surrounded by capri trees, and consequently by swarms of Blastophaga, never split; and the Adriatic, which is seldom pollinated, in many localities splits worse than the Smyrna. At the Stanford University farm at Vina is a certain Smyrna strain, grown from cuttings imported by the writer from Asia Minor in 1882, which for a number of years have not shown a single split fig, while the fruit on adjoining trees in the same row on each side have split badly. Therefore, the trouble may be avoided by planting non-splitting varieties. In the opinion of the writer a conspicuous cause of splitting is a sudden change from dry to damp weather, not necessarily rain; while another is the application of irrigation water after the trees have suffered somewhat for lack of it. In fact anything that suddenly stimulates the circulation of sap, causing a gorging of the fig with juice, the pressure of which the tender skin is unable to resist, causes it to split open. Fig trees planted along irrigating ditches where the supply of moisture is continuous, show less split figs than trees in the same orchard where the supply of moisture is intermittent. If a period of splitting is followed by dry warm weather, Smyrna figs, on account of the great percentage of sugar, will dry without souring and make second-rate figs, which the past two seasons have sold to bakers at two cents per pound. The loss, therefore, on this account, is not serious.

SULPHUR FOR GOPHERS.

To the Editor: One very noticeable fact about squirrels is that as soon as ground is checked up and seeded to alfalfa, the squirrels won't stay long. After about the second or third wetting they commence to think it is time to move, so they vacate, and the gophers move in. Then it is "heave to" all hands, and kill them out, or pretty soon there will be nothing but a bunch of dried leaves and stalks where your alfalfa used to be.

When alfalfa is just starting to grow, you have to be on the lookout all the time, for they eat the root of it, and in no time your alfalfa is slowly but surely dying. I found that by smoking them with sulphur and old sacks I could keep them pretty well under control.

Ripon. Joe Gomas.

[Your experience in sulphuring gophers is similar to that of Fred Lewis of Santa Clara county. His orchard is near a creek whence the gophers come every morning and commence to dig in his soft soil on the near edge. So he daily suffocates them with sulphur balls made by tieing a couple of tablespoonfuls of dry sulphur in a dry cloth. He inspects the orchard edge; digs beside any fresh mounds; lights a sulphur ball with a match, being sure it is burning; pushes it into the hole, blows across it to force smoke out of any other holes to that burrow which may be open, so that he may cover them up; then covers all openings; smoothes down the dirt so if the gophers live through the smudging, he will know it by fresh piles; and proceeds to the next. Sometimes the smoke comes out of five or six holes at once, but after closing these he has never known a gopher to dig out.—Editors.]

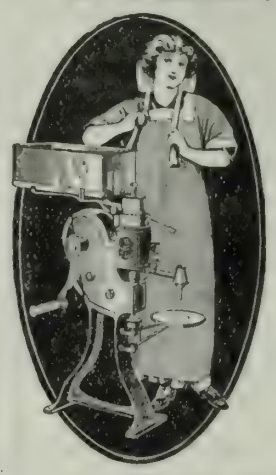
MILDEWED HAMS.

To the Editor: How can I prevent mildew on smoked hams?—E. S. W., Middletown.

[Winters and Walsh of San Francisco advise washing them off with warm water and vinegar. Geo. H. Croley states that only good hams will mildew; and it will not hurt them.—Editors.]

UNITED STATES CREAM SEPARATOR

THE "ONLY"



The ONLY cream separator with a skimming disc of Nickel Silver non-rusting sections.
The ONLY cream separator adapted for mechanical cleaning.
The ONLY cream separator with a non-rusting guarantee.
The ONLY cream separator with a rust-proof chamber liner.
The ONLY cream separator with a neckbearing adjustable while running.
The ONLY cream separator with medium-speed gears, all enclosed and all running in oil.
The ONLY cream separator from whose bowl all the cream can be recovered or "flushed."
The ONLY well known cream separator that skims Nature's way—cream rising to top, skim-milk settling to bottom.
The ONLY cream separator to which the crank can be attached on either side.
The ONLY cream separator on which crank may remain when operating by pulley on opposite side.
The ONLY cream separator to win a World's Record for closest skimming.
The ONLY cream separator that can produce thick cream and skim clean at the same time.

SEND FOR OUR 1915 CATALOGUE

Vermont Farm Machine Co.

Chicago, Salt Lake City — Bellows Falls, Vt. — Portland, Ore., Oakland, Cal.

Now Ready

"Vacation 1915"

The Guide to

Summer Outing Places

Tributary to the

Northwestern Pacific Railway

Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

Copies of "VACATION" may be had free at 874 Market street (Flood building), Sausalito Ferry Ticket Office, or on application to J. J. GEARY, G. P. & F. A., 808 Phelan Building, San Francisco, Cal.

"The Farmers Friend"

In Handy Buckets — Also Small Cans

Ask your Dealer

Ideal Gopher Trap

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK, Dept. B.
731 Market St., San Francisco, Cal.

During the busy season there's hardly time even for greasing the wagons. That's when you're glad you use

MICA AXLE GREASE

The ground mica makes Mica Axle Grease last so long that you need apply it but half as frequently as you do some other kind. It *pays* to use Mica Axle Grease. Dealers everywhere.

Standard Oil Company (California) San Francisco

Short Horn Bulls

7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.

H. L. MURPHY, PERKINS, CALIF.

Second Hand PIPE Screw Casing

ALEXANDER PIPE COMPANY

OFFICE—250 North Point Street, San Francisco, Cal.—WORKS

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

ALTA VISTA HERD

REGISTERED GUERNSEYS.

Young bulls at very attractive prices. Also females at all ages.

For particulars and prices address owner,

MRS. CHAS. G. LATHROP,

Stanford University, California.

BLACK LEG

LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low-priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials. 10-dose pkge. Blackleg Pills $1.00. 50-dose pkge. Blackleg Pills 4.00. Use any injector, but Cutter's best. The superiority of Cutter products is due to over 12 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct. THE CUTTER LABORATORY, Berkeley, California.

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

California

AND PACIFIC COAST

Nature's Exposition

AND

ALL-THE-YEAR VACATION GROUND

San Francisco, Oakland, Berkeley and Bay Region.
Sacramento and San Joaquin Valleys.
Santa Clara, Pajaro and Salinas Valleys.
Santa Cruz, Mountains and Big Trees.
Del Monte and Monterey Bay Points.
Byron, Paraiso, El Pajaro and Gilroy Hot Springs.
Yosemite National Park.
Mariposa Big Tree Grove.
Lake Tahoe and Sierra Region.
Kings and Kern River Canyons.
Lake County Resorts and Springs.
Paso Robles Hot Springs, Santa Barbara and Coast Country.
Los Angeles and Its Beaches.
Pasadena, Riverside and Redlands.
Imperial and Coachella Valleys.
Shasta Springs and Resorts.
Klamath and Crater Lakes.
Willamette, Umpqua and Rogue River Valleys.
Portland, Tacoma and Seattle.

For Fares,
Train Service and
Descriptive Booklets
Inquire
Flood Building, Palace Hotel,
Third and Townsend Sts.
Ferry Station,
San Francisco.
or ask any Agent of

Southern Pacific

THE EXPOSITION LINE 1915
—FIRST IN SAFETY

Stock Ranches!

3200 A. open grassy Range. 600 A. level meadows. Water. Good Bldgs. 35 mi. Stockton. Carries 500 cattle. $13.50 per acre.

5000 A. Sonoma Co. Fine range. Water. Bldgs. 200 A. hay land. $10.00 per acre.
Will trade for ALFALFA RANCH.

1280 Acres Open Grassy Range. Well watered. Fenced. Finest Feed Carriers. 170 head Cattle. $9.50 per A.
W. W. WILLIAMS,
110 Sutter St., San Francisco

REDWOOD TANKS
I sell to the consumer. Box Shooks and Boxes. Am making a special price on Drying Trays. Lumber, Mill Work, Doors, Windows, Mouldings, Wagons, Tanks, Spraying Tanks. INDEPENDENT.
R. F. WILSON,
Stockton, Cal.

Providing Shade for Hogs.

[Written for Pacific Rural Press.]

Providing shade for the hog lots is a work which should commence at this time of the year if it has not previously been done, before the beginning of intense summer heat.

Not only is this true of our interior locations, but of coast sections as well. In this respect, few ranches are more favorably situated than the Oak Knoll ranch in Napa county, where is located the herd of registered Chester Whites, owned by the California Pork Products company.

That part of the ranch devoted to the hog lots is at the edge of the foothills and is fairly well covered with immense oaks, advantage of whose shade was taken when the hog lots were laid out, with the result that most of the pens have one or more trees' protection.

The pens are 20 feet wide and 100 feet long, each pen containing an individual farrowing house for the sow and her pigs. Owing to the size of the lots and the fact that some of them do not contain trees, permanent shade has been provided at small expense by utilizing the division fences in an unique manner.

These fences are five feet high, being made of hog-tight galvanized wire fence, with a top and bottom rail made of one by six inch boards. The top rail is used as asupport for one by twelve inch boards which are nine feet long. These boards are thus made into a lean-to roof, supported at the other end by a two by four which rests on posts three feet high. These boards are covered with paper roofing, making a roof 20 feet long and nine feet wide. By erecting a roof of the same kind on the other side of the fence for the adjoining pen, the hogs are provided with shade at all times of the year.

Not only in regard to shade is this plant well equipped, but from a sanitary standpoint as well, each pen having individual concrete feeding troughs and water hydrants. Chopped straw is furnished in abundance and every effort made to keep the stock comfortable, healthy, and clean.

A concrete wallow is provided at one end of the alleyway which is supplied with clean mountain water.

At the present time there are about 200 head of hogs on the ranch, all of which are registered, it being the intention of the owners to make this one of the largest Chester White breeding establishments in the State.

COW-TESTING DISCARDED BOARDERS.

To the Editor: The report at the end of the first year of the Yolo County Cow-testing Association shows that 132 cows have completed the year's test. Over 1000 cows have been under test at various times, with an average for the year of over 600 cows. Approximately 300 cows have been discarded as "boarders" during that time and over 200 more were found to be just barely paying expenses, with alfalfa at $6.00 a ton and butterfat at 30 cents.

The average cow in the Association yielded 6,407.72 pounds of milk giving 274.17 pounds of butterfat. With butterfat at 30 cents, the average cow that finished the year brought in $97.58, figuring skim milk at 25 cents a hundred pounds. The cost of feeding and caring for a cow in this section is about $60.00, so a profit of $37.58 was realized from the average cow. However, most of the poorer cows were sold off before the year's test was finished. The biggest increase made in a herd during the year, due to discarding of "boarders," was 11.00 pounds per cow per month.

The best yielding herd in the association was the Holstein herd owned by A. B. Welch, which averaged 10,293.14 pounds of milk per cow, testing 3.73%, giving 403.8 pounds of butterfat. Each cow yielded a profit of $86.84 above cost of feed and labor. Three cows in this herd gave over 500 pounds of butterfat; the best one giving 546.56 pounds.

The poorest cow in the association gave 593.5 pounds of milk, testing 6.66%, producing 39.99 pounds of butterfat, for the year, and was kept at a loss of $48.00.

J. F. Grass, Jr., Official Tester.

[In face of the above results it is difficult to understand why this association should die from a lack of support, but such is, we are informed, the case. With nearly 50 per cent of the cows in the association either being kept at a loss or just barely paying expenses, it is evident that the work of the association, even though discontinued, has been worth many times the cost. As was recently pointed out in this journal, it requires more than one or two years' testing to place dairying on the permanent footing that it must ultimately reach in this State and the in-and-out methods are only temporary measures at best.]

BUTTER COLORS GRADED.

In making up a carload of butter for shipment out of California, it is very seldom that all of it comes from the same factory. Until now, there has been a wide range of colors from very light yellow to deep orange in the butter produced in different factories. This has disagreeably affected the buyer of carlots, so that now the San Francisco Wholesale Dairy Produce Exchange has made a color rule. The butter sold as "extra" on the floor of the Exchange must be what is known as "standard" color. To help creamerymen get the standard color, the Produce Exchange puts up and sells at cost an imitation leather case containing bottles of fluid of seven different colors, numbered from one to seven. The standard color is No. 4.

PIGS NOT DOING WELL.

To the Editor: I have a bunch of young pigs about nine months old that do not seem to have any growth for their age. Their hair is long and shabby and they stand around as if they had no life in them. Could you tell me some remedy I could use in their drinking water, but not in feed.—D. K., Arbuckle.

[Put these pigs on a good grain diet, as it is nourishment they need and not drugs.]

The Stanford Vina Ranch
Offers for Sale

50 Grade Shorthorn Bulls

These bulls are about 15 months old, California bred, thoroughly acclimated, vigorous and fast growing.

Address
W. G. Stimmel
Superintendent
Vina, Tehama County. Cal.

Oak Grove BERKSHIRES

CHOLERA IMMUNE
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

Swineland

TAMWORTHS, DUROC JERSEYS.
We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

Hopland Shorthorns
Hopland Berkshires

All Stock Registered.
Bulls of Highest Quality.
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
HOPLAND STOCK FARM
HOPLAND, CAL.

Veterinary Queries and Replies.

[Answered by [illegible] Petaluma, Cal.]

HEAVES—SWOLLEN UDDER.

To the Editor: My mare acted sometime ago as though she was having blind staggers, but did not get bad. Since she has a slight discharge from her nostril, a whitish color and has a cough with it. I had been feeding alfalfa (new), but the past several weeks, oat hay. The feed is not mouldy or dusty.

My cow has been giving lumpy milk out of one quarter occasionally. That quarter seems to be somewhat harder than the rest of the udder. When she gives lumpy milk that quarter becomes swollen and feverish; gets better again after a few milkings. She is carrying her 5th calf.—S. A., M., Modesto.

[This looks like a mild attack of heaves following an acute attack of indigestion. Give your animal one tablespoonful Fowler's Solution three times a day for a period of one month.

Give your cow two ounces of the following twice a day: Potassium iodide, 2 oz.; water enough to make one quart.]

LAME MULE TRAVELING.

To the Editor: After traveling seven or eight miles, my horse goes lame in the right hind leg. When she stops she holds the foot up as though tired or it aches. I have examined it closely on several occasions, but can find no pebbles, bruises, or other causes. I can't find just where the trouble lies. I have had her shod behind, but it makes no difference. She has been running loose in pasture most of the time. Been ailing about five months.—C. E. Lemoore.

[Your horse has Gonitis or inflammation of a joint. Without an examination it is impossible to state what joint; you will have to determine this for yourself or employ a veterinarian to do this. To the affected joint apply tincture of iodine once daily for several weeks and give animal a rest while doing this.]

COW'S MILK IN BAG.

To the Editor: About a year ago we dehorned our cow, but she did not heal up for some time; from that time on she seemed to look bad at times. Her hair would be rough; she would [illegible] her nose. The trouble always comes in the morning before milking time, and is gone in an hour or two. She has a good appetite and feeds well. She is due to freshen now at any time, and is in a field of alfalfa where the first crop is still standing.—R. C. E., Newman.

[Have your cow's mouth examined, as it is just possible one of her teeth were injured at the time she was dehorned. If this is not the case a prescription will be in order.]

SUNLIGHT FOR TUBERCULAR PREMISES.

To the Editor: I have a co[illegible] has not been looking well f[illegible] months I put her on the be[illegible] alfalfa, but she remains poor. From [illegible] of tuberculosis. I have de[illegible] get rid of her and would like [illegible] if [illegible] lot where [illegible] any preventive which can be given cattle?—T. F. Denair.

[Sunlight is the best disinfectant you have for [illegible] premises. There is no medicinal preventive for tuberculosis; hygiene and sanitation will do more to prevent this trouble than all other agents combined.]

[illegible] SPRING.

To the Editor: I have a horse that goes blind every year in the spring. This spring he has gone blind twice. I think his eyes were hurt several years ago. I had his teeth examined, so I don't know what to do for him. For a few weeks he goes entirely blind—the pupil turns white. I would like to know if anything can be done [illegible] p him from going entirely blind.—D. B., Red Bluff.

[illegible] Moon Blindness or Periodic Ophthalmia, which is incurable and in most cases produces blindness. A remedy which is of some benefit consists of a 50 per cent solution of argyrol. Place a few drops of this in the eye several times a day during the attacks.]

[illegible] IN DOG'S EARS.

To the Editor: Enclosed you will find some sort of a bug we find in our pet dogs' ears. It bothers them [illegible] until we get them out. They are in in the winter as well as summer.—G. L. W., Round Valley.

[Your dogs are troubled with the [illegible] the Dermatophagus Auricularis (Symbiotes Auricularum [illegible]ri Canis). First clean out and [illegible]inse with a 2 per cent. carbolic acid solution and dry thoroughly, then inject the following: Napthol, [illegible] sulphuric ether, 1 drachm; olive oil ½ ounce, and close the [illegible] or 15 minutes with cotton.]

To the Editor: Could you please [illegible] what to feed a yearling colt that does not shed its hair?—A. A., Escalon.

[Feed the colt a little bran and [illegible]ts into which a small handful of flaxseed meal is placed.]

It is estimated that during 1914, [illegible] in California died from [illegible]

LIVESTOCK DIRECTORY.

[illegible] directory, 3c per word each issue; or [illegible] for one year, 2½c per word.

DAIRY CATTLE.

[illegible]TEINS—We offer choice grandsons of King [illegible] also gandsons of the world's record cow. Cream[illegible] that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San [illegible]

[illegible]RED HOLSTEINS—Young bulls sired by King [illegible] and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

[illegible]ERS OF REGISTERED HOLSTEIN cattle and [illegible]shire pigs. Whittier State School, Whittier, Cal.

[illegible]IN BULLS—Pure-bred young Holstein bulls [illegible] Ranch, near Napa. For prices [illegible] address J. B. Age, Napa, Cal.

[illegible]NE REGISTERED HEREFORDS—Charles Eule, [illegible] Duncan Mills, Sonoma Co., Cal.

[illegible]ANK MEACHAM, Petaluma, California.—Breeder [illegible] both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BARGAIN—A Holstein Bull Calf from same dam as 26-lb. A. R. O. Cow. K. W. Abbott, Milpitas, Cal.

REGISTERED GUERNSEYS. Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. [illegible] W. Benoit, R. 2, Modesto, Cal.

[illegible]TEAM CUP HERD Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

HIGH GRADE GUERNSEY Bull Calf for sale, $25. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal. — Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

FOR SALE—Registered Short Horn Bulls. L. A. Macomber, Tipton, Cal.

SWINE.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. R. Cunningham, Mills, Sacramento county, California.

BEST BIG TYPE Duroc Jersey sows. Will farrow from "Red Wonder" or "Chief." As we must have money we are selling these fine thoroughbred sows at scrub prices. You can make 500 per cent in one year. Order at once. Also pigs ten weeks old very cheap. Pedigree sent with each animal. Western Hog and Land Syndicate, 919 Hearst Building, San Francisco.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

BERKSHIRES—Headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Farm at San Mateo. Address W. M. Carruthers, 218 Hearst Bldg., San Francisco.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D. McCarty, 201 Sansome St., San Francisco.

BLATCHFORD'S PIG MEAL weans easily and safely, no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 1[illegible] weeks old. D. W. Hobson Co., 819 J St., Sacramento.

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. E. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

25 POLAND CHINA SPRING BOARS—Jan., Feb., March, farrow. Prices, registered and crated, $20, $15, $10. Edwd. A. Hall, Watsonville, Calif.

WANTED—Stock Hogs weighing from 50 to 150 lbs. For further particulars address Russell Mayhood, Rio Vista, Solano Co., Cal.

BERKSHIRES—Young Board and sow pigs, June to August farrow. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

STURDY YOUNG BERKSHIRES—Sired by Birch Champion, he by Laurel Champion, the grandest Berkshire on the coast. Pigs ready June 15. For prices and pedigrees address T. R. Nickalls, Los Molinos, Cal.

BERKSHIRES—Utility and Choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED BERKSHIRES for sale. All ages. Boars ready for service. Stanislaus Ranch Co., Crow's Landing, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows. Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $20 up. M. Bassett, Hanford.

REGISTERED BERKSHIRES—Young stock for sale. John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM—Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS — Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Pederas Ranch, El Cajon, Cal. M. S. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED POLAND-CHINAS—Young stock for sale. Hewitt & Hewitt, Hardwick, Cal.

READAKS RANCH herd of registered Poland Chinas. W. J., Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

BOARS—BOARS—BOARS—Registered Durocs. J. M. DeVilbiss, Patterson.

REGISTERED O. I. C. SWINE—C. D. CONWAY, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller Llewellyn Ranch, Lathrop.

DUROCS—Weanlings, either sex. Guaranteed stock. E. Curtis, Napa, Cal.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP

FRANK MEACHAM, Petaluma, California.—Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric car at Santa Rosa or Petaluma for Live Oak.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. E. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Woodland, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS

OWING TO THE MANY requests of our customers to give them information as to where they can buy or sell dairy stock, we have established a livestock bureau in connection with our office. For anything in this line write us. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

ATTENTION, DAIRYMEN—Plant Sorghum for Green Feed or Ensilage. Seed for sale in lots to suit. O. I. Sayre, Madera, Cal.

Poland China Pigs

LARGE AND MEDIUM TYPE

A Wonder and Giantess Stock.

Prize-Winners of either type.

Several very fine young boars and a few bred sows for sale.

We guarantee to please or refund your money.

W. A. YOUNG, Lodi, Cal.

HORSE OWNERS! USE

GOMBAULT'S

CAUSTIC BALSAM

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. See for descriptive circulars

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal.

Ask your dealer to cut off two strips of belt one inch wide, one from Test Special and one from any other brand. Separate the plies with a knife as shown in Photo 1. Then endeavor to pull the plies apart as shown in Photo Number 2. If your dealer does not carry Test Special, secure a sample of what he has and send to us for Test Special sample.

If the plies of the belt are difficult to pull apart, and the duck is heavy and flexible, the belt is good. If they pull apart easily the belt is inferior. In a good belt, the rubber which cements the plies together is forced into every thread and fibre of the cotton duck.

We guarantee that twenty-five pounds pull on a strip one inch wide is required to pull the plies of Test Special Rubber Belt apart a distance of one inch per minute. This is our factory test, which every foot of Test Special Belt must meet. Test Special Belt will last twice as long as that which can be pulled apart by an eight or ten pound pull.

If your dealer does not carry Test Special Belt, write direct to us. We will send you a small piece of Test Special by mail with which you can make the comparison. Try the test yourself. Make sure the belt you buy is good belt.

New York Belting and Packing Co.

Established 1846.

519 Mission Street., San Francisco

Stoves Portable

Burn Coal Oil.

For ranchers, automobilists, hunters, fishermen, surveyors, prospectors, lumber cruisers, picknickers, canoeists, boy scouts.

Safe. No smoke. No odor.

An ornament on any table. Pack anywhere. Heat double that of gas, gasoline, or alcohol. ⅛ cent per hour for fuel. Cost only $3.50 up. Send for catalogue.

CANOUSE & FOOTE, Oakland, Cal.

With the Live Stock Men.

DAIRYING.

The Yolo Cow Testing Association has disbanded after a year's work. Although the results have been excellent the support of the dairymen was insufficient to make the association a permanent institution.

The Gridley Cow Testing Association reports excellent results for May. A noteworthy record was made by a Durham cow owned by Victor Sardori of Yuba. Since March 1, she produced 192 pounds of butter fat.

Twenty-eight butter makers participated in the second entry of the California Educational Butter Scoring Contest of the University of California. The butter was scored in San Francisco after being held in the refrigerator a day to firm it. The average was 92.19.

It is interesting to note that since the first world's record was made, some ten years ago, seven cows have made official world's records, three of which are Guernseys and four Holsteins. At the present time, the Holstein cow, Finderne Holingen Fayne 144551, holds the record with 24,612.80 pounds of milk and 1116.06 of butter fat at an average of 4.53 per cent.

Dairymen of Yolo and Stanislaus counties, who subscribed and paid some $80,000 toward the development of the project launched by the Dairymen's Association and Condensed Milk Company to establish plants at Ceres, Modesto, and Yolo, will lose 15 per cent of their investments, the company being forced to dissolve on account of lack of sufficient funds.

A report from the American Guernsey Cattle Club shows that of the last 57 records to be completed, fifteen were heifers who had just completed their first lactation period, three of which produced over 500 pounds of butter fat. Of the 42 representing the production of cows who have had more than one calf, two produced over 800 pounds of butter fat, each having had two previous official records. The average of the entire 57 records is 503.30 pounds of butter fat, while the average for the breed is 434.33.

HORSES AND SWINE.

Several hundred wild horses have been captured recently on the deserts of Nevada and will be shipped to the warring nations.

Forty-six horses were recently purchased near Gonzales by the Western Horse Market of San Francisco, who are under contract with the French Government to furnish 2000 cavalry and artillery horses.

M. E. Gates of the Greenwood Ranch of Brentwood writes us as follows: "I have just bought Royal Lee 25th Junior Champion of Oregon, 1914, from F. R. Steel of Grants Pass, Ore., to be used as my herd boar. Mr. Steel informs me that he has just received $250 for the first choice boar pig from the spring litter by Royal Lee 25th out of Silberfa Duchess 15th. This is the highest price ever paid for such a pig on the Pacific Coast."

MISCELLANEOUS.

Applications for free vaccine used by grazers to prevent blackleg in their herds are being received at the office of the Forest Supervisor at Placerville. These applications are forwarded to the Bureau of Animal Industry at Sacramento, where they are filled.

On July 1 the quarantine on livestock coming into Nevada will be lifted. At present California, Oregon, Washington, Idaho, Utah, Wyoming, Colorado, Arizona, New Mexico, and Texas may ship livestock to Nevada with only the customary inspection of the State Veterinary Inspector.

The receipts for the week at the Portland Union Stock Yards ending June 3 are: Cattle, 437; Hogs, 2781; Sheep, 6288. Choice steers sold at $7.50 and cows are quotable at $6.50. One small lot of hogs brought $8.00, while the bulk went at $7.85. Spring lambs, $8.00; yearlings, $7.00 to $7.25; ewes, $5.25 to $5.00; wethers, $6.75.

Judges for the dairy cattle show at the Panama-Pacific Exposition have been selected as follows: Tom Dempsey, Westerville, O., Jerseys; W. J. Gillett, Rosenda, Wis., Holstein-Friesians; Hugh G. Van Pelt, Waterloo, Ia., Ayrshires; Charles L. Hill, Rosendale, Wis., the Guernseys. Awards in the Brown Swiss and Dutch Belted classes will be made by some of these judges selected later.

Judges for the sheep show in November at the Panama-Pacific Exposition, as announced by D. O. Lively, Chief of the Department of Livestock, are as follows: Henry Arkell, Teewater, Ont., Oxfords; W. G. Cavan, Sugar Grove, Ill., Hampshire; F. E. Dawley, Fayetteville, N. Y., Cheviots; J. C. Duncan, Lewiston, N. Y., Shropshires and Southdowns; Professor F. R. Marshall, Washington, D. C., Romney Marsh and Dorsets; Ernest Robson, Denfield, Ont., Lincolns; R. A. Hayne, Adena, O., Delaines; John E. Webb, Southport, Ind., Rambouillets. Leicesters will probably be judged by Professor C. F. Curtiss, Ames, Ia., and the Corriedales by either Professor F. R. Marshall or W. G. Cavan.

EXPOSITION PURE MILK AND CREAM SHOW.

A Pure Milk and Cream Show will be held in Congress Hall on the World's Fair grounds June 14 to 20. Entries will be made from as far east as Pennsylvania, as far north as Canada, and as far south as southern California. Four samples of milk and cream produced June 7, at each of various places in the United States and Canada will be packed on ice and shipped to the Exposition. One will be labeled and kept on display in Congress Hall; another will be examined by an official bacteriologist; the third will be examined by an official chemist; and the fourth will be tested for butter fat content. Prizes will be awarded for the highest scores in the different classes.

USE INDEX BEFORE ASKING QUESTIONS.

Questions which our readers need to know are gladly answered by Pacific Rural Press, but we would respectfully request those who are in troubles to use the index which is printed on the last page every six months. Look for an answer there. If you don't find it under one heading, look for another likely heading. If an answer has not been published within a year or two, or since you became a subscriber, write to us, enclosing stamped envelopes for replies to questions not of general interest.

There is a Difference

BETWEEN THE

Ideal Green Feed Silo

AND

OTHER SILOS

IT DOESN'T TAKE AN EXPERT to tell the difference between an **Ideal Green Feed Silo** and some others.

ON THE CONTRARY, it is an easy matter if the prospective purchaser will remember that a silo to be of any value whatever must be "air and water-tight" and capable of producing good ensilage from every pound of good feed put into it.

IF HE WILL THEN TAKE FIVE MINUTES to compare:

The detail of construction,
The quality of material and workmanship
The contact of the doors with the door frame.
The kind and size of hoops and lugs used.
The quality of the paint for the inside,
The type of roof and whether or not it is fitted with a galvanized ventilator,
What provision, if any, is made for keeping the silo round and preventing its collapsing,
In fact, everything that enters into the design and construction of a silo that will make it a thoroughly practical piece of equipment,
He will then see the difference.

THE MAN WHO TAKES even the first step indicated in seeing for himself the difference between the **Ideal Green Feed Silo** and others does not put his money into any other, one time in a thousand.

THE COMPARATIVELY FEW BUYERS of other silos are those who merely read printed claims, or listen to the argument of some self-styled "adviser" who is probably working for a commission only and whose sole purpose is primarily to sell a bill of lumber.

THE WISE BUYER OF A SILO today does see the difference when buying his first silo while the unwise or careless one usually finds that his presumed saving in first cost actually means a loss to him in spoiled feed and represents the difference between success and failure in the use of a silo.

OUR PURPOSE in selling a silo is to develop the dairy and stock raising industry on a more substantial basis than heretofore, and in order to do this we must supply a silo that is a thoroughly practical piece of equipment.

THAT IS THE REASON WHY four buyers out of five are buying **Ideal Green Feed Silos** and why the use of the **Ideal Green Feed Silo** will, before long, be as nearly universal on the Pacific Coast ranch as they are in the Eastern States and in Canada.

SEND FOR CATALOG B.

DE LAVAL DAIRY SUPPLY CO.

SAN FRANCISCO. Everything for the Dairy. SEATTLE.

Pea Vine Cover Crop for Silage.

[Written for Pacific Rural Press]

"I don't agree with the Pacific Rural Press on alfalfa silage. I'd rather leave my silo empty than to use alfalfa alone, though I believe that alfalfa mixed with foxtail makes a little better silage. I used alfalfa two years and then quit it. It doesn't contain enough sugar and makes a sour smelling silage," says Frank Abernathy, manager of the Sorosis Farm in Santa Clara county.

Mr. Abernathy backed up his judgment by speaking of the experience of C. R. Timm of Dixon, who over a year ago was feeding alfalfa silage to his cows, but they were not eating it well, because, as Mr. Timm said, he thought he had not gotten a good "make" on the silage. After Mr. Timm had made some more silage from alfalfa, Mr. Abernathy visited him again and found the same condition except that Mr. Timm was getting discouraged with the alfalfa silage.

Pea Vine Silage Satisfactory.—But pea vines made very satisfactory silage for Mr. Amernathy last year, and when visited May 28 this spring, he had been running the silage cutter a week on pea vines bought from the Milpitas cannery and shipped in carloads by the electric railroad to the ranch . Instead of buying the vines next year, he expects to use Canada field peas and purple vetch grown as a cover crop in the orchard containing 200 acres of prunes and 40 acres of apricots on gravelly soil near the foothills. This will be irrigated in order to make the maximum crop. "We have plenty of water. The creek always runs till June 15. There are 5,000 to 10,000 gallons a minute wasting now." The roots and nodules will be left in the ground, the tops fed as silage, and the manure from the cows will be returned to the orchard.

Last year the pigs allowed to run around the silage machine cutting up the vines "got as fat as seals" just eating what fell overboard.

Cows Like Vines as Well as Green Alfalfa.—"Last night I watched the cows which had access to green alfalfa in the rack and also to the cutter while we were running it. Some of them came to the machine six or seven times to get pea vines, returning for small feeds of green alfalfa between times.

"When we used alfalfa silage, we lost about 10 per cent which the cattle would not eat, but with pea vines there isn't a pound wasted, for what the dairy cows won't eat, the stock cattle do. Even the top layer which usually spoils in any silo was fed to the stock cattle last year. They ate it gingerly at first; but completely after it had dried out in the sun.

One reason advanced for the greater desirability of the pea vines is that the peas are shelled by machine and a good many of them are left in the pods, furnishing much more sugar than other crops except corn. Using the orchard cover crop, still more peas would be obtained.

Cost of Siloing.—The vines cost 25 to 50 cents per ton at the cannery, the freight to the Sorosis Farm is $1.60, and Mr. Abernathy figures 65 cents per ton for hauling from the car to the silo and getting it into the silo; so it costs about $2.50 per green ton to fill the silo. About 500 pounds of salt are added to the 200 tons of silage which may be put into the 16x30 silo. The pea vines settle comfortably more than other silage crops so that this amount is possible by taking ten or twelve days to fill. There is no more difficulty handling or cutting than any other silage crop.

It is noticeable that the first few wagonfuls from the car run through the silage cutter faster than the last, though perhaps no more weight goes through. Before the carload is all cut, some of the vines turn brown—so rapid is the process of turning into silage; but very little of it ever molds.

The aim is to feed about two inches from the silo per day to 40 cows, estimated at 30 to 40 pounds per cow per day. No bad flavor has ever been noticed in the milk, which is sold for city consumption. But last year when filling the silo, the cows stood around the machine all day long eating the vines, and got so much that some of the customers complained of ropey milk for a short time. This year, green alfalfa was made available so that the mixture of feed might eliminate this trouble. After a week's feeding of the pea vines mixed with green alfalfa during the cutting for silage, no ropey milk or other complaints had been discovered.

RABBITS' LIVERS SPOTTED

To the Editor: I have some Black Flemish Giant rabbits. Have lost some when about a third grown. I feed green feed entirely to them. I dissected one after dying and found white spots on the liver. Would muriatic acid in the drinking water help?—P. D. B., San Dimas.

[Answered by Mrs. B. H. Gilkey, Santa Rosa.]

[All rabbit raisers agree in feeding dandelion for spotted liver, but this does not mean all dandelion and nothing else, but just enough to act as a tonic. Milk weed and young teazel are also relished and are splendid if not fed exclusively.

If your rabbits are kept in too close confinement without proper room for exercise and without sunlight at least a part of the day, then attend to that part of the matter without delay, as nothing is more conducive to spotted liver.

Straw, barley, and a variety of green feed aside from cabbage, with plenty of room and sunlight, ought to mend matters. If you have an enclosed field where dogs cannot molest them, turn them loose awhile and note results. A little muriatic acid once in a month is a good thing, but an ounce of prevention is worth a pound of cure.]

Southern California Agents Sharples Dairy Machinery
Everything for the Dairy. Write for descriptive literature.
WESTERN DAIRY MACHINERY & SUPPLY CO.
Telephone Main 3028
818 S. LOS ANGELES STREET, LOS ANGELES, CAL.

Now is the Time
When Hand-Milking is
An Extremely Costly Proposition

DURING haying time, when everybody is up to his ears in work, and when every hour that the hands are taken off the job to milk a string of smelly cows means an actual loss of good money, the dairy farmer is up against a pretty tough proposition.

For cows and hay wait for no man. Hay must be cut, cows must be milked. The farmer can't afford to neglect either.

That's the time when a blessing in disguise is the

SHARPLES MILKER

Knowing that the milker is on the job, the hands go at the milking in the morning and evening with none of the old-time ill-humor that they were more or less justified in displaying when hand-milking was necessary.

They get right down to business and make short shift of milking. The pump is started, the teat cups adjusted, the cows relieved of their milk quickly, gently, with beneficial results. No old-fashioned, hand-milker rough treatment, jerking of teats, gouging finger nails, half-hearted milking, half-milked cows. Simply a steady flow of absolutely clean milk into air-tight buckets, one man and a Milker doing more and better work than three good hand-milkers formerly did.

Then there is Sunday and holiday freedom; contented hands; purer, higher-priced milk; regular sleeping hours; and—quite frequently—an increased production.

Milking never should seriously interfere with the regular work of the men—and it won't, once you realize the big possibilities of the Sharples Milker. You already know the Sharples Milker pretty well. You've read about it, discussed it with your neighbors, perhaps have seen one in operation. You know of the big, sound company behind it, with a reputation of making only the absolute best. You therefore realize you do not take the slightest risk when you invest your money in a Sharples Milker.

A Complete Sharples Milker
—two unit one-man outfit, capable of milking 20 cows an hour—
COST $288.
installed in your dairy barn. This outfit includes a simplified single cylinder pump, vacuum and pressure tank, valves, gauges, stall fixtures, and necessary piping. Also two regular Sharples milking units complete with pulsators, teat cups, rubber tubing inflation, and German silver buckets. Installation work and instructions for operating the Milker also are included. $288 covers everything.

With this outfit, one man can easily milk 20 cows in an hour, allowing sufficient time for cleaning the Milker. In dairies of 10 or more cows this outfit will pay for itself inside of a year. Extra units at the standard price may be had at any time.

Full particulars on request.

Made by the same company that makes the
SHARPLES TUBULAR CREAM SEPARATOR
—the world's standard for a third of a century.

The Sharples Separator Company
West Chester, Pa.
Principal Branches: Chicago San Francisco
DISTRICT OFFICES AND AGENCIES EVERYWHERE

To Prevent Larkspur Poisoning.

During the seasons of 1913 and 1914, the Forest Service demonstrated that it is practical to stop cattle poisoning from larkspur, as the plant occurs on most of the high summer ranges in California, by two methods: viz,. digging the plant out by the roots and sheep grazing.

Digging.—The plants should be taken out clean by the roots. Cutting them off at the surface of the ground or leaving portions of roots in the ground was unsuccessful, since the plants sprang up again the following season and grew to be almost as vigorous as before. But in the case of grubbing out by the roots, about 95 per cent did not show any sprouts the following season, and these few sprouts came from roots which had not been taken out clean.

Losses from larkspur in the Sierra region are heaviest from latter July through August and September. The plants should be dug, therefore, early in July for this region, and in lower altitudes early in June. It was also found that plants dug in July showed less root vitality than plants dug in September. This fact is important in case broken pieces of roots are inadvertently left in the ground.

The tool best adapted for this work is an ordinary surface pick with a mattock eye, having the following specifications: weight, approximately 6 lbs, length, about 25 inches from point to point.

The chisel end should be drawn out to a width of between 1¾ and 2 inches.

Sheep Grazing.—Where plants are too numerous and too widely distributed to eradicate by digging, sheep grazing has been found an effective method of control. This not only utilizes feed, but does away with the necessity of fencing or herding the cattle from the poison areas. Sheep grazing is especially effective where the plants occur in dense willow and alder patches, and where difficult to get at with a pick or mattock. An excellent illustration of this was worked out on the Mono National Forest during the past two seasons, with the result that cattle fed the range without further loss and without herding, and sheep did finely on feed which would have been otherwise wasted.

Where both digging the plants and sheep grazing are impractical, poisoning may be largely prevented by keeping cattle away from the poison areas until about the end of the first week in July. This should be later in the high Sierras.

Cattle poisoned by larkspur should be kept as quiet as possible, should be paunched if bloating occurs, should not be bled, and may in many cases may be saved by a subcutaneous injection of physostigmin salicylate, pilocarpin hydrochlorid and strychinin sulphate.

Full directions for securing and administering the treatment are given in Farmer's Bulletin No. 531 of the U. S. Dept. of Agriculture.

The Co-operative Creamery, capable of handling the output of 1000 cows, has been organized by the farmers of Lovelock Valley, Nev.

HOW TO DRY JERKIE.

To the Editor: In response to the inquiry for methods of making "jerkie" in the Press of May 29, following is the method I have used successfully:

Cut the meat in long strips about an inch or two thick, sprinkle heavily with salt, then with black pepper, and hang in the sun on a wire stretched between two posts or trees. If the flies bother in spite of the pepper, cover with mosquito netting. Time of curing varies with the heat. The meat is cured when most of the moisture has been evaporated out of it, which can be determined by cutting a piece in half and examining the cut surface. Only lean meat should be used. The meat will not cure properly in foggy or damp weather.

I have kept venison for over a year when cured by this method. The meat must be stored in a dry place.—F. M. J., Napa.

To the Editor: Cut meat in strips 6 to 8 inches long about 1 inch in diameter. Dip in a very strong boiling salt and peppery brine for a few seconds until meat is well seared, then hang in sun, using a ¼-inch rope or heavy cord. This is the way I have dried deer meat, also beef, and have made nice jerkie. It would be well to try a small amount first.—A. B. T., Gilroy, Cal

---

To the Editor: Answering E. W. C.'s inquiry as to making "jerkie," the following is the way it is made in the range country here: Make a salt brine strong enough to float a potato. Cut meat into thin, narrow strips, dip into brine, dust liberally with pepper, and hang in the shade until thoroughly dry.

Fernley, Nev. **F. W. McCulloch.**

To the Editor: Meat for "jerkie" must be untainted to begin with. Cut it into strips of any handy length but not over three-fourths of an inch in width and thickness.

Have ready boiling brine flavored with Chili peppers or cayenne. Dip the strips, a few at a time, into this brine and out again as quickly as possible. You can handle it with clean sticks or long handled forks.

Hang up carefully in full sun so each strip is separate. A pole resting on two forked sticks makes a good "line." (If hung high out of reach of prowling animals it can be left out till thoroughly dry.)

When properly dried it will break readily like a stick. It is now ready to eat. Or it can be stewed slowly, adding potatoes, onions, garlic raisins or pinones, according to one's tastes and antecedents.

Pounded to powder, mixed with melted beef fat and made into cakes or packed solidly, it makes an ideal food for journeys in cool climates. Beef, mutton, kid or venison jerk equally well.

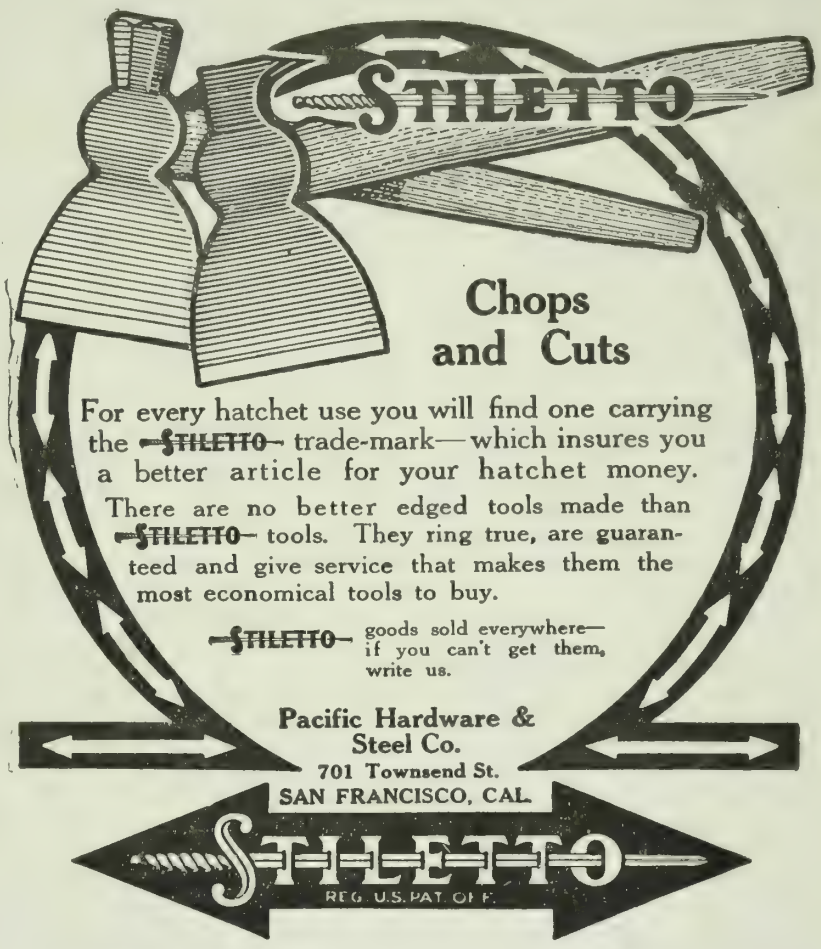
If E. W. C. has derived his yearning for jerkie from "western" stories he had better prepare only a small quantity as an experiment. Not every one appreciates this, the most wholesome form of preserved meat.

Wheatville. **Anna Gluck.**

To the Editor: First, there is a difference between "jerked" meats and "dried" meats. Dried meat is simply thick slices of lean meat well salted and then hung up until reasonably dry. But to "jerk" meat, proceed in the following manner: Select and cut in thick strips, say one inch good lean meat, usually beef or vension. Drop a few slices of the meat into a kettle of boiling water, quite salty; let remain two or three minutes, or sufficiently long to let it heat through, which will give the meat a whitish color and allow the salt to penetrate sufficiently to season the meat well. Remove, drain, refill kettle. When well drained hang up to dry. Should not be allowed to get too hard. To have real genuine "jerked" meat one should have a platform made by putting four posts or "forks" so as to stand about four feet above ground; on two parallel sides put "stringer" from fork to fork, then floor with small green poles an inch or so in diameter, leaving them an inch or so apart. After meat is treated and drained lay on this platform and build a good brisk fire underneath; this is kept up until the meat is sufficiently dry to permit packing together or sacking. This will be genuine "jerked" meat. This method is used to preserve meat in warm weather. The fire hastens the curing, also keeps away flies.

Glenn. **J. L. Fulton.**

A dairy and hog association is proposed in conjunction with the Glenn County Farm Bureau; and is meeting favor.



Hillcrest Stock Farm

THORNTON S. GLIDE, Prop., Davis, Cal.

Breeders of

Short Horn Cattle
Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A GRANDSON O FTILLY ALCARTRA.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered **DAIRYMEN AND BREEDERS** in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

FOR that class of poultry breeders known as fanciers the history of poultry culture on the Pacific Coast records no season so discouraging as that just closed; it has been the most unprofitable ever experienced. This unfortunate condition may be charged to a combination of circumstances, but it was chiefly due to the growing belief of the practical poultry keepers of this section that the usual show prize cards and good looks are alone of no value in selecting new blood for their bread-winning flocks.

Opportunity for Poultry Breeders.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Ass'n of California.]

A few years ago most of the farmers in Missouri kept as mean a lot of scrub hens as it was possible to find in the country, but owing to the demonstrations of the greater value of thoroughbred fowls selected for utility purposes that were made by Poultry Commissioner Quisenberry at the State Experimental Poultry Farm at Mountain Grove, it is now a rare sight to see a mixed flock in that state. At present in Missouri purebred fowls are the rule and not the exception, and nearly every farmer of that state makes poultry keeping a very important part of his business.

And what of the fanciers of Missouri? Some have made fortunes and hundreds have a permanently established and profitable line of farmer customers whom they regularly supply with new blood—purebred fowls selected for standard points and also for utility or great producing qualities.

Our fanciers should, therefore, be encouraged because just as great an opportunity will result in California through the great utility display to be held this fall at the Exposition. And further, the poultry farmers of this State are also ready to increase their production of the larger breeds for table purpose and this offers a still wider scope for the breeders of thoroughbred fowls than has heretofore existed. The breeding of choice table poultry, if properly conducted, is at any time as profitable as egg production, and at present to the breeder with some ability as a salesman it probably offers a better paying field.

To encourage large shipments of fowls for exhibition at the Universal Poultry Show, the express companies will allow two attendants to accompany each carload of poultry. These attendants will have no railroad fare to pay, and will have free admission tickets to the Exposition while in attendance at the Show. The express cars containing the shipping coops will be allowed to remain on the tracks near the poultry show rooms so that it will not be necessary to remove the shipping coops from the cars when poultry is shipped in car lots. At the close of the show, the fowls will be replaced in their original shipping coops in the cars.

Arrangements will be made so that exhibitors can clean, wash, or condition their birds after they arrive at the show if they wish to do so. Everything in reason will be done to accommodate all exhibitors; to give all the same help and to make them feel at home. Boys and girls and others who are exhibitors for the first time are particularly urged to come and to feel sure of a friendly welcome. To make an exhibit and attend the lectures and educational demonstrations at this show will be worth more to a beginner in poultry culture than a year of reading or possibly the same time spent in a poultry course at college.

Farm Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

CAPONS AND CAPONIZING.

Very many people in this world are afflicted with great imaginative powers, that is, they see things big. Then they start in to enthuse others and get them to see big, too; sometimes it works out all right and sometimes, often, it does not, because only a part of the truth has been told concerning the matter.

Capon Markets Unsatisfactory.—Caponizing is a good thing; it really needs no exaggerated statements to make it popular among breeders of heavy fowls.

The only thing needed is someone that can perform the operation with a small loss of life. And I will say that it simply requires a good steady hand and nerves, a good eye for location and proper judgment. There are some very good instruments sold now for the purpose, much better than could be gotten a few years ago, and with each set of instruments go directions for using.

But with all this not one poultry raiser in a hundred caponizes his flock of extra cockerels and this for several reasons.

The first reason is the instability of markets, one calling for capons of one size and weight and the next market calling for other weights. The Los Angeles market will not buy a capon after the breast bone gets hard. Now then to caponize a bird and then sell it while the breast bone is soft is more of a loss than a gain to the poultry man who has had the raising of it.

It must be remembered, that caponizing, does hinder growth for a short time, that is it sets the chicken back for a week any way; and if weather conditions are unfavorable, for a longer period.

That takes a week's feed off the profits at least, then he must keep and feed the capon while he grows bone, but not long enough for the bone to set. Now do you see where the profits slip away, why there is more money by half in soft roasters because then you can keep them growing; and by restricting the exercise keep the bone soft and the flesh too; they can be sold much younger than capons because they will put on flesh sooner.

My idea of caponizing would be to give the birds abundant range to grow bone, a long season to grow it in, and after they have attained the good large frame confine them to small quarters and put on the flesh. Capons grown like this, far exceed a turkey in quality of meat, and price of raising it. This was the only kind of capon that markets had any demand for, a few years ago, but of late the demand appears to be for small capons and small turkeys.

The good features of capons are that they can be kept in larger flocks together without fighting or quarreling, the meat is of a better quality and brings a better price; the latter statement is subject to what the market calls for.

Formerly, all capons brought a better price than roasters or cockerels, but it is not safe to make any such statement now for the reason that, having more to choose from, the markets are in a position to cut on what they don't want. Now that is the truth about the market conditions for capons. The next feature is that if the operator is clumsy or slow, he will lose a much greater per cent than is the case if he is quick with hand any eye. One of our subscribers writes that he caponized

NOW is the Time to Feed Coulson's Egg Food

to your pullets as well as your hens, commencing at the age of three months.

Write for free book "Chickens" from shell to market.

COULSON CO.
Petaluma, Cal.

PROFESSIONAL DIRECTORY.

SYMMES & MEANS
AGRICULTURAL ENGINEERS
Agricultural Investigations. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL.

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage, Land Examination, Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determination and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies.
Agricultural and Industrial Products, Water, Insecticides, Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET, SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Practical Land Appraiser & Soil Expert
Many years' experience in Fruit, Alfalfa, and Stock Raising in California. Special attention given to prospective buyers and money lenders. Management for non-resident owners.
PAUL GOODLOE,
79 Post St., San Francisco, Cal.

California Poultry Practice

Written to Teach Better Poultry Methods on the Farm.
By Mrs. Susan Swaysgood.

Every poultry raiser of California should have this book. It is very practical and will help make your business profitable. In the preface of the book the author says:

"This book is not an accident; it is born of a desire to help others to avoid the stumbling-blocks in the poultry business, and at the request of many readers of The Pacific Rural Press, and other papers.

With forty-five years of experience with poultry it is expected that I have learned a few things about it; it's a poor business that does not teach lessons in that length of time. Don't you thinks so?

There are boks, yes, books without number, on poultry matters, but many of them are mostly theory. This book tells you just what I have done and how I would do it.

It is a book of action, and it is action that counts these days. We have to act in the living present if we want to live. I want to live and I want others to live, too, and as I have learned these things by experience it is fitting that I should tell others how to obtain results without paying such a big price for the experience.

The things told you in this book are original, unorthodox, but strictly practical; and if you will read and then heed, you will be well satisfied that the author has given you your money's worth. California is an empire in itself, and I am sure there are enough men and women engaged in the poultry business, or wanting to get into it to call for a million copies of this book, though its only claim is that it is needed."

The book contains 157 pages, besides illustrations. The 45 chapters cover every phase of poultry culture from eggs to hens, and from hens to market. Feeding, housing and parasites.

Price, cloth-bound, postpaid, $1.00.

Pacific Rural Press, Publishers
525 Market Street, San Francisco.

White Rock cockerels, and after two months they started to grow, that their combs and wattles were red and that they acted as if they were cockerels, he also asks if they should be separated from the hens? He asks if they will be all right for capons? These birds are called, in market vernacular, slips, and that means a cut in prices, though in times of scarcity I have known them to bring top price as it really does not injure the quality of the meat. But it is impossible for me or any one to say truthfully, what the market will call them now. Quantity makes markets sassy, whether the product be fish, flesh, or fowl. And at present there seems to be quantity in all kinds of fowl products; looks as if they were emptying Kansas and Missouri onto our markets this summer, and that the money we taxed ourselves for to make this Fair was for the especial benefit of other States and we can just take the leavings.

It makes me sore to see the conditions of the poultry raisers in this State, fighting for an existence between high-priced feedstuffs and low prices for eggs and poultry.

Subscriber asks if his birds were too old when caponized? As he failed to say at what age or size they were when he operated on them it is hard to tell; but size counts more than age, and the cockerel should be 1½ to two pounds when caponized. At that age the comb of most varieties has not developed very much and the caponizing practically stops the growth of comb and wattles. When these grow and are bright red it indicates that the bird is a slip, and has the instincts of the male still with him.

Chicken Runts.—I have some two-month chicks and four-fifths of the whole flock are small just like one month old, they simply stop growing while the rest are nice big chickens. Is it some fault of breed or feed or what is the cause?

The most probable cause is overcrowding in quarters at night. Remove the small ones to a pen and yard by themselves and feed them heavy, they will catch up, but if you leave them with the others they will not grow at all but will eventually sicken and die. Get them separated as soon as possible and they will pay for the trouble.

More Turkey Troubles.—Why do young turkeys die, they hatch all right and seem to be healthy and after three days to a week they die. They drop their wings and refuse to eat. A neighbor told me to feed charcoal, but they don't get well. Please let me know what I can feed them?

Last week we sent in plain instructions, what to feed young turkeys. In this case I am inclined to think either lice or mites are killing your young turkeys, so just look well into this before relying on a change of feed. Get under the trouble. Find out, without any quibbling, if your hens are lousy, or if your brooder boxes are harboring one thousand mites to eat up one little turk. Some time ago I warned you that this was good weather for growing mites as well as chickens; why don't you take a hint and be up and doing to make things unpleasant for mites and lice and better for your flocks.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

RHODE ISLAND REDS—Fine yearling hens, $12 dozen. White Leghorn pullets (8 weeks) direct MacFarlane stock, $6 doz. Baby chicks—Brown Leghorns, Black Minorcas. Fast growers, early layers, the best for summer raising 9c to 11c each any quantity. Roofden Poultry Ranch, Campbell, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks, Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

S. C. RHODE ISLAND REDS—Tompkins strain. Bred to lay. First-prize winners at leading California shows. Eggs for hatching. Baby chicks. During the month of June hatching eggs will be sold at half- price. Wm. Larm, 3854 39th Ave., Oakland, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorca and Carneaux Pigeons. Susan Swaysgood, Route 3, Pomona, Calif.

BARRED ROCK EGGS from Prize strain, extra large, vigorous fowls. Fine layers. $1.50 per 15; $7.50 per 100. Miss F. W. Buckley, R. D., Box 71, West Berkeley.

SAFETY FIRST—Feed your baby chicks CROLEY'S DRY MIXED CHICK FEEDS, manufactured by Geo. H. Croley Co., Inc. 631-637 Brannan St., San Francisco.

SINGLE COMB WHITE LEGHORN Pullets two months old, also breeding cockerels and yearling hens at reasonable prices. Model Poultry Farm, Corning, Cal.

BARRED PLYMOUTH ROCKS—"The kind that Win and Lay." Choice stock for sale. Catalog free. Chas. H. Vodden, Box 396, Los Gatos, Cal.

PETALUMA HATCHERY—We have chicks every Monday. Five varieties. Send for May and June pricelist L. W. Clark, Petaluma, Cal.

TRAPNESTED LEGHORNS—White and Buff Stock. Eggs, chickens. Arthur R. Schroeder, Box 179E, Mountain View, Cal.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

MAMMOTH BRONZE TURKEYS—Orders taken for eggs by setting or hundred. A select lot of Blooded foms recently from East. Inquire today, John G. Mee, St. Helena, Cal.

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

BELGIAN HARES.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAS HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

PIGEONS AND PHEASANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.

Classified Advertisements.

Rates, 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY

BEEKEEPING instruction book free for dime to pay printing, etc., which we will refund with your first order. Explains care bees, profits, size packages we ship with prices, supplies, bees, etc. Spencer Apiaries, Gloss Ave., Nordhoff, Cal.

WANTED.

POSITION WANTED—Young married Swiss dairyman wants position as milker. Address John Hefty, Afton, Glenn Co., Cal.

WANTED—Dried fruits, nuts, honey, beeswax, beans etc. J. E. Lawrence, 326 Clay St., San Francisco.

MISCELLANEOUS.

SUCCESSFUL FARMERS are buying Lumber from us at wholesale prices. No. 1 dimensions, $9 at the mill. Send us your lumber bill for figures. Our prices are lowest in the country, on quality lumber. Write today for free list. Buy while prices are at bedrock. Pacific Mill & Timber Co., First National Bk. Bldg., San Francisco, Cal.

SHARPLES MECHANICAL MILKER OPERATORS are in demand. We offer complete course in modern dairying on our own farm. Further particulars, write The Sharples Demonstration Farm, Geo. W. Lucy, Superintendent, Stockton, Cal.

SECOND HAND WATER PIPE and screw casing. New threads and couplings dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. R. 3, Fresno, Cal.

"SMITHS' PAY THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FUNDS NEEDED FOR SERBIA—Please send cheques and postal orders to Lady Boyle, Hon. Treasurer of the Serbian Red Cross. Offices: 5 Cromwell Road, S. W. London.

PROTECT YOUR IDEAS—Write for free patent books. Patents advertised for sale at our expense. Advice free Pattison and Company, 971 G Street, Washington, D. C.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

AGENTS WANTED to sell W. R. P. Legume Bacteria in every county. Western Rock Products Co., Balboa Bldg., San Francisco.

WILL EXCHANGE Los Angeles property for cows. See or write Stephen F. Sheridan, Atwater, Cal.

TREES AND NURSERY STOCK

AVOCADO TREES—Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budding trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties Melrose and Special. Strong, mature slabs. $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail. Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 feet, on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose Bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

LAND FOR SALE.

50,000 ACRES LEVEL OREGON LAND now on sale, open for settlement in beautiful South Walker Basin, Klamath county, along right of way Natron Cutoff Southern Pac. Ry. Deep soil, every acre tillable, pure water, enough timber on every forty for farmer's use. 21 years' time, $2 per acre down, balance in 42 semi-annual payments. 5½ per cent interest. We operate demonstration farm. Want settlers and agents. Hunter Land Co., Title & Trust Bldg., Portland, Oregon.

CALIFORNIA LAND — Money-making little farms High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

FARMS WANTED—We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

GOVERNMENT AND STATE LAND County Sectional Maps, showing vacant Government land, $2.50 per county. VERY PLAIN. Easy to see and select your choice. Booklet and circulars FREE. Write Joseph Clark, Sacramento.

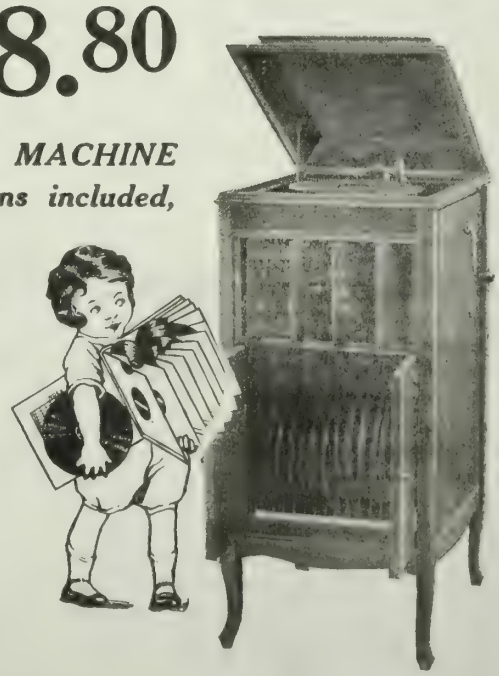
CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

STOCK RANCHES for sale in Eastern Oregon. Principal only need apply. 2509 Prince St., Berkeley, Cal.

ALL FOR $88.80

A MAGNIFICENT NEW TALKING MACHINE with 40 vocal and instrumental selections included, atan heretofore unheard of low price.



Send for the machine, try it—then if you like it send us $18.00 as an initial payment, and take ten months if you wish to finish paying for the balance—and have a superb new talking machine that is equal in tone, quality and finish to any $200 instrument anywhere. Order one today, and we will make the shipment at once.

Send for actual photograph, and list of records.

Beautiful Mahogany, Mottled Walnut and Golden Oak or Fumed Oak Cases.

EILERS MUSIC CO.,
San Francisco, Cal.

Gentlemen: Please send me, without obligation on my part, actual photographic illustrations and full detailed particulars of your offer to out-of-town buyers.

Name .....

Street or Route No. .....

City ..... F. R. P.

Eilers Music Co.

The Big Piano House

975 MARKET STREET,
San Francisco.

Talking Machine Headquarters.

The Home Circle.

THE VOICE OF THE DOVE.

Come, listen, Olive, to the voice of the dove,
Come hearken and hear him say
"There are many tomorrows, my Love, my Love,
There is only one Today!"

And all day long you can hear him say
This day in purple is rolled
And the baby stars of the milky way
They are cradled in cradles of gold.

Now what is thy secret, serene gray dove,
Of wooing and winning alway?
"There are many Tomorrows, my Love, my Love,
There is only one Today."
—Joaquin Miller.

METHODS OF MAKING JELLY.

In no department of preserving does the housekeeper feel less sure of the result than in jelly making. The rule that works perfectly one time fails another. Why this is so the average housekeeper does not know; so there is nearly always an element of uncertainty as to the result of the work. These two questions are being constantly asked: "Why does not my jelly harden?" "What causes my jelly to candy?"

In all fruits when ripe or nearly so, there is found pectin, a carbohydrate somewhat similar in its properties to starch. It is because of this substance in the fruit juice that we are able to make jelly. When equal quantities of sugar and fruit juice are combined and the mixture is heated to the boiling point for a short time, the pectin in the fruit gelatanizes the mass.

It is important that the jelly maker should understand when this gelatinizing agent is at its best. Pectin is at its best when the fruit is just ripe or a little before. If the juice ferments, or the cooking of the jelly is continued too long, the pectin undergoes a change and loses its power of gelatanizing. It is therefore of the greatest importance that the fruit should be fresh, just ripe or a little underripe, and that the boiling of the sugar and the juice should not be continued too long.

Fruits vary as to the quantities of sugar, acid, pectin and gums in their composition. An acid fruit is the most suitable for jelly making, though in some of the acid fruits, the strawberry for example, the quantity of the jelly-making pectin is so small that it is difficult to make jelly with this fruit. If, however, either currant or crab apple juice be added to the strawberry juice, a pleasant jelly will be the result. Here is a list of the most desirable fruits for jelly making; the very best are given first: Currant, crab apple, apples, quince, grape, blackberry, Loganberry and peach.

Large fruits such as apples, peaches and pears must be boiled in water until soft. The strained liquid will contain the flavoring matter and pectin. It requires more work and skill to make jellies from the fruits to which water must be added than from the juicy fruits. If the juicy fruits are gathered at the right time one may be nearly sure that they contain the right proportion of water.

To make jelly that will not crystallize (candy), the right proportion of sugar must be added to the fruit juice. If the fruit contains a high percentage of sugar the quantity of added sugar should be a little less than the quantity of fruit juice. That is to say, in a season when there has been a great deal of heat and sunshine there will be more sugar in the fruit than in a cold, wet season; consequently one pint of currant juice will require but three-quarters of a pint of sugar; but in a cold, wet season the pint of sugar for the pint of juice must be added generously.

Another cause of the jelly crystallizing is hard boiling. When the sirup boils so rapidly that particles of it are thrown on the upper part of the sides of the preserving kettle they often form crystals. If these crystals are stirred into the sirup they are apt to cause the mass to crystallize in time.

Jellies should be covered closely with paraffine or paper dipped in white of an egg, and kept in a cool, dry, dark place.

The above are condensed instructions given by Maria Parloa, and following are some of her jelly-making recipes:

Currant Jelly.—Free the currants from leaves and large stems. Put them in the preserving kettle; crush a few with a spoon, heat slowly, stirring frequently. When currants are hot, crush them. Put a hair sieve or strainer over a large bowl, over this spread a double square of cheese cloth.

Turn the crushed fruit and juice into the cloth, let it drain as long as it drips, but do not use pressure. To hasten the process, lift cloth from sieve, move contents by raising first one side of cloth and then the other. After this, put the cloth over another bowl. Twist ends together and press out as much juice as possible. This juice may be used to make a second quality of jelly. The clear juice may be made into jelly at once. Measure the juice and put it in a clean preserving kettle. For each pint of juice, add a pint of granulated sugar. Stir until sugar is dissolved, place over fire; watch closely and when it boils up, draw it back and skim; put over the fire again to boil and skim once more; boil and skim a third time; pour into hot glasses taken from a pan of hot water and set on a board. Place board on a sunny window in a room free from dust. As soon as jelly is set, cover carefully, with melted paraffin, or if you prefer, with disks of paper wet in alcohol or brandy.

(This recipe makes a stronger jelly than some people care for, and the jelly will be just as successful if some water is added to the fruit when it is put on to cook—one portion of water to eight of fruit.)

Raspberry Jelly. — Make same as

The STEPHENSON PATENT COOLER
NO ICE REQUIRED
Perfect Ventilation Absolutely Sanitary

Award first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.
L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

Gas Stove Convenience with Kerosene

Hot in *Your* Kitchen?

No need of it if you cook with a good oil stove. The heat is concentrated on the cooking—not radiated throughout the room.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Abundant heat—always ready at the touch of a match—like gas. Can be turned out the minute you finish cooking. Cooks anything your wood or coal range does—and there's no heavy hods to lug—no dirt or ashes. No odor. Does not taint the food. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

currant jelly. Loganberries will stand one quarter of water additional.

Blackberry Jelly.—Make same as currant jelly.

Strawberry Jelly.—To ten quarts of strawberries, add two quarts of currants and proceed as for currant jelly, but boil fifteen minutes.

Plum Jelly.—Use an underripe acid plum. To eight quarts of fruit, add one quart of water. Cook gently until plums are boiled to pieces. Strain the juice and proceed as for currant jelly.

Apple Jelly.—Cleanse thoroughly cut into quarters, cover with cold water (about four quarts of water to eight of apples), cook gently till apples are soft and clear. Strain juice and proceed as for currant jelly. There should be three quarts of juice from eight quarts of apples and four quarts of water.

Some other varieties of jellies can be made by using apple juice as a base. Flavored with strawberry, or red raspberry or mint, a different jelly can be made at very little bother and expense. In making mint jelly, add a small amount of green coloring matter.

Quince Jelly.—Rub fuzz off with coarse crash towel; pare and quarter; add one quart of water to two of fruit; cook gently for two hours, strain and finish same as apple jelly.

A REALLY GOOD BITER.

To the Editor: You recently said that if we wished to ask questions about bugs we must send a specimen. Here's what's biting us. Judging from the color of his coat and other horrific external features, this is one of the small fiends that escaped when the lid was lifted off perdition. Just to look at him gives my wife the cold shivers. Suppose he should grow? Get as large as a cow or even a submarine. Suppose, there was a million of him where now there is one? You can readily see that this is a most important and momentous question for this part of the State. It is fraught with such tremendous possibilities that our European diplomatic correspondence falls into insignificance. We are breathlessly awaiting your verdict. Maybe we are unduly alarmed, but it is better to be frightened stiff and have to sit up nights with a club rather than be "et up" by a crimson monster like this.

Santa Barbara. **Afraid of Bugs.**

[You are not unduly alarmed, for you have really caught something which has to be looked out for. The beast is one of the mutillidae—a group of wasps to which belong the common names of "velvet ants," "cow ants" or "cow killers." The males have wings; the females do not. They are about half to three quarters of an inch in length and look like fat ants except that they are not smooth and shiny, but are covered with white, red, black or golden hair. Professor Kellogg in his "American Insects" says they are common in California and adds: "It is believed that all mutillidae live as guests or parasites in the nests of other wasps or bees" so you see why you found them in your house! They are strong stingers and swift runners, and their sting is quite as bad as that of wasps or bees. The treatment is application of diluted ammonia and hot water.—Editors.]

"An American who does not attend the Exposition will have to explain why, all the rest of his life."—Benj. Ide Wheeler.

Symon Bros. Wreckers

Portable Houses-Portable Houses
$30.00 $30.00 $30.00
Complete and ready to set up. Row glass windows clear around. Just the thing for a summer cottage or for chicken houses, etc. This is a SPECIAL OFFER for a limited number only. Must be seen to be appreciated.

ON EXHIBITION AT OUR 11th & MARKET ST. YARD.

1501 to 1527 Market St., the place for everything at lowest prices. Reputation behind cast iron guarantee of satisfaction. CAR LOT RATES.

READY BUILT HOUSES

Houses of Character That You—Anyone can Build

The plans are explicit and simple—**Complete** homes for as low as $205. In buying one of our houses you save on initial cost—on labor—and there is no waste material—just enough to build a complete home. It is the logical way—the only way to build.

The pioneer "knock down" house company of the Pacific Coast **guarantees you** satisfaction. Send for our catalogue **today**—it's worth writing for.

READY BUILT HOUSE COMPANY.
973 Broadway, Portland, Ore.

Ants Numerous This Warm Weather

Much Suffering Can Be Prevented By This Simple Method of Relief.

The warm summer weather is very pleasant in many ways, but it always brings forth one intolerable nuisance—ants. This pest has proved the despair of many a housewife, who has tried various methods of getting rid of them—only to have them return again.

Women everywhere, therefore, will rejoice to learn that certain and lasting relief from this plague is now at their disposal. A Los Angeles baker, himself a great sufferer from ants, has prepared a paste, which will not only drive the ants out of your place, but will keep them out thereafter. Ants cannot exist where this paste is used—its effect appears almost supernatural.

This remedy is put up for general use under the name of Kellogg's Ant Paste and can be obtained at all up-to-date druggists. Try a package today, and you will have no more trouble with ants.

DEWEY, STRONG & CO. SCIENTIFIC PRESS PATENT AGENCY
PATENTS
Phil Crocker Bldg. S.F.

Circular containing 100 mechanical movements mailed free.

LEARN WIRELESS
Railroad or Commercial Telegraphy

Telegraph operators see the world and get paid for doing it. The Marconi Company gives our graduates preference for positions. The only Telegraph School on the Pacific Coast having a direct main line wire. Individual instructions.

Send for Catalogue.
MARCONI SCHOOL OF INSTRUCTIONS
13th and Madison Sts., Oakland, Cal.

"I always find just what I need at the lowest price in WHITING-MEAD'S BUILDING MATERIAL Catalog" You can do the same! Don't Delay Send Coupon Today and receive this Valuable Book FREE

Buy direct - - at rock-bottom pricee - - and save 25% to 40% on every order of building material you place. Clip the coupon, fill it out and send it in TODAY. You will receive the big, comprehensive Whiting-Mead complete Building Material catalog by return mail. It is saving money for thousands of ranchers. Why not for you?

26 Guage Corrugated Iron $2.60
Per 100 sq. ft.

A big special purchase that's another proof of our great buying power, as this price is really less than ordinary wholesale cost.

26 guage, 95 lbs. to 100 sq. ft., best annealed sheet steel thoroughly coated with a specially prepared paint and for many uses, even more satisfactory than galvanized.

Place your orders for this early, as even the great quantity that we have secured will not last us for very long, and it will not be possible to get more to sell at this price until after the war.

Regular widths in 7 ft., 8 ft. and 8½ ft. lengths.

Galvanized Screw Wire—14 mesh per square foot in full rolls, 2¼c; less than full rolls, 2½c.

Galvanized Conductor Pipe—3 in., 6c per foot in 10 ft. lengths; 4 in., 8c per foot in 10 ft. lengths.

Irrigation Pipe—of galvanized steel for surface use, made of 24 guage steel, 10 ft. length only; 4 in., per 100 ft., $14.40; 5 in., $18, and 6 in., $21.60.

These prices will give you some idea of the wonderful savings possible through ordering from us by mail. If you have not a copy of our wonderful new 1915 Catalog of Building Materials, use the coupon and send for it NOW. Everything that you need for building, fencing, tools, piping, etc., at "lower prices."

TOOLS for All Uses

10 in., Victor Brace, 75c.
10 in., Stanley N. P. ball-bearing brace, $1.90.
Stanley Levels, 12 to 18 in., 50c.
26 in., Disston saws, $1.50 and $2.
Buck saws, blade 30x1¾ in., 75c.
Pruning shears, 50c; saws, 45c.
Fence pliers, 75c; will drive and draw staples, cut, splice, straighten and stretch wire, 10 in. size.
6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay Forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Coes' knife handle monkey wrenches, 6 in size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares both sides, 35c.
4½ in., try squares, 20c.
Gem soldering sets, complete, 40c.
12 oz. claw hammers, 25c

Builders Hardware

Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.
Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single, $1.40; double, $2.10.
Cupboard turns, cast brass, T handle, antique copper, dull brass, sand blast or nickel plated, each 40c.
Drop handle drawer pulls, same finishes as above, 20c each.
Flush sash lift, antique copper or dull brass, 7c; sand blast, 8c each.
Bungalow front door handles with plate and thumb latch but no lock, antique copper, dull brass or sand blast, $3.25, or complete with lock, $7.
Store door lock, very serviceable, cylinder lock, bolts and night latch with three bit keys, any of above finishes $5.75, complete with brass escutcheon.
French window locks, any of above finishes, $1.20 complete, a $1.50 value.
Genuine Yale night latches with three German silver keys, $1.50.
Pressed steel butterfly hinges, 10c pair, all finishes.
Pressed steel screen door hinges, japanned, 12c pair; antique copper or dull brass, 20c pair.
Standard House and Floor Paints, $1.50 per gal.
Standard makes of varnishes at 25% off regular prices.
Black Graphite Roof Paint, 50c per gal.
Standard Roof Paint—red, green, gray per gal., 85c.
Shingle Stain, made from pure ground colors per gal., 50c.
Everything in Paints, Wall Tints, Brushes, etc., at big savings to you.
Dutch Kalsomine, 4½c per lb.

WHITING-MEAD COMPANY
9th and Maple Avenue LOS ANGELES

WHITING-MEAD COMPANY
9th and Maple, Los Angeles, Calif. P.R.P.
Please send me your 1915 Catalog of Building Material.
Name .....
City .....
State .....

Fruit Market and Crop Reports.

[Pacific Rural Press.]

[illegible]

"We must sell dried fruit to the East and Europe not when we want to, but when they want to buy," said a dried fruit broker to us re[illegible] of the 1915 crop while the trees were blooming.

We do not doubt this statement nor do we believe that there was an extreme excess of such early selling [illegible] dried fruit brokers and packers are in the game to make their living, and in order to stay in the game they must do business whenever the rest do business or ahead of the rest; otherwise, they are likely to be left out.

[illegible] not in the individual brokers or packers, nor necessarily even in the eastern buyers, but the fault is in [illegible] growers' dried fruit to be sold through the medium of so many [illegible] growers' welfare. This would seem like the strongest possible argument for unified co-operation in marketing dried fruits. So long as individuals are selling the fruit that other men grow, they are going to [illegible] gins of profit per pound to a very small fraction in order to do a bigger business.

[illegible] —Under the present system this competition among the packers to [illegible] soil's crop necessitates their going [illegible] ing short, as they have this season. In order to do this, they must offer the fruit at prices which will make [illegible] make money by buying now rather than when the crop is ripe. In other words, none of the 1915 crop could be sold in the East for a month to come if the eastern buyers did not think the price would be higher when the crop is ready to move. The [illegible] tition among packers determined to do business at whatever price is necessary. It does not make so much difference to a packer what [illegible] factory margin for handling the fruit.

Under unified co-operation not a [illegible] until it was practically ready to deliver. This would set the price at the time the amount of the crop is [illegible] make the price higher than it can be when sold so early in the game to men who can do business only by buying fruit at a lower price early in the season than they think they can get it for later.

This lower price, of course, is transferred to the grower and is an unnecessary burden on the industry [illegible] tem, if everybody would refrain from selling or buying until the crop is ready for delivery, the price to the grower would be higher. But under the present system as long as growers allow parties uninterested in price, but interested only in margins, to market their fruit it will be sold too early in the game for the growers' good, and they will get a lower price than belongs to them.

PRUNE GROWERS' REPORT.

The committee of fruit growers from all parts of Santa Clara valley, appointed as a result of the mass meeting of growers May 15, met in San Jose May 29 with reports as to the crops in each member's section. On the nomination of temporary chairman C. E. Warren of Cupertino, J. H. Bone of the Linda Vista district was elected permanent chairman. H. O. Shelley of Lincoln [illegible]ict was elected secretary.

After discussion of the various [illegible]ys of making reports it was decided that this committee's duty was to report only such changes from two weeks ago as might affect the total valley production, estimated at the [illegible]ass meeting to be between 66,000,000 and 70,000,000 pounds of prunes.

Reports were made from all sections of the valley. The general summary shows that very little change has come in crop conditions of apricots and prunes. Prices offered for cannery apricots and for dried apricots and prunes proved to be mostly hearsay, though some well authenticated offers and sales were reported at buyers' figures.

The secretary was instructed to take immediate steps to get, with the aid of Farmers' Union and Grange members present, reliable estimates of the prune and apricot crops of all other producing districts on the Pacific coast.

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Sacramento, June 8, 1915.

Assorted cars of cherries, peaches, plums and apricots are moving from the Vacaville and Winters districts, Sacramento River and Placer county. Although the movement is not [illegible]ticularly heavy at this time, due to the lateness of the season, shipments are increasing daily and within the next week the shipping season [illegible]ld be in full blast. Continued [illegible]ports from the Tokay section of the San Joaquin Valley confirm our former estimate that the Tokay crop is not in excess of 65 per cent, but from present indications there should be a full crop of Malagas in the lower San Joaquin valley. Other varieties of deciduous fruits are practically set in all districts and it is safe to estimate that the actual output will be normal, the varieties that are short being offset by those that are heavier than last season. There is no indication at the present that market conditions will be better than normal as the trade movement in the East shows little activity. Strawberries and cherries from the Northwest are moving as are apricots from Arizona, likewise cantaloupes from the Imperial Valley, and it will not be long before peaches are ready for shipment from Georgia. If our season ends as satisfactorily as last year, with the exception of grape prices, which we anticipate will be slightly better, growers should be [illegible]isfied.

The following prices have ruled for the week:

New York — Tartarians, $1.20 to $1.54; Bigarreau, $1.35 to $1.89; Rockports, $1.05 to $1.34; Royal Annes, $1.80 to $2.90; Pringle Cots, $1.42; Newcastle Cots, $1.60; Seedling Cots, $2.25; Mayflower Peaches, $1.65.

Chicago—Bings, $1.40 to $2.55; Tartarians, $1.20 to $1.60; Royal Annes, $1.45 to $2.95; Bigarreaus, $.80 to $1.07.

Boston—Tartarians, $1.00 to $2.10; Centennials, $1.20; Bigarreau, $1.65; Royal Annes, $1.50.

Philadelphia — Tartarians, $1.30 to $2.10; Bigarreau, $1.15 to $1.75; Royal Annes, $.85 to $2.25; Rockports, $1.50; Bings, $1.30 to $2.10. Total shipments to date 172 cars as against 492½ cars to the same date.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, June 9, 1915.

WHEAT

Changes in the export situation, not fully understood here, have caused a very abrupt decline in the larger markets of the country, and the weakness has brought local trading to a standstill, with much lower prices for all grades.

Cal. Club, ctl.	$1.82½ @ 1.85
Forty-fold	1.92½ @ 1.95
Northern Bluestem	1.90 @ 1.95
Northern Club	1.82½ @ 1.85
Northern Red	1.82½ @ 1.90

BARLEY.

Spot barley has dropped still further this week, with trading generally interrupted and ample offerings, while the new grain will be coming in shortly and shipping facilities are poor.

Choice Feed, ctl.	$1.05 @ 1.10

OATS.

Spot offerings are still fairly large, with a good crop in sight, and prices are dropping in sympathy with other grains.

Red Feed	$1.40 @ 1.50
White	1.55 @ 1.60

CORN.

The corn market shows no quotable change. Offerings are ample, but gradually decreasing, and the demand is sufficient to keep values fairly steady.

California Yellow	$1.75 @ 1.80
Eastern Yellow	1.80 @ 1.85
Egyptian White	1.75 @ 1.85
Milo Maize	1.75 @ 1.80
Manchurian	1.40 @ 1.60

BEANS.

California bayos have taken quite a drop, as there is considerable stock on hand and the new crop promises well. Other lines remain as last quoted, most descriptions being fairly steady but without any very large movement. The lima outlook is very uncertain. Notwithstanding the recent decline and the liberal stock still in growers' hands, stocks held in the east and the interior are said to be cleaning up, and some handlers look for a better market. Mexican reds are held at about $4.50 to $5, but a good deal of cheaper stock is coming in from the Orient.

(On wharf.)

Bayos, Cal., per ctl.	$4.25 @ 4.50
Blackeyes	5.50 @ 5.65
Cranberry Beans	4.25 @ 4.50
Horse Beans	3.50 @ 4.00
Small Whites	4.65 @ 4.75
Large Whites	4.50 @ 4.65
Pink	3.50 @ 3.85
Limas	4.65 @ 4.80
Reds	2.90 @ 5.00
Mexican Reds	2.90 @ 5.00
Garbanza	7.00

SEEDS.

The figures on alfalfa are entirely nominal, as there is no movement at present. Other lines are quiet, as usual at this season, values standing as before.

(Wholesale prices, San Francisco.)

Alfalfa	17½ @ 18½ c
Brown Mustard, per lb.	Nominal
Canary	10 @ 12½ c
Hemp	3 @ 3½ c
Millet	2½ @ 3 c
Timothy	7½ @ 8 c

HAY.

The hay market is in better shape than for some time past, which seems rather remarkable with the new crop at hand, if common reports as to the extent of the crop are correct. Prices on the better grades have stiffened up perceptibly, notwithstanding the fact that arrivals have been rather large. The firmness is attributed to buying for export, which keeps the surplus arrivals well cleaned up, and some dealers predict that little of the old hay will be carried into the new season. Conditions are good for haying, and the harvest is well under way. The amount to be cut is still very uncertain, however, as growers who have a good stand are disposed to make grain. Baling has started in some places, but no new hay has been shipped. There is considerable inquiry for alfalfa.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$11.00 @ 12.00
do No. 2	8.00 @ 9.00
Barley	5.00 @ 8.00
Tame Oats	7.50 @ 12.50
Wild Oats	6.00 @ 8.00
Alfalfa	6.00 @ 9.00
Stock Hay	4.50 @ 5.00
Straw, per bale	.40 @ .45

FEEDSTUFFS.

Everything under this head is rather quiet at the moment, with the outlook for prices uncertain. The only change for the week is a slight decline in rolled barley.

(Wholesale prices per ton, carload lots, San Francisco.)

Alfalfa Meal, ton	$14.00 @ 15.00
Alfalfa Molasses Meal per ton	18.00 @ 19.00
Bran, per ton	29.00 @ 30.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00 @ 26.00
Cracked Corn	40.00 @ 41.00
Middlings	34.00 @ 36.00
Rolled Barley	24.00 @ 24.50
Rolled Oats	33.00 @ 34.00

VEGETABLES.

Arrivals of several descriptions have been lighter this week, causing some advances, though other lines are lower. Asparagus is again coming in more freely, and prices have taken quite a drop. Arrivals of peas and beans are lighter, and both have been marked up a little. Rhubarb also is firmer, while lettuce is rather easy. Bell peppers have taken quite a drop, tomatoes and cucumbers being somewhat lower, while eggplant and okra have stiffened up on light supplies.

(Wholesale prices, San Francisco)

Asparagus, box	$ .75 @ 1.50
Peas, sack	1.25 @ 2.00
String Beans, lb	2½ @ 4 c
Peppers, bell, lb	10 @ 15 c
Tomatoes, crate	.75 @ 1.25
Celery, crate	.50 @ 1.25
Lettuce, crate	.75 @ .90
Rhubarb, box	40 @ 85 c
Cucumbers, S'thern, bx	25 @ 35 c
Eggplant, lb	7 @ 10 c
Summer Squash, lug	65 @ 85 c
Okra, crate	.75 @ 1.25

POTATOES AND ONIONS.

New delta potatoes are now coming forward freely at comparatively low prices, and have a tendency to crowd old stock out of the market, though values for Oregon stock are well maintained. Yellow onions, Bermudas and Australian are quiet at the old figures, while a good many new red are moving at fair prices. Garlic is easier.

(On wharf, San Francisco.)

Potatoes, Oregon, ctl.	$1.75 @ 2.00
New River Potatoes, ctl.	1.25 @ 1.65
Onions, yellow, sk	65 @ 75 c
Red, sk.	1.00 @ 1.10
Australian, ctl.	2.50 @ 3.50
Bermudas, crate	1.00 @ 1.25
Garlic, per lb, new	5 @ 10 c

POULTRY.

Local trade is not especially active, and with large arrivals from eastern and California points prices still tend downward. Both large and small hens are lower, and a drop is also noted in ducks and geese.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	16 @ 18 c
Broilers	19 @ 23 c
Fryers	23 @ 28 c
Hens, extra, per lb	16 @ 17 c
Small Hens, per lb	14 @ 15 c
Smooth Young Roosters, per lb	24 @ 27 c
Squabs, per doz.	$2.00 @ 3.50
Geese, per pair	2.00 @ 2.50
Ducks, young, lb	14 @ 15 c
Old	13 @ 14 c

Belgian Hares ..... 7 @ 8 c

BUTTER.

The first grade has been dropped from the list for the present. Another large shipment was sent to Australia this week, but this business seems to have had little effect on the market. Shipments are coming in on a large scale from northern and nearby points, and extras are easier.

(S. F. Dairy Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extras	24	24	24	24	24	23½
Prime Firsts	23	23	23	23	23	23

EGGS.

All grades are lower than last week, as offerings are coming forward rapidly, and with the present warm weather dealers are anxious to clean up, while the local consuming demand does not appear to have increased much.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extra	22½	22½	22½	22	22	22
Firsts	20½	20	20	20	19	19
Sel. Pul.	20	20	20	19	19½	19½

CHEESE.

Heavy arrivals from Oregon have tended to produce an easier feeling in the local market, though there is no quotable decline, and Monterey cheese is slightly higher.

(S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy 12½c
Fancy Calif. flats, per lb 10½c
Monterey Cheese ....10 @12 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu
Butter	23	23	23	23	23	24
Eggs	20½	20½	20½	21	21	21
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

The fresh fruit market is getting more attention than for some time, owing to the increased arrivals. Strawberries have been cleaning up well, and bring a little better prices for favored varieties; while logans, raspberries, blackberries and currants are lower, with fairly large offerings. Gooseberries show rather more firmness. Clyman plums are coming forward in good shape, but bring fair prices, while other plums are rather cheap. Figs are much lower. Cherries are a little firmer, with more attractive offerings and an active demand, and loquats are also higher. Peaches are steadily held, with limited offerings, but apricots are much lower. Old apples are higher, and while new apples are hardly quotable a few have sold at $1 to $1.25 per box. Melons are rapidly getting down to summer prices.

Loganberries, black, chest $4.00
Loganberries, red .....$3.00@4.00
Strawberries, crate ..... 30@50c
Longworth, chest .... 4.00@5.00
Other varieties ..... 3.00@4.50
Raspberries, chest .... 8.00@12.00
Gooseberries, lb ..... 3 @ 7 c
Blackberries, crate .... 7.00@8.00
Currants, chest ..... 4.50@6.00
Plums, crate .....65 @90 c
do. Clyman .....75c @1.00
Figs, box, single layer.. 1.00@1.50
Loquats, crate ..... .75@1.25
Cherries, lb., fancy blk. 3 @ 7 c
Royal Anne, ... 4 @ 7 c
White ..... 2 @ 3 c
Apricots, box ..... .75@1.00
Lug ..... 1.00@1.25
Peaches, crate ..... 1.25@1.50
Small box .....50 @75 c
Apples, Newtown, fancy 1.50@1.75
Cantaloupes, pony crate 1.75@2.25
Watermelons, lb ..... 2 @ 3 c

DRIED FRUITS.

Old apples and apricots are now hardly quotable, as there is none of any consequence left in producers' hands. There is a better feeling in prunes, both spot and new-crop, notwithstanding the comparatively large crop in sight. Eastern buyers are again coming into the market for summer requirements, and there is very little stock left on the Coast. Local packers are offering a little better price for futures, and offers of as high as 4½c are reported from the Santa Clara district, though that appears to be far above the views of the local trade. Old peaches are said to be cleaned up in some quarters, but there is no demand of any consequence here, and values show no improvement. Apricots are rather slow, but buyers are taking considerable interest in the new crop, and reports that the war developments would have an adverse effect on the market are given little weight. Imported figs are likely to be very scarce, and California stock is accordingly expected to find a strong market. The New York Journal of Commerce says:

With stocks in distributing markets getting into small compass as a result of very good consuming demand, the Coast is being drawn on for additional supplies of prunes, orders as a rule calling for prompt shipment. The f. o. b. market on 1914 crop in California is strong as a consequence.

Future California prunes appear to be getting little attention. The market is irregular and in some quarters easier, but whether this is due to an actual desire to stimulate buying or to influence growers on prices in the field is a matter on which opinions differ.

(Prices to Growers)

Prunes, 4-size basis, '14 5 @5½c
Peaches .....2½@3 c
Pears .....6 @8 c
Raisins (in sweatbox):
Loose Muscatels .....4 @4½c
Seedless Sultanas 4½c

1915 CROP.

Apricots .....5½@6½c
Figs, white .....3¾@4¼c
Black .....2¾@3 c
Prunes ..... 3 @3¼c
Peaches .....3 @3½c
Pears .....6 @9 c

CITRUS FRUITS.

The eastern auctions are paying good prices for both navel and valencia oranges. Most of the California shipping districts have sent all the navels for the season and valencias are now moving freely.

On the New York auction of Monday, June 7th, navels averaged from $2.10 up to $3.40 per box and valencias brought from $2.50 up to $3.75. Lemons are still selling at very low prices, averaging at New York from $1.90 to $2.75 per box. Other eastern auctions showed about the same price as New York last Monday.

San Francisco values show no further change, and while attention is turning to deciduous fruits there is still a very fair local movement of oranges and lemons.

(Wholesale prices, San Francisco.)

Oranges, navel, box ...$1.75@2.75
Valencia, box ..... 1.75@2.75
Grapefruit, seedless, bx 1.75@2.25
Fancy ..... 2.50@2.75
Lemons, box ..... 1.50@3.25

NUTS.

Old almonds are no longer quoted, as practically everything is cleaned up. Packers have named prices to the trade on the new crop, as quoted below. The Association will not name prices until August, as the quoting of definite values at this time is regarded as purely a gamble. The outlook is too uncertain to warrant a definite anticipation of better prices, but there is some indication that there will be difficulty in transporting the Spanish crop.

(Prices f. o. b. San Francisco)

Almonds, 1915 crop:
Nonpareil ..... 17 c
IXL 14½c
Ne Plus Ultra ..... 14 c
Drakes .....12½@13 c
Languedocs .....11 @11½c
Walnuts, new crop:
Jumbo, lb ..... 10 c
No. 1 Softshell 16½c
Budded ..... 18 c
Ungraded ..... 8 @10 c
Manchurian ..... 6 @11 c

HONEY.

So far very little new honey has come in, and such as is offered brings fair prices. The early crop has been light, but growers in some sections look for a large output of alfalfa honey later. Old stock is getting fairly well cleaned up.

Water White, comb:
New ..... 18 c
Old .....10 @12 c
Light Amber ..... 8 @10 c
Water White, extracted 5 @ 6 c
Light Amber .....3½@ 4 c
Dark ..... 2 @ 3 c

LIVE STOCK.

No change in prices has been made this week. Sheep and lambs remain rather firm, and there has been considerable contracting of lambs at satisfactory prices. Beef cattle are fairly steady at the old figures.

(Prices at San Francisco.)

Steers, No. 1 ..... 6¼@6½c
No. 2 ..... 6 @6¼c
Cows and Heifers, No. 1 5¾@ 6 c
No. 2 ..... 5½@ 5¾c
Bulls and stags ..... 4 @ 5 c
Calves: Light ..... 9 c
Medium ..... 8 @ 8½c
Heavy ..... 6 @ 7 c
Hogs: Grain-fed:
225 to 300 lbs. 7¾c
100 to 225 lbs 8¼c
Prime Wethers .....6½@ 7 c
Ewes ..... 6 @ 6½c
Shorn sheep, less by .. ¾@ 1 c
Suckling lambs ..... 7¾@ 8 c

DRESSED MEATS.

Steers .....10½@11 c
Veal, large .....12½@13 c
Small .....14 @15 c
Prime Wethers .....13 @14 c
Ewes .....11½@12 c
Suckling Lambs .....15 @16 c
Hogs .....12 @12½c

WOOL.

Values show little change. The spring clip is moving slowly, but a good many small lots are changing hands.

Wool, Sacramento Valley, lb 18@22c
Southern, year's staple ....16@20c
Six months .....14@17c

HORSES.

Some good drafters, chunks and wagon horses have been put on sale here this week, and moved off fairly well, though buyers are slow to take an active interest in the market and the less desirable stock is hard to dispose of.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up .....$275@300
Light drafters, 1550 to 1650 lbs. ..... 175@200
Chunks 1350 to 1500 lbs 150@175
Wagon horses, 1050 to 1350 lbs. ..... 100@140
Green Mountain range horses, 950 to 1200 lbs 50@ 90
Farm workers ..... 60 @ 75

MULES.

1200 lbs and up .....$225@250
1100 lbs. ..... 200@225
1000 lbs. ..... 150@175
900 lbs. ..... 125@150

HIDES.

Values are firmly maintained as last quoted, with little stock offered and an active demand.

(Country hides, delivered S. F.)

Heavy steers, over 56 lbs .....15½@16 c
Medium .....15½@16 c
Light Steers, under 48 lb 15½c
H'vy Cows, over 50 lbs 15½@16 c
Light Cows, 30 to 50 lb.15 @15½c
Kip .....16 @16½c
Veal 16½c
Calf 16½c
Dry Hides .....26½@27½c
Dry Kip, 10 to 15 ....25½@26½c
Dry Veal, 5 to 10 .... 30 c
Dry Calf, 7 down .... 30 c
Horse Hides—
Salt: Large $3.00
Medium 2.50
Small 1.00

HOPS.

1915 crop, lb ..... 7 @ 8 c

Almond Growers

Membership books will soon close. Those who desire to become members should make application at once.

CALIFORNIA ALMOND GROWERS' EXCHANGE,

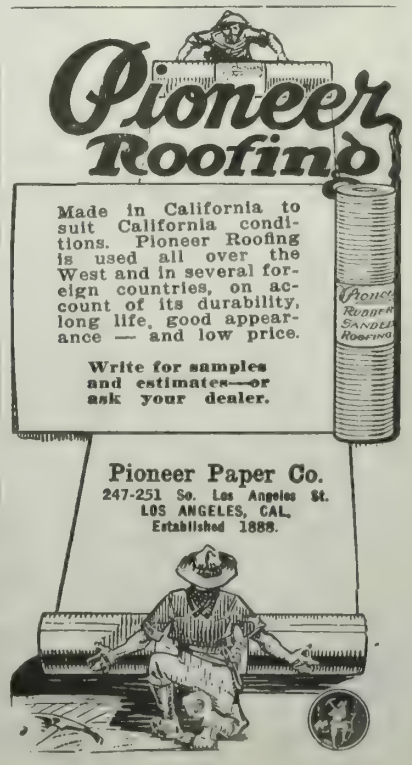
311 California St., San Francisco, Cal.

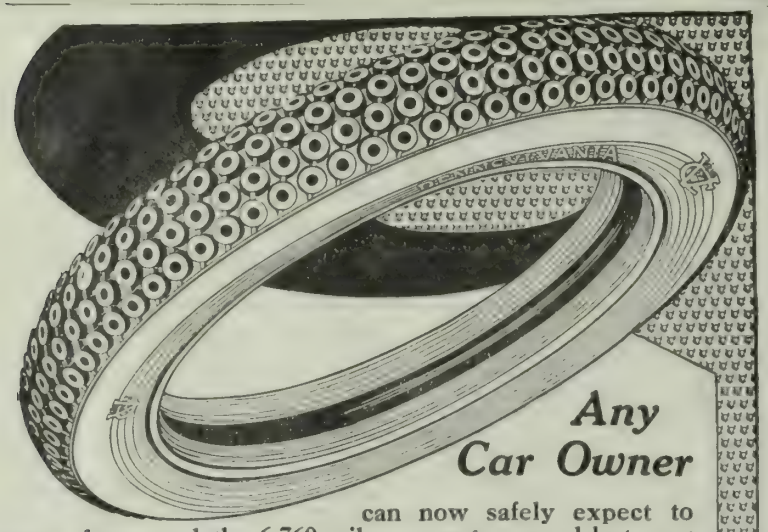
Publisher's Dept.

"I am very much pleased with the improvement in the Press in its diversified line of advertisements, as well as other things. It is well to read carefully this part of a reputable journal. You obtain much knowledge of the way of the farm world, its plans and modus operandi."—H. S. E., Princeton.

The subscriber who wrote the above is getting more from the Rural Press than some of his neighbors Advertisements in our columns are of real value to subscribers if they read them. Advertised articles are the best, because no business man will spend money on his product sold under a trademark unless he intends keeping up the quality. Goods that are offered by dealers as being "just as good," but not advertised, are not as good. The manufacturer and dealer in shoddy stuff are simply taking advantage of the popularity and merit of a standard article, and hope to get away with your trade as long as they can.

The same idea holds good in farm journals. Some papers are gotten up simply to sell advertising space. Their owners would print a fish paper or druggist journal just as easily if they could sell advertising space in them as readily. A farm journal edited and managed along constructive lines, giving the best and latest information in an honest way to its readers, is an asset to the State. The journal that helps toward better production and selling, that keeps its readers posted on the latest in progressive agriculture, is a help to every farmer and business man in the State, whether they are readers or advertising patrons. Just as sure as your neighbor is benefited, that he becomes a better producer and buyer, just so sure will you be helped along. Every new book, paper or implement that makes for better agriculture is of value to you. Every time a co-operative farm movement is started or when better stock is introduced in your neighborhood some measure of benefit comes to you. We believe that the only excuse the Pacific Rural Press has for existence and the only reason for its success in attaining its present circulation of over 22,000 copies weekly is that it is giving actual service and value to its patrons. In the various departments of our business the one idea dominating everything is "service." Not only in the educational matter printed but in our crop reports, markets, answers to queries, etc., is this idea kept in view. In the printing of farm books, of which we have published five, the thought of the money return is second to the effort made to help California agriculture.





Any Car Owner

can now safely expect to more than equal the 6,760 miles average scored last year on heavy cars in The Automobile Club of America official test of strictly stock Pennsylvania Oilproof

VACUUM CUP TIRES

If you drive a light car, your mileage expectancy can reasonably be placed at *far* beyond this average.

1915 Vacuum Cup Tires are toughened by a new process that is yielding in actual service 50% greater mileages than last year's tires, which rolled up the A. C. A. record — incidentally doubling the life of the guaranteed non-skid Vacuum Cups.

And this economy is further marked by the fact that Vacuum Cup Tires are the lowest priced of any tires having any kind of non-skid device *added to* a tread of regular thickness.

Interesting new prices just issued for Pennsylvania Gray and Puregum Red Inner Tubes—both with unqualified guarantees

PENNSYLVANIA RUBBER CO., Jeannette, Pa.

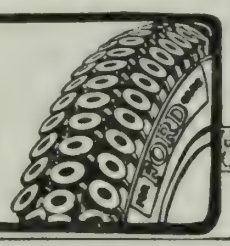
Direct factory branches and service agencies throughout the United States and Canada

An Independent Company with an Independent Selling Policy

Vacuum Cup Tires for Ford Cars

Regular V. C. strength, extra weight and toughness—in generous proportion to the smaller sizes and lower prices.

Guaranteed 4,000 miles—guaranteed oilproof —sold on the V. C. Non-Skid Guarantee basis



THE SCHMEISER PORTABLE AUTOMATIC DERRICK

THE HAY STACKER THAT SAVES TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us NOW for full details explaining just what it can do and how it can save you time, work and money. Address

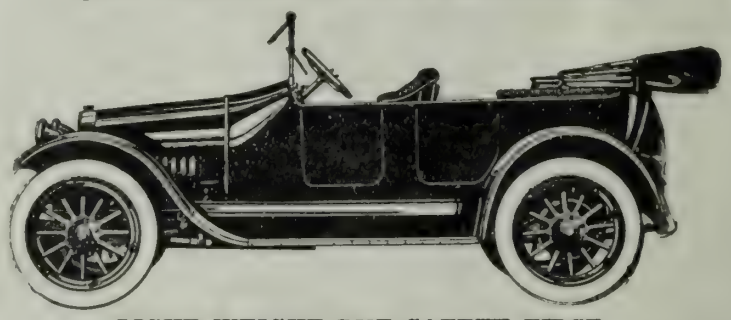
SCHMEISER MANUFACTURING CO.
Box 87
Davis, California

PILES UP HAY AND PROFITS

USED BY ALL MODERN FARMERS

1915 Mitchell

construction superior throughout to all cars under $2500 in price. Come to our show rooms and be convinced.



LIGHT WEIGHT BUT SAFETY FIRST.

Osen-McFarland Auto Co.

661 Golden Gate Ave., San Francisco.

1st & St. James Sts., San Jose.

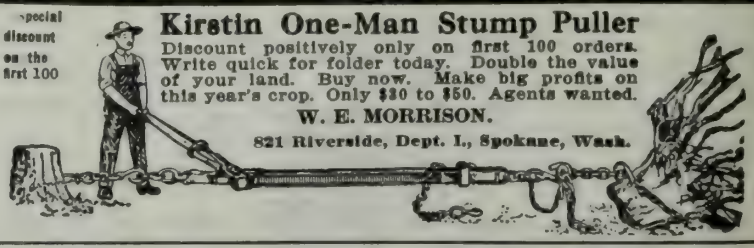
Special discount on the first 100

Kirstin One-Man Stump Puller

Discount positively only on first 100 orders. Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted.

W. E. MORRISON.

821 Riverside, Dept. I., Spokane, Wash.



CALIFORNIA POULTRY PRACTICE

$1.50 Postpaid

By Susan Swaysgood. Pacific Rural Press, Publishers

Vol. LXXXIX—No. 25 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, June 19, 1915 LOS ANGELES

Costs of Raising and Drying Peaches.

[Written for Pacific Rural Press.]

Some people fear to go into orcharding because the income from the orchard is very likely to come through one comparatively short period per year, and they need a monthly income.

W. A. Harter of Modesto gets a monthly income and has a peach orchard to which citizens of that section "point with pride." It consists of 15 acres of Elbertas and 8 of Muirs, besides 28 acres of alfalfa, which supports a small dairy. Since Mr. Harter is a banker in Modesto and lives on his ranch, he keeps a careful account of his expenses, and knows where they are located and why.

The gross income from the fruit for one year was $206 an acre, when the dried peaches sold at ten cents and fresh ones at $35. The gross income is usually over $100.

Mr. Harter hires a man and wife to work the place and keep house at $65 a month and board. He figures this expense equally between the dairy and the fruit. The dairy yields a monthly income; the peaches yield more income than most, on account of careful attention to the details of operation.

Pruning in the winter is done by Japanese hired by the day, and costs $115 to $125 per year. Mr. Harter will not contract the work as many do, because contract work encourages poor work.

Lime-sulphur spray, of which two applications are made per year, requires three barrels for each application, at $11 per barrel, averaging $66 for each of the past five years. The spraying is usually done by the man who has charge of the place.

Well Balanced, Heavily Leaved and Low-Headed Trees Protect Their Trunks from Sunburn, even Late in the Afternoons, and Produce Maximum Crops. The Tree in the Lower Picture Will, in Two Years, be Like Those from Which They are Picking.

Thinning costs $30 to $80 for the whole place, with labor at $2.00 to $2.25 per day. All of the cultivation is done by the man who works there regularly.

There is no irrigation, because the place is sub-irrigated from higher lan "If the orchard is not irrigated, it will not take nearly as many po ds of fresh fruit to make a pound of dried fruit. If one is going dry his crop no irrigation should be done prior to the ripening o he fruit. Under ordinary conditions, the Muir dries 5 to 1, the lberta 7 to 1," says Mr. Harter. The crop is dried or shipped, according to which pays best. Last year, only the Muirs were dried, because $17.50 per ton was received for the Elbertas at Ceres station. These yielded $1,622.75 last year. There were over 12 tons of Muirs dried, which sold at 3½ cents per pound, yielding $845.60.

Drying Peaches Must Be Ripe.—Peaches for drying are picked three times. They must be thoroughly ripe or they will dry into white chunks. Muirs should be a canary yellow all over when picked, according to Mr. Harter. He has nine or ten pickers and stays at home a day or two at the beginning to watch whatever new men may be on the gang. If a man cannot tell by the color after the first day or two, which peaches are ready to pick, Mr. Harter doesn't want him on the job. It is bad practice to pinch the peaches to see if they are soft enough. The first picking yields about one quarter of a box per tree; the second, about one box; and the third, two or two and a half boxes, with an ordinary crop. Every twenty-four hours makes a big difference in the ripeness after the peaches begin to turn, so that pickers must move fast. Mr. Harter tried white men for two or three years, but figures that he lost $200 to $250 by being unable to get satisfactory work. One thing which he tried without avail was to get the white men to put the boxes in moderate-sized piles in the shade, handy for the wagons which haul them into the cutting shed. They would scatter the boxes all over the orchard, making it hard for the team and the man hauling, and delay the game at a hurry time. They were slower, too, than

(Continued on page 702.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS, - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week

E. J. Wickson - - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - Subscription Manager
R. E. Hodges } - - - Assistant Editors
J. C. Loomis }

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agricultural Weather Bureau, at San Francisco, for the week ending at 5 p. m., June 15, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Eureka.....	.01	42.39	45.68	58	48°
Red Bluff...	.00	34.79	24.87	90	50
Sacramento.	.00	17.21	20.09	88	52
S. Francisco.	.00	27.41	22.25	72	48
San Jose...	.00	22.71	16.78	82	46
Fresno.....	.00	10.92	9.68	96	54
S. L. Obispo.	.00	3.80	9.53	92	..
Ind'p'nd'nce	.00	28.16	20.51	84	44
L. Angeles..	.00	17.04	15.64	84	56
San Diego..	.00	14.41	10.01	72	58

The Week.

For the first time in nearly forty years the editorial columns of the Pacific Rural Press week do not contain the writings of its editor. Prof. Wickson was taken suddenly ill last Saturday, but at this writing he is reported as recovering at his home in Berkeley, and we expect he will be at his desk again in a few days.

Last week the work at the University of California carried on by Prof. Wickson for many years was brought practically to a close, and at this time we may say for him and his life work some things which he would not write about himself.

Few men are more pleasant to work with than Professor Wickson, or more approachable by any man who knows what he wants. Few men are more ready with a concise, conclusive answer to plainly stated agricultural questions, and none can compare with him in the number of difficulties out of which he has helped farmers, to whose service his life has been devoted.

Forty Years of Active Service in California.

Coming to California in 1875 to take the editorship of the Pacific Rural Press, after having distinguished himself in the dairy industry of New York, he has never missed a week's activity since then. His able work in the Pacific Rural Press quickly brought him to the attention of Dr. E. W. Hilgard, who was about that time making a strong fight for the co-ordination of the State College of Agriculture with the State University. In 1879 he was called to Dr. Hilgard's side as Lecturer in Dairying. Since that date, he has carried the double weight of University instruction and research, and the editorial duties on this journal.

While his connection with the College of Agriculture may not have wrought as much direct benefit to the agriculture of the State as his editorship of the paper on account of the fact that he has reached 2,000 to 20,000 California subscribers, or probably treble that number of readers through the paper, yet his college work has been of fundamental importance, because it has aided in solving problems which, if unsolved, might have held California forty years behind her present attainment. His constructive optimism, tempered always by steady conservatism, has been an outstanding factor in the rapid development of the State. We rejoice to epitomize his services in the College of Agriculture, especially since it is during this week that he has definitely ended that career by becoming Emeritus Professor of Horticulture of the University of California; and has been placed on the Carnegie pension roll: Lecturer in Practical Agriculture, 1885-1891; Superintendent of Experiment Grounds, 1886-1889; Associate Professor of Agriculture, Horticulture and Entomology, 1892-1897; Acting Director of the University Experiment Station, 1892-1893; Superintendent of University Extension in Agriculture, 1898-1905; Professor of Agricultural Practice, 1897-1907; Acting Director of the University Experiment Station, 1905-1907; Dean of the College of Agriculture, 1905-1912; Professor of Agriculture and Director of the University Experiment Station, 1907-1912; and Professor of Horticulture, 1912-1915.

Retired, but Not Idle.

Commenting on the crowning of his career, the Oakland Tribune says:

"It is not likely, in time past or future, that there will stand on the rolls of the Carnegie pensioners for meritorious work in the profession of teaching, a name more worthy than that of E. J. Wickson, late professor of agriculture in the University of California, now emeritus professor of horticulture.

"We have some pride in recording the fact that California owes primarily a very large obligation, due on the score of Wickson's eminent services, to the profession of journalism. Professor Wickson entered upon journalistic work many years ago in New York State. Following the line of his propensities, he specialized upon matters relating to agriculture, with close attention to dairying and dairy interests. Later he associated himself with an organization representative of those interests in central New York. His work in this connection brought him to the attention of the publishers of the Pacific Rural Press, by whom he was invited to come to California as the editor of that publication. From and through his work in the Rural Press came the qualification and the distinctions in relation to California which brought him to the University. Professor Wickson's studies in connection with agriculture and horticulture in California need no exploitation. We think no other man has done more, perhaps no other so much, in teaching California how to turn her exceptional and characteristic conditions to productive account as Professor Wickson.

"The Carnegie pension is wisely and worthily conferred upon a man who, in his professional work and in multitudinous other ways, has illustrated the values of inspiration and of thoroughness, in combination with a personal character at once sweet and manly."

Everywhere we have traveled among the farmers of the State we have heard words of enthusiastic and almost extravagant appreciation of his services. About a week ago, we were welcomed into a home in Santa Clara county and loaded up with good things to eat and beautiful plants to set out at home, just because we were connected with the paper of which Professor Wickson is the editor. It has been like this everywhere we have gone. people have implicit faith in his horticultural wisdom, and his judgment is rarely questioned.

His Books.

Professor Wickson has been a tireless worker. Not only has he edited the Rural Press and done great work at the University but has also found time to write four books covering agricultural subjects of California Of the four volumes which he has written besides numerous pamphlets and other writings, his "California Fruits" is quoted on every farm. "California Vegetables" comes next, and "One Thousand Questions in California Agriculture Answered," a collection of his answers to questions asked him by troubled farmers for answer in the Pacific Rural Press reaches the heart of things. "California Garden Flowers," only recently published, has brought forth the praise of newspapers and flower gardeners throughout the State in the few months of its circulation. Some of these books are used as regular text-books in many schools of the State, and they guide the questioning farmer and farmer's wife and son and daughter in a multitude of situations where intimate contact with the soil presents practical problems that must be solved. Another book is in the writing, epitomizing the wide experience gained by our Editor in his many years of mingling with farmers in all parts of the State. This contains heretofore unpublished experiences, which should not and will not be forever locked up in the man

Governor's Pen Has Been Busy.

Since our last writing the gubernatorial pen has rested from its flow of ink in determining the destinies of greater, if not mightier, or mitey-er, interests than the swords of all Europe are likely to determine by their flow of blood. From the conflict of legislators, 1000 bills, lacking three, emerged with more or less disfigured faces, and the Governor has set a new record in number of bills signed. Of the 771 bills which have become law, several are of special interest to farmers. The State now enters the marketing business, establishing a State Marketing Director at a salary of $5,000 with a term of four years; to establish receiving and selling stations for farm produce in any of the larger cities of California. At these stations, the produce will be sold by the State on commission, similar to the present private marketing except that it will be done at cost A bureau will be established to collect and scatter market information for the producers

A Rural Credits Commission of five members has been provided for and will soon be appointed by the Governor to formulate plans whereby California farmers can obtain money to use in productive operations at a reasonble rate of interest on long enough loans so the results will come in time to pay up.

The Tax Commission of three members will attempt to find out a more satisfactory way of assessing and collecting the California State taxes. A very considerable part of these taxes is used to buy supplies for the State institutions. A Board of Control has been purchasing these supplies heretofore at a considerable saving over the buying for each institution separately. But still further economy is expected when the State Purchasing Agent shall have been appointed to buy all of the

foodstuffs, clothing, furniture, stationery, fuel, and building materials used by the State.

What of the Poultry Commissioner Bill?

It may be that one of the 771 bills of which we have no announcement yet, is the Poultry Commissioner Bill, for whose passage thousands of California poultrymen did good work in supporting the Federated Poultry Association of California by means of petitions and personal influence. If the Governor has disregarded the interests of so large a percentage of California's best citizens, especially when the appropriation was so small as compared to other appropriations of less urgency, our poultrymen might do well to show him the force of their resentment by taking a slap at some of the Governor's pet propositions, which will come before the voters in the fall. Of course, we do not advise cutting off our noses to spite the Governor, but just to show that we believe that part of the money appropriated otherwise could best have been spent in developing the poultry industry at its time of special need.

Wants to Sell Dried Fruit to Germany.

And while we are on the subject of strife, it may be interesting to scan the following proposition for the suppression of European warfare submitted to us by G. E. Merrill of the Santa Clara Valley:

To the Editor: According to the Literary Digest, dried apricots and prunes are selling in Hamburg, Germany, for 25 and 26 cents per pound respectively. This, too, when meat prices there are no higher than they are in many parts of this country. Nor are breadstuffs in Hamburg relatively as high as dried fruits. Local buyers are now offering 7½ cents less for dried apricots and 3½ cents for prunes. Here is a situation that calls for action.

Why is it not feasible to organize a league of neutral nations, the prime object of which would be the promotion of trade between neutrals and each of the belligerents? A league of the more powerful neutral nations, perhaps even the United States acting alone, might say in effect to the Allies: If you do not let us ship foodstuffs and other articles ordinarily not contraband of war to your opponents, we cannot supply you with any more munitions of war. The league, or the United States, could then say to the other side: If you do not stop submarine warfare on unarmed merchant vessels and otherwise abide by the principles of international law, we can hold no intercourse, commercial or otherwise, with you. The league might point out to the Allies that it is futile to attempt to starve out Germany. The beginning of the new harvest approaches and our best information shows that there is not, nor will there be, this year at least, a critical shortage of breadstuffs in Germany. Germany has been a heavy purchaser of dried fruits and would be today were it not for the blockading tactics of England. On the other hand Germany's submarine warfare does not seem to do damage of prime importance to her opponents; and by her conduct towards neutrals she is adding to the burdens she will have to carry in the future. If we are firm to the Allies can we not induce Germany to become more internationally law abiding?

An aggressive league of neutrals represented by the best thought of the nations composing it, might do much to minimize the losses to humanity caused by warfare on the present stupendous scale. In the future, when peace has again come into her own, the league would furnish the basis of a worldwide international organization that would have for its objects disarmament and the establishment of an international police force. Some such movement as I have attempted to outline in the foregoing is bound to come, I believe, and rural California should do her part in helping it onward. Is it not highly desirable for Californians in particular, for the United States in general, and ultimately for humanity itself, for our chambers of commerce, fruit growers' and sellers' organizations and other similar bodies to indicate to our government that we desire a policy that has for its first object the opening of markets that have been closed to us through the conduct of a war, the parties to which appear blind to any consideration except that of inflicting the greatest damage possible on those whom they conceive to be their enemies?

No Hurry to Sell Dried Fruit.

While some of the dried-fruit growers are still somewhat discouraged by the downward movement of prices, we are glad to note that the movement for holding prunes in Santa Clara valley is yielding results which are felt in the trade. While prices generally offered for prunes are not as high as of recent years, the growers seem to be generally of one mind in holding for higher prices, and this of itself will bring what they are after, if persisted in. As mentioned in other columns, the downward price of peaches at present should not scare anyone into selling and further lowering the price at this time. There are a number of reasons for thinking that peaches will be higher priced later in the season. New crop apricots are still not being sold very freely, though the crop must be shipped next month and the month following. When they are ready to ship, there will almost certainly be a downward movement of prices until the buyers find that they cannot scare the growers. In all events, the gambling feature of dried fruit selling can only be minimized by refusing to sell before the crop is dried unless there is a very good margin of profit in offers previous to that time.

Queries and Replies.

Querists must give name and address.

Gypsum and Alfalfa.

To the Editor: Would gypsum stimulate the growth of alfalfa on places where I did a good deal of scraping when leveling the land a year ago? The alfalfa made good growth last year all over, but the first crop this year is not very good, and the second crop is very poor. Next year I probably will have stable manure, but for this season I should have something to stimulate the growth a little.—F. S., Live Oak.

Gypsum will push the growth and will help to mellow the hard places, if you are irrigating. so as to dissolve the gypsum. It is best applied before the last rains are over. But you are right in getting on some stable manure as soon as you can.

Irrigating Sorghums.

To the Editor: Will you please advise me concerning the irrigation of Egyptian corn? The ground was thoroughly watered before planting and the corn is just now coming up. The soil is getting very dry on the surface. I have been told that Egyptian corn should not be watered at all. Would you advise permitting it to go through the dry hot months without irrigation? If not, when and how often should it have water? And is it best to cultivate it continually from the time it is 4 or 5 inches high?—P. C. E., Patterson.

The sorghums are especially valuable for drouth and heat toleration, and because they will give most growth with least water, but that does not mean that they do not enjoy moisture. They make amount of growth proportional to the moisture available and will grow from six inches to six feet high, according to the soil moisture available. Therefore, unless your ground is naturally moist, you will get more green feed or grain by irrigation, the water being run in furrows between the rows or flooded if sown broadcast. How much and how frequently irrigated depends upon whether the soil is retentive or not. Ordinarily irrigation once a month is desirable. Watch the plants and keep the foliage from yellowing until it is natural for it to mature the seed. Whether you will irrigate or get the most you can without, good cultivation while the plant is growing is the surety of a good product, unless the land is naturally moist, and then the plant should be kept clean of weeds.

Summer Planting Citrus Trees.

To the Editor: Kindly give me your opinion regarding the late planting of lemon trees. We planted lemons in March or near the first of April, and for some reason every tree died. Will it do to replant near the first of July, or will that be too late? If not, can you suggest any extra precautions to take to insure their growth? You know this locality so well that I feel your judgment is well worth gaining. In your judgment will we gain time by planting in July over waiting until next spring?—Reader, Dixon.

If the land is kept cultivated to hold the moisture up well, we should not hesitate to plant out balled trees in July—keeping the surface well stirred afterward and using water as required to keep the soil continuously moist after new growth starts. Shading with a burlap cover, around stakes a little way from the tree, will help by reducing evaporation. Citrus trees should be set out after the soil becomes fairly warm and free from saturation. May is better than March and later in the summer is all right, if good care is given. Irrigation should be reduced early in the fall to allow the wood to harden before frosts.

Funny Growth of Potatoes.

To the Editor: Please explain a peculiar growth of potatoes. The plants are sending out roots 16 to 18 inches long on which small potatoes are formed. These small potatoes are forming new plants. If you know the cause for this and a remedy, I would be very glad to receive the information.—M., Madera.

The formation of the potato tuber is a very interesting and complex phenomenon. Roughly speaking, it may be said to be more the work of the foliage than the roots, but there must be normal conditions in both top and bottom growth to allow regular performance. If there is lack of proper condition and connection, there will be potatoes formed above ground which are called "aerial tubers"; or there may be a break of such roots as you describe, and if they get the downward flow of sap they will be forced into tuber formation. As they are abnormal, they may lack the resting quality of regular tubers and under favoring conditions of temperature and sap pressure, etc., may develop leaf growth as you describe. There is no known cure for it, because we do not know what produced the conditions which caused it. Probably something has interfered with the normal efficiency of the old roots or broken their normal relation to the tops, which to relieve themselves, have forced the new and worthless growth.

How to Select Citrus Budwood.

[Written for Pacific Rural Press by A. D. Shamel, Physiologist U. S. Dept. Agr.]

We have adopted the practice of cutting our budwood from citrus trees with typical fruits attached. Our selection of trees for sources of budwood is based upon performance records. We use for parent trees those which have shown in their performance records a production of large and regular crops of valuable fruits.

So far we have found that as a rule the citrus trees which produce the largest amount of fruit also produce fruits of the best commercial quality. We have found that the standard or the best types of the citrus varieties which we are studying are characteristically the best producers of the most valuable fruits for these varieties.

As a rule, the off-types which have arisen as a result of bud mutations produce irregular and comparatively undesirable fruits for the present market conditions. It is true that we have under observation in all of the citrus varieties, types originating from bud sports which are promising as valuable additions to the citrus varieties now cultivated in California. For instance, we have a bud sport of the Thomson orange which has the characteristically smooth and fine texture of the Thomson orange, together with the valuable reddish color of this variety. The thickness of rind, texture of the rag, and the amount and quality of the juice, however, is similar to that of the best or standard type of the Washington Navel orange.

Cut Budwood When Fruit is Ripe.—After locating trees having the desired characteristics for propagation, we cut budwood from these trees only at such times as the fruit on these trees is in condition for examination. In other words, we cut the budwood at a time when we can study the comparative qualities of the crop; when the fruits are ripe.

Fortunately, in the case of the citrus varieties, this maximum condition of ripeness extends over a long period, so that there is a considerable range of time during which buds can be intelligently cut from select trees.

Use Only Unbranched Sticks Bearing Desirable Fruit.—In cutting budsticks from the select trees, we look for, first of all, typical fruits of the variety. The important characteristics taken into consideration in this study of the fruits borne by the select trees are size, shape, color, texture of rind, thickness of rind, texture of rag, and amount and quality of juice. In seeded varieties of the citrus, special attention is given to the number of seeds in the fruits, and as a rule, fruits are to be preferred having the least number of seeds.

We next look for budwood of suitable size for propagation, bearing the best fruits. In no case do we cut budsticks from limbs which show in any of the branches a tendency to produce bud sports or mutations, as shown by the fruits carried by these branches. We make, therefore, a limb, as well as an individual tree selection.

The fruit-bearing wood, usually that of the preceding year's growth, is used as the source of buds. This, especially in cases of the old trees of the orange and grapefruit varieties, is usually comparatively small.

A typical budstick with the fruit attached usually contains three to five buds, except in the case of lemons, where, as a rule, such budsticks have five to ten buds each suitable for propagation.

The fruits cut off with the budsticks are then detached for the market. Typical specimens of these fruits are cut for an examination of the thickness of rind, texture of the rag, and the amount and quality of the juice. Several such fruits from each tree should be cut, so as to avoid possible mistakes and the introduction of inferior types through the propagation of sporting branches.

Record Tree Number on Budstick Bundles.—The leaves should be clipped off in the ordinary manner. One budstick from each tree should be prepared for a record of the tree number. This is done by removing the bark from a portion of the budstick. The tree number can then be printed on the wood with a lead pencil.

Extra Expense Selecting Unbranched Citrus Budwood with the Right Kind of Fruit on It Will Be Repaid a Thousand Fold in Orchards Which Will Bear Uniformly Fancy Fruit Regularly.

The budsticks from each tree are then tied in loose bundles, usually of ten to fifteen bud-sticks. If there is more than one bundle of sticks secured from a tree, one budstick in each bundle should be given the parent tree's number.

Sphagnum moss is a satisfactory medium for storing this budwood until it is used. The sphagnum moss should be thoroughly wet, after which it should be sterilized. This sterilization can be done effectively by steaming it for about an hour. After steaming, the moss should be run through an ordinary clothes wringer adjusted so as to squeeze out all of the excessive moisture, leaving the moss in a uniformly moist condition. The bundles of budsticks should be thoroughly covered with this moss and wrapped in a piece of parchment paper or heavy cloth, or stored in a receptacle of some sort which will prevent the drying out of the moss.

Usually a tin boiler, oil can, or other receptacle of this kind can be found on every farm, which, after cleaning thoroughly, is a satisfactory place for storing the budwood. This receptacle containing the budwood should be kept in a cool place, such as a cellar, where the conditions are fairly uniform. Under such conditions budwood will keep for several weeks. In fact we have kept citrus budwood under these conditions for several months and have found it to be in good condition when ready for use.

If the budwood is stored for some time, it is desirable that it be inspected from time to time in order to avoid possible mistakes and to replenish the moss if necessary.

We have found that the most productive and valuable trees for budwood usually produce, comparatively speaking, small numbers of budsticks. It requires, therefore, a great deal of care and considerable effort to secure budwood from such trees.

Small Fruit Bearing Budwood Produces Prime Trees.—We have demonstrated in our experiments, however, that the budwood cut from such trees produces as vigorous growing, if not more vigorous-growing, trees and better trees from every standpoint than those propagated from more rapid growing or sucker growth or from trees which produce characteristically large numbers of so-called good budsticks.

In some cases it has been reported that the fruit wood buds do not make as characteristically rapid growth the first year as buds cut from larger budsticks. We have not found this in our experiments. Co-operators who have citrus trees now three years old, propagated from fruit bearing wood and from select, productive trees, have demonstrated that such buds produce splendid trees—in fact, from our observation, the best trees from every standpoint that have been produced in California during the writer's experience.

Home Canning: Fruits and Vegetables--VI.

[Written for Pacific Rural Press by W. V. Cruess, University of California.]

Cherries and Strawberries.—Select firm, ripe, well-colored fruit of good quality. The grading of cherries for quality is done by hand, while they are sized on sieves. Strawberries are graded entirely by hand. In home canning three grades would suffice: e. g., Extras, being the finest fruit canned with a heavy syrup and to be used as a preserve; Standards, fruit of medium size, good color and sound, canned with moderate strength of syrup and to be used as dessert; and Pie stock, consisting of small, broken, poorly colored and soft fruit to be canned with water and to be used for pies.

The fruit must be stemmed and thoroughly washed after grading.

Cherries should be pitted before canning because of the "bitter almond" flavor of the pits. This flavor permeates the whole fruit and syrup in the can after processing. Small inexpensive pitters are obtainable from hardware stores.

Syrups.—The fruit is placed in the jars or cans and covered with a sugar syrup, or water, depending on the grade of fruit. A very heavy syrup can not be used for cherries because it will cause the skin to wrinkle and the fruit to be tough. Strawberries require a heavy syrup for the better grades to overcome their natural acid or tart taste.

Syrups can be made up by dissolving cane or beet sugar in warm water and straining out any floating particles through a clean cloth. It is most convenient to make a concentrated syrup and then if a weaker syrup is needed, it may simply be diluted with water. Beet sugar, if of good quality, is just as good as cane sugar. They are one and the same thing chemically. The prejudice against beet sugar is unfounded on any real difference. The syrup should be made up and tested with a sugar tester. Sugar testers may be bought from any of the large chemical supply houses of San Francisco or Los Angeles through any local druggist for one dollar or less. These are of two forms, the Brix scale, which reads per cent sugar, and the Baume scale. To get a close approximation to the per cent sugar with a Baume scale, multiply the reading by 1.8. The cooled syrup is poured into a glass cylinder or into a tin cylinder and the tester inserted. It is read at the surface of the liquid. The syrup should be cool when the test is made because if hot, the tester gives too low and unreliable result. Where a sugar tester is not at hand, figure that ½ pint sugar in 2 pints water makes 12 per cent syrup and proportionately for other per cents up to 75 per cent, which is made by mixing a pint of sugar with ¼ pint of water.

As much of each strength of syrup as needed may be made up before beginning operations.

Filling the Cans or Jars.—Fill the graded and washed fruit into the containers and cover with the proper grade of syrup or water, filling the container almost, but not quite, full. This is to allow for expansion of the liquid during cooking.

The highest grade of cherries will take a 40% syrup-testing 40% Brix or 22° Baume; the second grade, a 20% syrup or 20 Brix or 11° Baume; and the Pie stock will be filled with plain water.

The highest grade strawberries should have 60% syrup testing 60 Brix or 32° Baume; the 2d grade or Standards, 40% or 22° Baume; and the 3d grade or Pie stock should receive plain water only.

Enamel Lined Cans. — Cherries and strawberries should be put up in glass or in cans coated inside with a protective enamel and known as "enamel lined" cans. Plain tin injures the color; and the acid of berries may attack the coating severely and dissolve enough tin to be dangerous to health. Number 2½ cans are most commonly used.

If cans are used, they are capped as for asparagus, etc. (See preceding articles.) The cans are then placed in boiling water for about four to five minutes to exhaust them, i. e., to heat the contents before closing or "tipping."

While still hot they are closed with a drop of solder as directed for asparagus canning, etc.

Sterilizing or Processing Cans.—Cherries in number 2½ cans are placed in boiling water fifteen to eighteen minutes and then plunged into cold water to stop further cooking.

Strawberries in number 2½ cans are kept in boiling water ten or fifteen minutes. They should not be overcooked. Cool the cans in water at once.

If a wash boiler sterilizer is used, it may be filled with enough water to cover the cans; the water brought to a vigorous boil before cans are put in; and then kept boiling for the times given above.

Processing Jars.—Jars should be placed in the wash boiler sterilizer in cold water with the water almost to the bottom of the jar caps. The caps should be loosened to let expanding air escape. The water should be brought to a boil and kept at the boiling point until the fruit is cooked to suit. This will be approximately twenty minutes at the boiling point for cherries and fifteen minutes for the berries. The covers must then be screwed down so that caps will be thoroughly heated. For the same reason the boiler should have a close fitting lid so that the steam will sterilize the jar caps. The caps are the most frequent cause of trouble because a defective or unsterilized cap will infect the fruit with spores and cause souring or "working" of the fruit. It is also a wise plan to scald all jars and caps before use.

Use new rubbers only. Frequently jar rubbers will give a very disagreeable taste and odor to fruit. It is a safe plan to buy only a dozen rubbers at first and try them out on a sample batch of fruit. It is also a good plan to boil the rubbers an hour in dilute soda solution (a teaspoonful of washing soda to a quart of water), to leach out any bad flavor they may contain.

Strawberry Jams and Jelly.—Strawberries are used extensively in jams and jellies, but these products involve new and entirely different principles than those so far discussed so that these products will be left to an article on fruit jams, marmalades, jellies, and syrups.

The foreign trade of the United States in fruits and nuts in 1914 amounted to $92,840,172. Imports were $59,231,394 and exports $33,608,788, including trade with Hawaii, Porto Rico, Alaska, and the Philippine Islands.

One thousand acres of beans is the estimated acreage planted in the Buena Park district of Orange Co.

Dried Fruit Exports 1914-1915.

[Written for Pacific Rural Press.]

In order to learn what fruits are being exported from San Francisco and to which countries they have been billed, we have taken figures from the San Francisco Merchants' Exchange Export Book which shows, as listed in the table, the amount of each fruit in each cargo with its destination and other information. This has been tabulated for Pacific Rural Press to show the exports by months of prunes, raisins and other dried fruits to Europe, to other foreign ports of the world, and to the eastern states.

It is noteworthy that Europe took during 1914 more than double the prunes that went to the rest of the foreign world, including Canada. On raisins, however, only about one-ninth went to Europe; while with all other dried fruits combined, there is no significant difference between exports to Europe and to the rest of the world.

It will be noted that the exports of prunes after the war began were less than they were in the spring; while with the other dried fruits there was some increase, though a greater increase might have been expected owing to the harvest season. During this spring, the shipments of prunes to Europe have been lighter than during the same five months of last year, though there is no significant difference except in their local destinations in Europe.

Exports of raisins to Europe are greatly in excess of all last year, which until the crop came on was practically nothing. The first five months of 1915 show greatly increased exports to Europe of "other dried fruits" over the first five months of 1914.

It is noteworthy that none of this fruit was billed for Germany and a very slight percentage to the Scandinavian countries, while a considerable amount was shipped direct to England, a small amount to Australia, but more than both combined to British Columbia. It is quite probable that some of this which went to British Columbia was transhipped to England. It is also quite probable that some of the fruit which was shipped to the eastern states was transhipped to European countries.

Shipments by rail to the eastern states are not yet collected; but, of course, to any foreign country, shipments by rail are negligible. It is quite evident that very little of our dried fruits have been going to Germany by any sea route from San Francisco, though the Germans have heretofore been the heaviest buyers.

CWTS. DRIED FRUIT EXPORTS BY SEA FROM SAN FRANCISCO.

[Figures adapted for Pacific Rural Press from San Francisco Merchants' Exchange Export Book.]

Month	Direct to Europe			To Other Foreign Ports			To Atlantic States of U. S.		
1914 & '15	Prunes	Raisins	Other Dried Fruit	Prunes	Raisins	Other Dried Fruit	Prunes	Raisins	Other Dried Fruit
January	16,904	1	6,792	1,461	956	2,707	17,100	3,011	13,020
February	31,556	67	4,193	2,039	2,629	6,864	14,128	7,868	19,475
March	2,796	22	2,044	7,392	5,177	6,202	26,982	10,219	7,367
April	923	....	415	4,384	3,018	3,769	13,823	7,804	10,500
May	335	....	549	4,493	2,381	2,456	1,951	1,700	.....
June	5,984	....	238	1,578	2,703	3,915	12	3,044	843
July	....	..	2,294	1,604	2,305	3,755	.....	693	.....
August	....	.	588	3,352	1,096	7,055	1,169	15,512	11,797
September	375	...	1,231	7,372	3,814	5,929	24,975	19,835	41,976
October	22,070	333	18,854	7,603	21,363	6,429	59,602	64,379	44,118
November	3,243	1,640	4,594	5,264	17,189	4,263	43,517	50,438	64,474
December	29,188	6,312	38,572	5,592	5,222	4,166	38,983	23,307	34,057
Total	113,474	8,374	80,364	46,148	70,854	55,518	168,246	174,691	196,372
January	8,775	2,470	6,488	2,866	3,339	2,325	25,685	31,107	28,342
February	17,765	6,306	29,754	280	446	1,217	20,272	9,380	17,842
March	13,808	2,085	33,239	6,828	5,863	3,866	4,746	12,542	9,059
April	16,362	625	30,283	3,133	3,308	2,930	6,156	2,634	13,909
May	8,217	934	11,040	1903	13,500	4,970	7,284	450	5,315

Picking Almonds With the Least Labor.

[Written for Pacific Rural Press]

Economy of labor in the almond harvest is practiced by labor-saving devices by B. A. Goodwin of San Joaquin county.

When the almonds are ready to pick, Mr. Goodwin hitches a single horse by chain to the front end of a box 20 feet long, about three feet wide, which runs on two little wheels about one-third of the way from the front end. A 1x3 board projects upward from the center of each end of the box and is notched on its top edge so that a rope can be stretched tightly across and held in place by knots tied so they will fit over the 1x3s. One edge of a canvas 36 feet square is sewed to the rope. From the center of the opposite edge, a slit is cut to the center of the sheet and a hole about one foot in diameter is cut in the center of the sheet. When the box with the canvas piled on it is hauled down the center between rows, it stops beside a tree and the canvas is spread out to cover all the ground under one tree.

Knock Nuts off Carefully.—Six or eight men in each gang knock the nuts off from the trees onto the canvas. They are instructed to strike the sides of the limbs with their poles, but never hard enough to knock off the bark, never between crotches so as to split off twigs, never to thresh about among the small twigs so as to break them.

The poles are 15 feet long sawed out of spruce boards to circular form 1¼ inches in diameter. Mr. Goodwin emphasizes the spruce part of it because it does not splinter when the poles bend. It always remains smooth, which is quite desirable for the pickers' hands and also to save poles, many of which are broken anyway. It costs $7 or $8 per season for poles at the rate of 35 to 40 cents per pole. Spruce plank are taken to the mill and made into poles whenever a new lot is needed.

When all of the nuts have been knocked from a tree, four men take the corners and slide the nuts forward on the sheet until they get close to the box, whose sides are perhaps two feet high. By lifting the canvas, the nuts are dumped quickly into the box on the far side of its center. The canvas is then spread out under the tree on the opposite side of the box and the process repeated, after which the whole outfit is moved forward to the next tree.

Co-operative Marketing. For marketing of the nuts, Mr. Goodwin says, "The State Almond Growers' Exchange is our only salvation. Three thousand tons were produced this year and we expect a ten thousand ton annual crop within 10 years. We must stand together and develop a still better marketing system."

"Almonds are the only things that have kept me out of the hole, and I would rather talk about them than anything else." Four hundred and fifty dollars an acre for 6-year almonds is a good investment, according to Mr. Goodwin, who set out his present orchard 21 years ago and has 30 acres more just coming into bearing.

OVERHEAD ORCHARD IRRIGATION.

[Written for Pacific Rural Press.]

Some inquiries have come to us regarding overhead irrigation of orange orchards. There are three such systems in operation in this State, among which is that of Robt. Baird of Porterville, whom we have asked for his opinion as to its desirability. We quote from his answer:

"On 50 acres which I have installed I have found it a great convenience, an expense and labor saver, besides giving the soil a more even distribution of water than is possible with any system of furrows, and as I use both systems I appreciate the value of the overhead in comparison."

This system consists of horizontal pipes a little over an inch in diameter supported on top of 3x4 timbers 8 or 9 feet tall, each set near the trunk of a tree. Very small patented sprinklers are tapped into the pipe at intervals of 4 feet. The pipe may be turned to shoot the water vertical or outward from either side. Its ease of control, lack of waste, lack of furrowing or checking, ability to wash the dust more or less from leaves, and a number of other advantages would tend to counterbalance the extra cost.

STAMPEDES ON FALLING PRICES.

It was recently pointed out at a gathering of fruit growers that so long as prices are rising growers will not sell, but immediately when the prices start down there is a stampede to sell and this, of itself, forces the price still lower than they would normally get.

It was suggested that growers should not be scared when the prices begin to be steadily hammered down, as they usually are said to have been, for this purpose; after giving the growers a taste of rising prices.

Costs of Raising and Drying Peaches.

(Continued from page 697.)

the Japanese, who have since been hired by the day.

Between $2000 and $2500 is invested in the drying plant and sprayer. The drying plant consists of a cutting shed open on the north side and the ends. There are 1500 3x8 trays, a number of cars on which to handle the trays, tracks to all parts of the drying yard, a sulphur house, lug boxes, and picking baskets. Laying out the trays is done by the regular man on the place and by the pickers. The total charge for picking is $175 for an average, at $1.75 per day.

Same Cutters Year after Year.—Usually the same bunch of cutters come year after year to work for Mr. Harter, and he says, "They are a fine bunch." He pays five cents per 50 pound lug box and always has 30 to 40 applicants more than he can employ. The fruit is all good size for cutting on account of the thinning which was practiced early in the season. The comfort of the cutters is increased by the open-sided shed, by drinking water which is kept cool all day in barrels with wet sacks around them, and by the fact that every night after the cutting is finished, the shed is cleaned and wet down. The employees appreciate these measures for their comfort, so that it is never any trouble to get help

One person may cut fifty boxes per day, while another may cut only twenty on account of waste motion. Some can't seem to learn to avoid waste. They persist in looking at the peaches in the lug box when they reach for them and will not reach for them until the other peach is laid out on the tray. This is unnecessary, as the fast workers learn to cut the peaches so that the two halves lie open on the left hand in position to place tightly on the tray; while at the same time they reach into the lug box for the next peach with the right hand. It is necessary to keep the eyes on the peaches as they are being cut, and on the trays when they are placed. The fastest cutter Mr. Harter now employs is a German woman who came to him inexperienced, but with the assurance that "I can do everything else fast." She studied every extra motion and eliminated waste. She now comes afternoons and cuts the peaches culled out by the packers for Eastern shipment, as well as working on the Muirs.

Pack Cut Peaches Tight.—A third more peaches can be placed on a tray than often are; and if it is not done so, too many trays are required, which in turn require too much space for drying and too much labor in handling. The halves of the peaches must be carefully placed so that when the "cup" is filled with juice as the peaches are sulphured, the juice will not spill out of them.

Spilled juice is a waste in several ways. It reduces the quality of the fruit and loses much of the weight, besides sticking the fruit to the trays and making the skins ragged, dirty, and uninviting. Juice on the trays also collects all the dust there is coming. This sticks to the next peaches dried on those trays.

Cut Entirely Around.—Cutters are required to use the knife entirely around the peach, not tearing the last inch or two apart as may often be seen in cutting sheds. This tearing leaves ragged edges of skin on the pieces, which detract unprofitably from the appearance. It also leaves a rough edge on the meat of the fruit. The injury to the rest of the peach, due to the squeezing which is necessary to break the last inch or so which isn't cut, often pinches down the edges, making them messy and turning the color of the flesh black as the peaches dry.

Trays on Cars.—Convenience in handling the peaches is considerably increased by having the cutters stand between benches on which the fruit is placed and tracks on which four cars at a time are run into the shed. The first tray is placed on the car beside the cutter and filled. Then another tray is placed on top of this and filled, etc. The carload is then run out to the drying ground with a minimum of handling. This is quite a consideration.

The drying ground is all bare, dry ground, as recently noted in the Pacific Rural Press, and the trays are laid on the windward side first. "The cost of sulphuring, laying out, stacking, and putting into sweat boxes will run from $4 to $6 per ton of dried fruit," but is included in the estimates for general labor and picking.

Trays Off From Ground.—Trays for the 400 pounds which Mr. Harter dried for the Panama-Pacific were set on 2x4s laid edgewise. This produced much nicer, clearer, almost transparent peaches, which are the cream of quality, and Mr. Harter may enlarge this feature of his equipment soon. This reminds us of a "horse" used by A. Thiele of Fresno county for drying; each of which is built of a 1x3 with four 1x3 legs, allowing ventilation underneath and keeping the trays out of the dirt and away from animals and poultry; also avoiding the bending of backs and lifting in a strained position.

Averaging Mr. Harter's costs for the different operations, we find about the following total for both the shipping and drying peaches. Supposing the board of the man and wife in charge of the place equals $35 per month, there is an expense of $600 per year on the orchard for general labor. Pruning, $120; spray, $66; thinning, $55; picking, $175; cutting, $120; no charge for fertilization, much of which is supplied from the dairy. But part of the general labor, pruning, spraying, thinning, and picking was spent on the 15 acres of Elbertas, leaving a total of $353 on the 8 acres of Muirs. This, added to the cutting, equals $473 expense for the 8 acres of drying peaches on an average. Since the peaches sold at 3½ cents, or $845, there was a profit above current expenses of $372, or $46.50 per acre, or $31 per ton, or 1.55 cents per pound, making the cost of production 1.95 cents per pound. This does not consider other items which enter the cost of production Interest on a $2250 drying plant at 6 per cent would be $135. If the land is worth $200 an acre with the orchard on it, the interest on this would be $96. Assuming the cost of bringing the orchard to bearing age of four years at $624, including interest on the land investment and not figuring on intercrops that might be grown, and spreading that out over an assumed 10 years of productive life, there would be an additional charge of $62.40 on each crop These items make $293.40, or about 1.2 cents per pound dried, so that if these figures are fair, Mr. Harter's total cost of dried peach production is 3.15 cents per pound. This is less than the average on account of the economies practiced as mentioned

WHILE YOU REST or use your time for other work, **No more Back-breaking, sweltering drudgery** in preserving fruit and jelly. The Sun does it by heat rays concentrated

In the Wonderful Sun Fruit Preserver

Develops tremendous power thro well-known natural principle never before applied. Makes delicious sun-rayed strawberries, jellies, marmalades, fruit butter, etc. **WITHOUT FUEL.** Sterilizes and cures all kinds of deciduous fruits. Successful everywhere. Can be sent anywhere for a few cents Cool, easy, economical method. Price $5.50. Write for circular.

E. E. DOW & SON, Redlands, Cal.

NOT TOO LATE TO PLANT

Tepary Beans

1 lb. 25c; 5 lbs. $1.00; 10 lbs. $1.80, f. o. b. Los Angeles.

Plant after the Hay or Grain is off and get a paying second crop from the land.

West Coast Seed House

116 E. 7th Street. Los Angeles, Calif.

GOLDEN GATE WEED CUTTER AND MULCHER

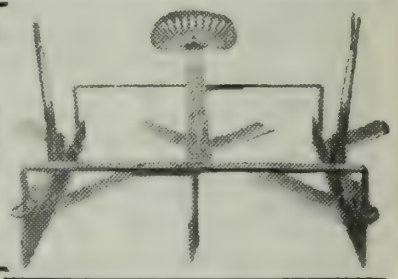
(Patented December 5, 1911.)

Not only cuts down weeds, but KILLS them—and leaves finely pulverized top soil. Cuts any depth. Prevents evaporation by working under soil without disturbing soil on top.

See them at the Exposition, Block 1, Agricultural Palace. Write for Circular

C. G. SIGURD,

CAPITOL AVE. and McKEE ROAD, SAN JOSE, CAL.



Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P. which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco. California.

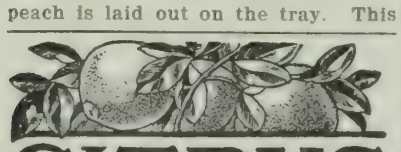
If you want the best

TREES

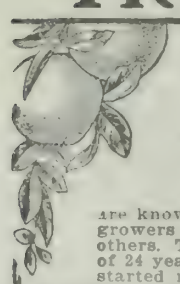
Write for Price List.

UNITED FRUIT CO.

NEWCASTLE, CAL.



CITRUS TREES



Grown by

TEAGUE

—in the Largest Citrus Nurseries in the World.

are known by thousands of growers to be better than others. They are the result of 24 years' experience; are started right, grown right, and shipped right. Ask any man who has planted Teague trees.

Citrus Trees Exclusively

We grow all the standard sorts and can fill your orders promptly for almost any quantity of Oranges, Lemons or Pomelos. Our trees are strong and thrifty, free from scale, and guaranteed true to name.

Place your order early while a good stock is to be had. Get in touch with us.

Send 25 Cents Today

for a copy of finely illustrated booklet — "Citrus Culture"—describing methods of cultivating, fertilizing, irrigating, packing, and shipping.

Quotations Gladly Given

free upon request. Ask for prices and suggestions.

San Dimas Citrus Nurseries

San Dimas, Cal. U.S.A.

BEARING ACREAGE AND PRESENT CONDITION OF CROPS IN PERCENTAGE OF NORMAL.

Counties	Almonds	% of Full Crop.	Apples	% of Full Crop.	Apricots	% of Full Crop.	Peaches	% of Full Crop.	Pears	% of Full Crop.	Plums	% of Full Crop.	Prunes	% of Full Crop.	Figs	% of Full Crop.	Walnuts	% of Full Crop.	Grapes (table)	% Grapes (raisin)
Alam.	500	45	136	..	5000	65	200	.	565	70	75	80	1376	65	.	.	12	.		..
Butte	1800	...	500	..	80	...	3000	..	400	...	100	.	2000	...	155	.	..	...	.	...
Colusa	300	60	...	...	30	100	303	60	30	100	...	..	1000	100	20	100	40	100	..	100
Con. Cos.	1737	..	160	...	500	..	600	...	800	..	100	..	1100		20		20	.		.
El Dor.	....	..	350	70	..	.	300	85	500	60	300	70	....				10		80	.
Fresno	....	95	.	...	2750	90	13151	75	136	60	343	60	981	80	2919	95	159	60	85	80
Glenn	150	80	78	95	200	90	93	95	17	90	....	95	201	90	.	80	..	.		..
Humb.	....	..	1100	95	....			85	..	95	...	100	....	100	....	..	30		.	.
Imper.	....	..	....	...	110	.	32		36		18	...	....		52	.	..		..	.
Inyo	....		1000		25		150		250		65		50			.			.	...
Kern	....		100	60	200	85	600	95	190		50	85	200	100	14	100	..		100	100
Kings	....	...	...	...	1700	100	7950	100	..	.	..	..	560	100	...	...	.		.	100
Lake	53	75	135	50	27	75	65	100	360	85	.	...	347	75	15	100	34		..	...
Lassen	....	...	....	...	....	..	....	...	....	..	....	...	....	.	.	...	.....	.	...	.
Los An.	600	75	1400	100	2039	85	1600	100	350	80	600	75	250	70	500	75	10074	85	100	.
Madera.	40	.	200	..	100		650	.	5		...	...	60	.	100	..	...		..	...
Mendo.	25	...	948	75	12		55	80	650	65	10	100	320	100	5	...	15		100	...
Merced	400	100	60		200	75	4000	75	75	..	36	...	40		400	100	30		.	80
Mont'y.	20	...	4500	..	395		50	...	40	..	...	...	20	.	.	...	..	..	..	...
Napa	....	95	....	82	....	85	...	80	...	60	...	85	.....	90	...	100	....	90	90	...
Nevada.	10	100	1500	50	15	80	350	100	600	75	110	75	110	90	20	100	20	50	100	..
Orange	....	..	....	...	..	32		100	.	..	...	100		100	45	...	.....		..	...
Placer	250	..	450	75	420	..	7000	100	1500	75	5500	100	.....	..	..	..	11065	98	100	...
Rivers	818	100	498	75	1995	100	897	100	235	100	6	..	318	100	27		349	100	100	100
Sac.	921	85	344	100	470	85	1650	80	2900	80	1250	80	650	85	100	.	150		50	...
S. Ben.	125	..	325	...	1500	.	525	.	250	..	...	..	2400	...	....	.	25	...	...	...
S. B'd'o.	....	.	1024	75	1618	75	5666	75	36	50	8	100	54	100	.		470	100	80	80
S. Diego	45	.	1110		113	...	6621	...		...	17	...	48	..	10	..	106		.	...
S. Joaq.	1500	70	....	..	1000	100	4000	100	700	100	300	75	500	75	67	100	200		65	..
S. Barb.	....		400		110	.	75	..	20	..	....	...	.....	.	...		4800	...	...	...
S. Clara.	321	85	430	75	5701	55	6120	80	1321	60	2750	20	52950	60	72		447	85	...	..
S. Cruz.	....	.	15000	..	1200		50	.		..	....	...	300	...	...	..			.	.
Shasta.	..50	50	300	55	6.5	75	300	90	110	20	20	75	750	80	16	..	33	.	.	...
Siski.	....	..	800	..	45	..	950	...	...	..	36	...	.....	...	....	...	1	...	.	...
Solano	1000	...	.....	..	1300	..	1200	.	1000	...	2521	...	4345	...	...	.	..	.	...	...
Sonoma.	152		6968.8	..	408	.	803	...	1077	...	99	..	7629	.	170	..	288		.	.
Stanis.	.625	90	113		525	90	2520	100	233	100	210	...	45	.	200	100	50	100	90	...
Sutter	1200		200	..	100	..	3100	..	251	..	250	...	500	...	300	...	.....	.	...	...
Tehama.	350	100	500	50	600	75	3877	75	350	25	100	100	1300	75	50	75	.....	..	100	...
Tulare	....	90		90	...	75	.	100		..	...	80	.....	80	210	100	5	...	95	95
Vent.	200	100	..	...	2830	75	....	..	...	..	....	...	.....	...	....	..	3785	100	..	...
Yolo	2250	65	25	...	1850	80	1900	90	975	60	600	75	1350	75	250	100	30	50	...	...
Yuba	135	90	430	100	80	70	765	100	495	100	260	100	289	100	120	100	.....	...	100	100

REGULAR MONTHLY CROP REPORT.

[Written for Pacific Rural Press.]

Our monthly crop reports accompanied by tables giving estimated percentages of crops, are compiled directly from exclusive reports for the Pacific Rural Press sent us as late as possible before the date of issue by horticultural commissioners, farm advisers, private fruit growers, our own men in the field, and growers' organizations. No Figures printed in our tables are not the estimate given by any one man within any one county, but are the averages figured out by the Pacific Rural Press crop reporter, basing his judgment of the value of each man's estimate on his relative opportunity to observe the fruits which he reports throughout his county.

SPECIAL CROP NOTES.

Reductions of estimates in most cases are due to rainy, cold weather. Not much thinning of peaches in the Kerman district on account of poor market prospects. No serious unfavorable conditions since last report in Glenn, Orange and Shasta counties. Heavy north winds and late rains hurt Humboldt a little bit. Wheat rust reported to have damaged Kern, and the Hessian fly in Napa. Cherries winding up in Placer county. Beets and beans, 100 in Los Angeles. Walnut blight hurt Los Angeles and Orange somewhat. Small crop of barley, but enlarged acreage of wheat in Merced. Green aphis threatening prunes in Napa. Wine grapes, 100 in Napa and Tehama. Cherries, 35 in Napa. Changes from last month due to fungus, wind, and rain. Pears and walnuts have dropped badly in Nevada. Sugar beets and lima beans excessive crops in Orange. Heavier setting on new grapevines than on old ones have increased the percentage of grapes somewhat in Sacramento county. May rains caused some drop and mildew in Sacramento county grapes. Many San Joaquin grapes damaged by fungus so that bloom and berries have fallen. A great deal of rust on Santa Clara grain and hay on account of rain and damp weather. Santa Clara cherries, 40 per cent. Tomatoes in Santa Clara Valley looking well. Prunes damaged by high winds in Santa Clara valley, breaking off burdened branches and causing the fruit to shrink and drop off. First crop alfalfa in Santa Clara damaged by rain and snails. Grain hay coarse, light, and rusty. "The reason of the shortage of peaches is that the trees blossomed only on the tops of the branches and people who pruned while the trees were dormant—you know the rest." Practically no grain being cut for hay in Stanislaus. Cantaloupes and melons poor in Stanislaus. Tulare grapes and oranges may drop yet. Prunes subject to the coming June drop. Yolo troubled with aphis and fungi on account of humidity. Cereals in Yuba and Sutter counties above the average of several years. Rains benefited everything in Yuba except the first crop of alfalfa

NEW RAISIN PRICES.

New prices on 1914 raisins to be shipped between Aug. 1 and Sept. 20, 1915, and guaranteed to Dec. 31, 1915, except on Bulk Seeded or ungraded Muscatels for manufacturing purposes, have been announced by the California Associated Raisin Co. Following are a few of the quotations: Fancy Bulk Seeded, 6c; Sun Maid Seeded, 48 cartons per case, $3; 4-crown Loose Muscatels, 5½c.

On 1915 crop the following are some of th equotations: 4-crown Clusters in 20-lb. boxes, $1.50; 6-crown Imperial Clusters in 20-lb. boxes, $2.50; Fancy Clusters in 20 1-lb. ccartons per case, $1.60; in 5-lb. card board cartons, 4 per case, $2:25; Bulk Layers in 50-lb. boxes, $2.50. "Foreign shipments (not including Canada) will be dealt with when packers submit us offers."

Alfalfa is in fine shape practically all over the state; the amount of grain hay is reduced in general by the good prices in prospect for grain and is reduced in quality in some districts by rust. Barley and wheat have not been seriously reduced by rust, Hessian fly, and other troubles but there is considerable less of it than was expected, on account of late rains.

EUCALYPTUS SEEDS.
Forty species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each. 4 for 50c. Special prices on large quantities.
THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.

BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

CALIFORNIA
Garden Flowers
$1.50 Postpaid
PACIFIC RURAL PRESS, Publishers

Typical of California
THE
Palace Hotel
San Francisco
Made Famous by its Sensible Rates and Efficient Service
NEW POLICY
Reduced Rates
Will Continue its Fame during The Panama-Pacific International Exposition
$2 per Day without Bath
Rates, per Day, with Bath
100 Rooms $2.50 — 150 Rooms $3.00 — 150 Rooms $3.50
100 Rooms $4.00 — 100 Rooms $5.00 — 100 Rooms $6.00
Suites $7.00 and Upward
Club Breakfasts 40c to 80c
The Fairmont Hotel
San Francisco's Most Exclusive Hotel
Under Same Management

Mechanical Power on the Farm.

FIRE WILL NOT DELAY.

[Written for Pacific Rural Press.]

Fire caused nearly $50,000 damage May 29 to the offices of the Bean Spray Pump Co. of San Jose. The offices, drafting room and a portion of the machine shop were burned. The company will not be delayed, however, in filling orders, as their Lansing, Michigan, branch will take care of their northeast and central west business, and their branch at Fresno, California, will supply Pacific Coast points until the San Jose plant is in working shape again. A large part of the machine shop was undamaged and was running the afternoon of the fire. A temporary office was established while the fire was still burning and the officers of the company state that though they will work under considerable inconvenience for some time, business will be continued as usual. The loss was covered by insurance, and plans are already under way for the construction of a larger building and better equipment, in place of that which was destroyed. This concern is a well known manufacturer of spraying outfits, centrifugal pumps, and gas engines.

PORTABLE ALFALFA MEAL MILL.

[Written for Pacific Rural Press.]

Portable alfalfa meal mills are fashionable in Stanislaus county as a means of making cheap alfalfa hay profitable—this in spite of the fact that it costs $5 a ton to grind and sack the meal, including 11 cents each for new sacks. This includes interest, depreciation, and time lost in moving from one job to another.

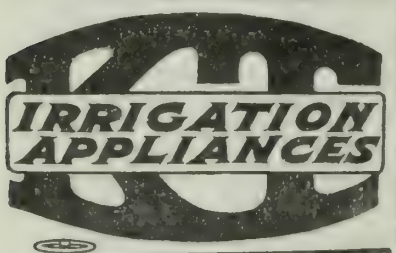
The alfalfa may be allowed to grow older and coarser until it is all in bloom, and cut when more nearly mature with less than usual of moisture left in the stalks. Thus, it makes better meal. Grinding from the stack is better than from the bale, also, because the hay has a better chance to sweat and dry out and because baling expense is avoided.

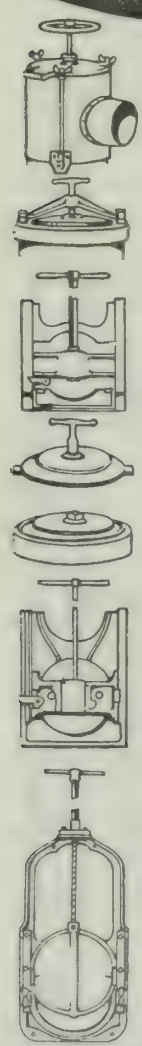
In feeding alfalfa meal to all kinds of stock and chickens, it is usually dampened so that a handful of it squeezed will hold its shape but not drip. There is no waste of feed like there is with hay.

One of the new machines of 25 tons' capacity per 10 hours is owned by M. L. St. Clair of Salida. It is set on a heavy iron truck whose front wheels are about 32 inches in diameter and 14 inches wide and the rear ones four feet in diameter and 16 inches wide. This portable mill is hauled from stack to stack and from place to place by a 30-60 Rumely Oil Pull tractor. On arrival at a stack to be ground, the tractor and truck wheels are blocked; and a heavy belt is run from a pulley on the tractor to the mill gearing up the speed of the beaters in the grinder to 1800 revolutions per minute. It is no trick at all for the tractor and the mill to grind 25 tons in ten hours if the hay is in dry condition. Wet hay clogs the machine, because it won't break into fine pieces in the beaters. It requires six men to operate one of these mills to best advantage.

Four or five hundred tons were ground in March of this year; and early in April, Mr. St. Clair was still working on last year's contracts of last year's hay. The first cutting is not usually ground; but much of the second crop will be made into meal. Where baled hay is ground, bales must be opened up and loosened as they are thrown onto the platform. A man on the platform throws them into the force-feeder which carries the hay into the cutter on an endless belt with teeth which are helped out by a toothed-cylinder above, revolving toward the same direction.

The cutter is simply a lot of loose, swinging "hammers" set as close together as possible on an axle so that they may revolve perhaps a quarter turn. The "hammers" pound the hay into meal by driving it past fixed projections; and through a screen as the new hay comes in. Passing through the screen, the meal runs into a pipe under the cylinder and is sucked round past a big fan and forced up a pipe ten feet high into a funnel shaped hopper





The 20th Century Method of Irrigation

—

As superior to old methods as the modern auto is to the ox cart.

—

Saves Water Land and Labor.

—

Don't experiment —the best is the cheapest in the long run.

—

Illustrated Catalog and full particulars on request.

KELLAR-THOMASON CO.

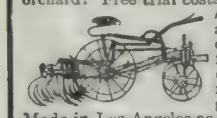
"Originators of the Valve System of Irrigating."

1234 EAST 28th ST. LOS ANGELES.

(Ask your Dealer or Contractor.)

Be Free To Try An Arnott Cultivator

You have heard about the ARNOTT Cultivator, but possibly you never saw one work. Why don't you try it in your own orchard? Free trial costs you nothing. More ARNOTTS sold than any three other styles combined. Made with fore truck as shown or with pole. Curved rear standards allow good trash clearance. Made in Los Angeles as result of eleven years experience with California orchards. Cultivates deeper. Pulls lighter. High-grade steel construction. Write today for free trial offer. Cultivators shipped everywhere. None returned.



ARNOTT & CO. EST. 1892 112-118 S. Los Angeles St. LOS ANGELES, CAL.

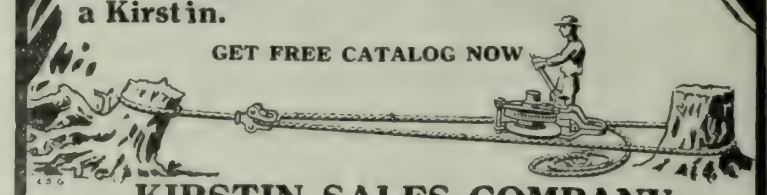
The Powerful One Man Kirstin

Strong, simple, speedy—this one man way of turning stump land into cash income is the way for you. Many fine, attractive features, such as the

TRIPLE SPEED

This splendid feature lets you triple the speed after the stump has broken loose. That means something to the man who owns a Kirstin.

GET FREE CATALOG NOW

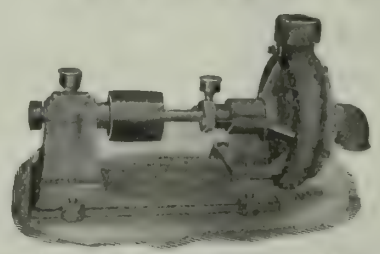


KIRSTIN SALES COMPANY

341 E. Morrison St. Portland, Oregon

THE WINSBY PUMP

Our New 1915 Type Pump



Best Model for Low Lift Pumping

Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars.
Price	$16.00	$20.00	$25.00	$30.00	Oakland

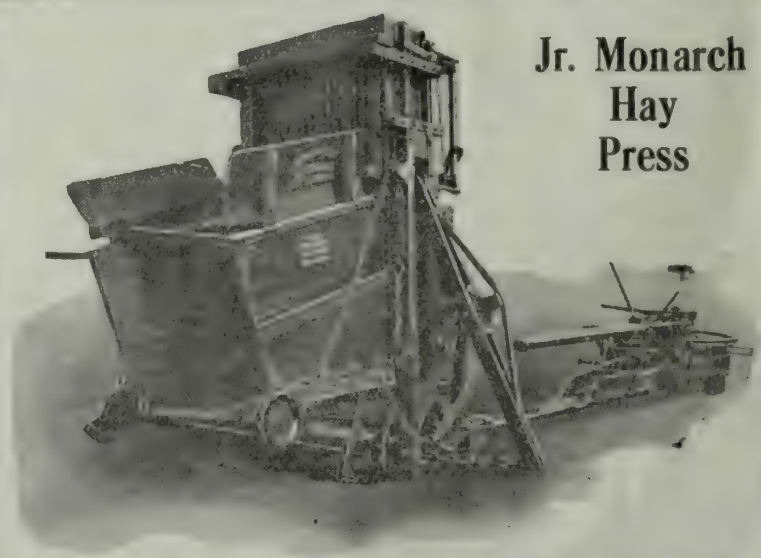
Larger Sizes at Proportionate Prices.
Complete Pumping Plants of Any Size or Type Furnished and Installed.
WE MANUFACTURE
Pumping machinery of all kinds and for all purposes.
Mining, Milling, Concentrating and Rock Crushing Machinery.
Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.
Water Wheels, Dredges and Hydraulic Machinery.
Fire Hydrants and Cast Iron Fittings.
WRITE FOR CATALOGUE AND PRICES.

Pipe	Belting	Pulleys	Shafting	Boilers
Casing	Leather	Wood	Hangers	Steam
Valves	Rubber	Steel	Collars	Engines
and	and	and	and	and
Fittings	Canvass	Cast Iron	Boxes	Supplies

WE CARRY IN STOCK

UNITED IRON WORKS

Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.
GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.
We are the largest manufacturers of pumping machinery on the Pacific Coast.



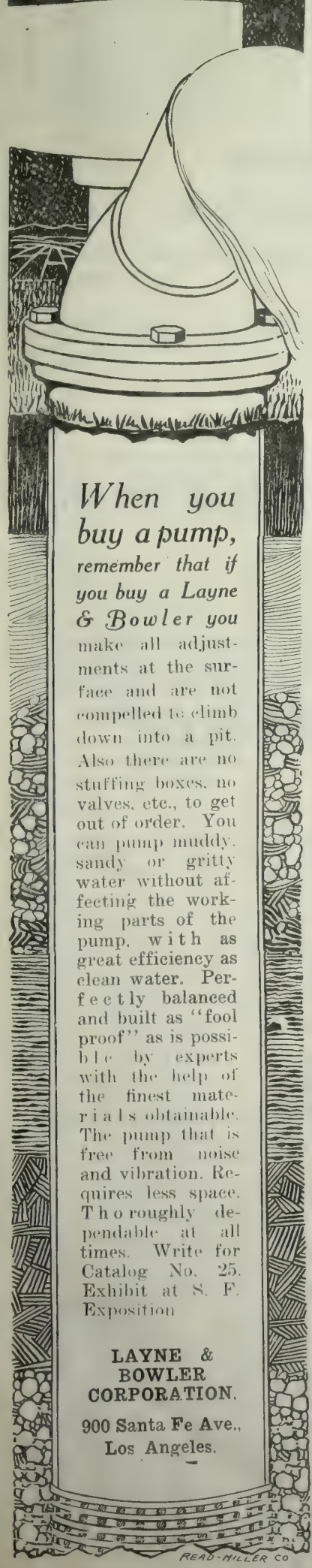
Jr. Monarch Hay Press

Horse or Gas Power. Any Size Desired.
Capacity 40 to 100 tons. Guaranteed to excel any Press made.
Bales most of the Hay on the Coast. Now Fed Continuously.

Junior Monarch Hay Press Co.

OFFICE AND FACTORY, SAN LEANDRO, CAL.

Layne & Bowler PUMP



When you buy a pump, remember that if you buy a Layne & Bowler you make all adjustments at the surface and are not compelled to climb down into a pit. Also there are no stuffing boxes, no valves, etc., to get out of order. You can pump muddy, sandy or gritty water without affecting the working parts of the pump, with as great efficiency as clean water. Perfectly balanced and built as "fool proof" as is possible by experts with the help of the finest materials obtainable. The pump that is free from noise and vibration. Requires less space. Thoroughly dependable at all times. Write for Catalog No. 25. Exhibit at S. F. Exposition

LAYNE & BOWLER CORPORATION.

900 Santa Fe Ave., Los Angeles.

READ-MILLER CO

six feet in diameter and eight feet high closed over the top to avoid dust around the operators. As it is, there is no great amount of dust and most of it leaves at some distance above the mill, but the wind may blow this over the mill at times. From the lower part of the hopper it is forced tightly into 100 pound sacks by means of an auger affair like a common flour packer which stops when the required weight has passed through it.

The hay is ground to any degree of coarseness desired by the farmer and is put into second-hand sacks quite often because these are cheaper, though they vary much in size. It is claimed that meal is only one-third as bulky as loose hay, though there is no weight lost in the grinding.

AUTO TRUCKS, BETTER CREAM.

[Written for Pacific Rural Press.]

Automobile trucks have improved the grade of cream furnished to the Keyes Creamery, according to M. Willing, who tells us that they have two trucks now hauling while several other men haul cream with teams. Two of the teamsters will have trucks soon.

The experiment was begun over a year ago when D. H. Russel hauled the cream with a one-ton Buick on a sixty-mile round trip from Ripon vicinity. That seemed a little too expensive at the time and a smaller truck was obtained with which Mr. Russel collected the cream around Ripon and shipped it by express to Keyes. The little truck carries eight or nine cans, holding 100 pounds gross per load.

The reason for the improvement in the cream is that especially during the hot weather the cream is exposed to the outside air for a much shorter time than it is when hauled on ordinary wagons.

SMALL TRACTOR FOR 80 ACRES.

[Written for Pacific Rural Press.]

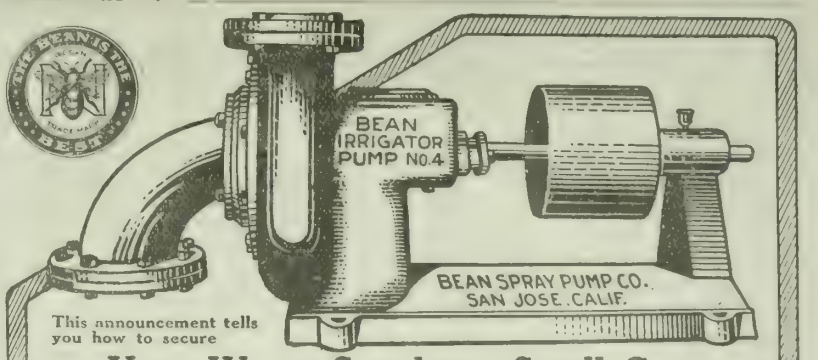
To the Editor: I propose buying a 4 to 5 "horse pull" tractor to plow 80 acres for wheat this fall. Will a tractor of that size do good plowing, equivalent to four good mules? The land is a heavy, red soil 8 feet to water and has been pastured to sheep for two years.—R. G., Sanger.

[Yes, a tractor of that size will do the work of four good mules, but on your soil, so heavy and so long pastured, even four good mules might have difficulty plowing deep enough with two bottoms, so do not expect more than is reasonable from a tractor. You will be able to rush your plowing to suit yourself, however, with the advantage of steady work through long hot days.—Editors.]

AUTO TRUCK VS. BALKY HORSE.

If you have a balky horse on the farm, you need an auto truck to make him go. This proved very satisfactory and successful with an obstinate horse which recently blocked the traffic in a San Francisco street. A policeman hailed an auto truck which backed up against the rear end of the wagon; and when the balker found he had to go, he went in good shape.

A three-year-old miss became interested in a peculiar noise, and asked what it was. "A cricket, dear," replied the mother. "Well," remarked the little lady, "he ought to get himself oiled."



This announcement tells you how to secure

Your Water Supply at Small Cost

At last—a high-grade, efficient, dependable centrifugal pump at a low price. The **Bean Irrigator** introduces a new standard of pump values. Though the price is as low as the lowest—the pump is "**Bean quality**" through and through. If you're interested in irrigation you should learn about

Bean Centrifugal Pumps

For Downright Good Service They are Absolutely in a Class by Themselves

The Bean Automatic Water Balance eliminates end-thrust, thus saving much trouble.

The Bean Water Sealed Stuffing Box makes excessive tightening of the stuffing box glands unnecessary. The shaft where it enters the pump is entirely surrounded by water, which forms a perfectly air-tight seal with very little friction.

Bean Runners are Enclosed, accurately machined and perfectly balanced. This means greatest possible efficiency.

SEND FOR BEAN CATALOG 28-B

It illustrates and describes the Bean line of Horizontal and Vertical Centrifugal Pumps, Bean Turbines, Direct Connected Outfits, etc. Tell us your pumping requirements. The experience of our irrigation specialists is at your command. For our general line of House, Windmill, and other Pumps, ask for Catalog 28-D. For Bean Opposed Gas Engines ask for Catalog 28-C. A postal will bring any or all of these catalogs by return mail.

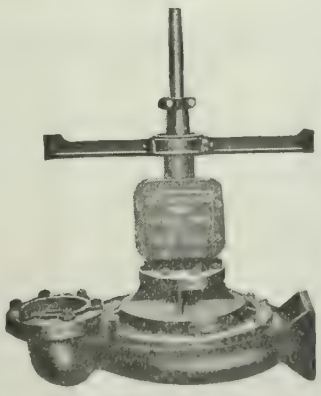
BEAN SPRAY PUMP CO. 211 West Julian Street San Jose - California

One of the many styles and sizes of Fruit Trucks I manufacture. Sixteen years of experience has taught me how to make trucks that will stand the hard knocks and that will last. I also build road carts. For prices and further particulars, address

BROEDEL ORCHARD TRUCK CO.,

552-556 SOUTH FIRST STREET, SAN JOSE, CAL.

The KROGH Vertical Pumps



New Type Vertical.

Are automatically water balanced and require no adjustment of any kind. All weights of shafting and rotating parts are carried on the water film; absolutely without the use of thrust bearings or adjustment of any kind.

No. BALANCE RINGS or PLATES in KROGH PUMPS. They are unnecessary, and mean only continual trouble. KROGH PUMPS with the least number of parts means less friction and greater efficiency.

Get our Bulletin No. 78 before deciding on a pump.

KROGH MNFG. CO.

SAN FRANCISCO, LOS ANGELES.

PRUNE DIPPERS

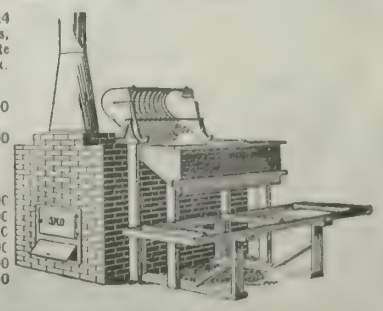
with all the latest improvements. Best and cheapest on the market.

Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

Hopper and Spreader	$15.00
30 in. Green Grader, 3 grades, suitable for above	85.00
Large Power Dipper and Grader, capacity 75 tons per day.	
24 in. Hand or Power Dry Graders:	
3 grade	$55.00
4 grade	60.00
5 grade	65.00
Field cars, wood or steel frame	6.00
Transfer cars	8.50
Turn Tables	8.50

8-lb. steel rails, 7 cts. per foot.



SMITH MFG. COMPANY,, 200-224-226 THE ALAMEDA, SAN JOSE, CAL.

General Agricultural Review.

CITRUS AND SEMI-TROPICAL.

Twenty-five acres of oranges has been set out by the California Limited Oil Company on their oil lands in Kern county.

The sale of 10 acres of oranges and pomegranates for $12,000 by H. W. Lobb to Andrew Ingell is recorded from Porterville.

Levi Chubbuck, of the U. S. Dept. Agr. has been visiting the orchards in the vicinity of Porterville recently to secure data on citrus culture to be used in a general agricultural report.

On June 21, Prof. Quayle of the Citrus Experiment Station will speak to growers of Tulare county on "Scale Control," and on July 19 probably W. M. Mertz from the Station will address the growers on "Cover Crops."

Oranges shipped East by the Anaheim Orange Growers' Association are securing top prices there, a shipment of Autumn Leaf and Modjeska oranges recently bringing $3.25 and $3.00 in New York. On May 27, Autumn Leaf oranges brought $3.45.

The permanent organization of the Northern California Citrus Growers was effected recently when orange growers representing 1500 bearing acres signed up. These signatures will become binding when 80 per cent of the bearing acreage of Tulare county shall have been signed up. Dr. W. J. Hunter Emery was made chairman and Robt. Baird, secretary.

DECIDUOUS FRUITS.

Assembly Bill 243 providing a standard for packing and marketing of apples was made a law by the signature of the Governor.

The Annual Gravenstein Apple Show will be held at Sebastopol August 14 to 22, and there will be Gravenstein Apple Day at the Panama-Pacific Exposition a few days prior to the show to boost it.

The Western Pacific fruit specials will commence running this month and will deliver the fruit in the Chicago auction house on the seventh morning. When the fruit tonnage does not justify a train, the balance of the tonnage will be made up of other kinds of freight matter, thus guaranteeing the service to the fruit.

Growers of Tulare county have organized the Central California Growers' Association. The Tulare Canning Company, working under the supervision of the Association, will shortly commence operations, and it is expected that the pack will be about 40,000 cases or nearly a million cans.

The organization of the Woodlake Co-operative Cannery Association was permanently effected recently with the following officers to take charge: W. P. Crumley, president; J. H. Blair, vice-president; and J. G. Ropes, secretary-treasurer. It is the purpose of the organization to can and market all of the products of its members, and proposes to take care of next year's crop.

Assembly Bill 851, introduced by Assemblyman Ashley, has been signed by Gov. Johnson and will go into effect on August 10. It provides a standard for the packing of fresh fruits, grapes, berries, and cantaloupes and that containers of deciduous fruits must be marked explicitly with the name and address of the packer or one authorizing the packing as well as the locality in which the fruit is grown.

OLIVES AND NUTS.

Four thousand acres of land north of Marysville will shortly be planted to olives and citrus trees of all varieties by an Oakland capitalist.

An almond exposition will be held in Esparto in the third week of September of this year; $200 has been set aside by the committee to be

REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers,
Steel and Wood.
Prices the lowest.
BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

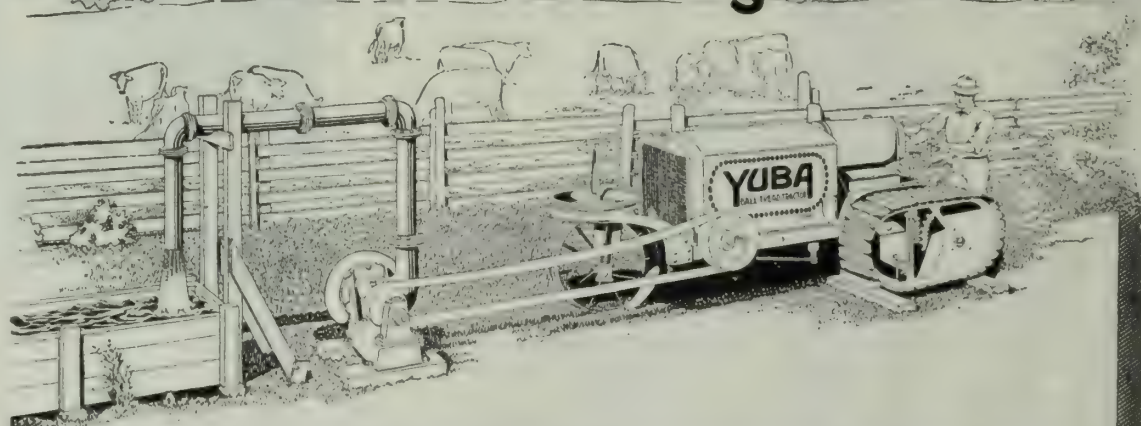
MEMBERS:

Geo. H. Anderson
A. Block Fruit Co
Earl Fruit Co.
Geo. D. Kellogg & Son
Newcastle Fruit Co
Penryn Fruit Co.
F. B. McKevitt Co
Pioneer Fruit Co
Producers Fruit Co.
Schnabel Bros. Co.
Silva & Bergtholdt Co
Vacaville Fruit Co.

California
Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

when there's nothing else to do



The Yuba Ball Tread Tractor is designed and built for use on some type of work every day in the year.

Directly in rear of the radiator is a cross-shaft connected to the motor by beveled gears running in oil. The starting crank is on one end of this shaft; on the other end is a stationary pulley. This shaft is not an after-thought, nor is it ornamental. Every Yuba Ball Tread Tractor has one and when the operator needs it, he uses it.

THE YUBA BALL TREAD TRACTOR

The stationary pulley is supplied with every machine. When so desired, a clutch pulley is furnished as an extra. When there is nothing else to do, The Yuba Ball Tread Tractor will pump water, generate electricity, mix concrete, saw wood, cut feed or furnish power to a stationary thresher.

There is a booklet describing it.

THE YUBA CONSTRUCTION CO.

433 California Street, San Francisco
Dept. C22.
Works, Marysville, California

divided into five cash prizes as awards. At the end of the exposition, the displays will be sent to the Panama-Pacific Exposition where they will be put in competition against the world.

GRAPES AND SMALL FRUITS.

The Dinuba packing plant of the Farmers' Union has been purchased by the California Associated Raisin Company, who will use it to pack the raisins of the Dinuba district.

It is reported that the California Associated Raisin Company contemplates refusing to sell to any broker or concern offering raisins for sale under any other brand except that of the Associated Raisin Company.

Berry picking in the Sebastopol district is in full swing and large quantities of berries are being prepared for canning and shipment. The new plant of the Sebastopol Berry Growers is busy taking care of the large crop that is coming in.

On account of the ruling of the internal revenue commissioner that $1.10 a gallon must be paid for brandy used in the manufacture of sweet wines after Jan. 1, 1916, the California Wine Association has cancelled numerous contracts with grape growers in Fresno, Kings, and Tulare counties.

GRAIN AND FIELD CROPS.

The Colusa Rice Milling Company has been established at Colusa and has contracted for the erection of a mill and warehouse at that place.

The grand prize in cereals at the Panama-Pacific Exposition has been awarded to Montana. The California exhibits won numerous prizes and medals of honor.

SANTA CLARA FRUIT GROWERS' COMMITTEE.

[Written for Pacific Rural Press by Leroy Anderson.]

The second fortnightly meeting of the committee was held June 12 at the Chamber of Commerce in San Jose, a majority of the members being present.

Prunes.—A canvass of the members showed no change to be reported in the local crop. Letters from responsible parties in Oregon and Washington stated the crop in those states to be about 50 per cent of normal. Letters from responsible parties in California state the crop to be from 50 per cent to almost a full crop. Counties reporting the largest crops have the smallest acreage; in fact they are shown by the report of the State Horticultural Commissioner to produce less than two per cent of the State's prunes. These communications also showed that packing interests are stating that Santa Clara county has an immense crop, thus attempting to bear the market. Statistics compiled by the State Horticultural Commissioner show that Santa Clara county has produced on the average 62 per cent of the California prune crop, leaving 38 per cent for outside counties.

Let us take the growers' estimates of 70,000,000 pounds for Santa Clara and calculate on that basis for outside counties and the State. Santa Clara county 62 per cent, 70 million pounds; outside counties, 38 per cent, 42½ million pounds; total for State, 112½ million pounds. Admitting that the 1915 crop may be 20 per cent larger per acre in outside counties than in Santa Clara, it increases the State yield by only 8½ million pounds and makes the estimate for the State only 121 million. The most careful estimates as to the 1915 crop fail to show any reason why growers should hurry to sell at present prices.

Apricots. — The indications are that apricots will be a smaller crop than previously reported as some varieties are showing a heavy drop. Not many offers were reported on the part of canners, but the tendency is upward. Apricot pits seem to be in strong demand and $25 per ton has been offered. The committee sees no reason why dried apricots should not follow the same upward tendency.

Make Rain Keep Your Crop Growing

We manufacture sprinklers for almost any kind of irrigation, Lawn, Park, Garden, Orchard or Field; **specially for Alfalfa.** This irrigation by sprinkler is suitable for any land, level, hillside, or sandy soil. The water is thrown high in the air and drops on the land as natural rain. The advantages of this system are great labor saving, economy of water, and it leaves the land free to cultivate. To accomplish this we designed such sprinklers as will cover the largest area with any given pressure at the same time properly distribute the water over the area irrigated. Of course you must have water pressure. With heavy pressure and one of our large type sprinklers you can irrigate one-half acre per unit When writing it is absolutely necessary to give all details of water pressure and supply, also purposes intended for. We want to demonstrate this system. Address all communications to

H. E. J. VACHER,
Sprinkler Manufacturer,
19 W. Mason Street,
Santa Barbara, California

Attention Nurserymen

40,000 seedling peach trees of MUIR stock, in good condition.

May be budded to nearly any variety of deciduous fruits.

Excellent opportunity for the small nurseryman.

MUST BE SOLD

If bought as a whole, trees may be budded and left on the ground until next spring.

For further particulars address:

H. F. Pixley
Corte Madera, Marin Co., Cal.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

John Deere Implements

Van Brunt Single Disc Grain Drills

Van Brunt Drills plant any small seed from alfalfa to bearded oats, corn and peas exactly where it will bring the best results—at the bottom of furrows of uniform depth. All the grain is up and ready for harvest at the same time.

No seed is wasted, all the field sown. Van Brunt Drills have an adjustable gate force feed which compels an even, continuous flow of seed from each seed cup without bunching or cracking the seed. It cannot choke up.

The seed is planted at uniform depth. It beats the dirt. Individually adjustable pressure springs can be made to force discs to cut furrows even depth. Seed is conducted from hopper to furrow opener by metal tubes and there protected from dirt until it reaches bottom of furrow.

The "Light Draft Drills"

Van Brunt Drills are so called because they are light weight, well balanced and yet so strong that they work entirely satisfactorily under difficult conditions.

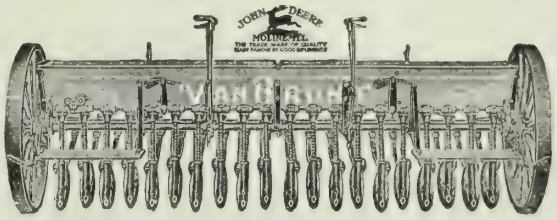
No stub axles are used—none required. Simplified construction makes Van Brunt Drills easier to operate.

Main axles are continuous. Drills are gear driven direct from axle. Each wheel drives half the feeds, insuring smooth running.

Hopper is extra large, well braced and has tight fitting two-piece covers. It does not sag.

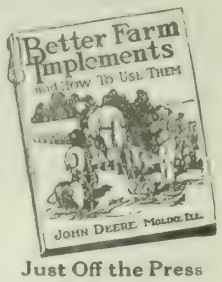
Disc bearings guaranteed. They will last lifetime of drill. Disc blades are high grade steel kept absolutely clean by spring steel scrapers.

Grass seeder attachment can be furnished for any Van Brunt Drill. It will sow broadcast or drill, as desired.



Write for free booklet "John Deere-Van Brunt Single Disc Drills." It explains why you will get the biggest yield by using Van Brunt Drills.

A New Book Free



Just Off the Press

Illustrates and describes the most complete line of farm implements. Tells how to adjust and use farm tools under varying conditions. It is a practical encyclopedia of farm implements worth dollars to you a 168 page text book.

It tells about John Deere Implements: Steel plows, cultivators and harrows; corn planters, disc harrows and beet tools; farm and mountain wagons; manure spreaders; portable and stationary grain elevators and corn shellers; hay loaders, stackers, sweep rakes, mowers and side delivery rakes; motor hay presses; grain drills and seeders; full line of chilled plows; grain binders and corn binders; hit-and-miss and volume-governing gasolene engines.

To get this book free, state what special implements you are interested in and ask for the book as Package No. X-152

JOHN DEERE MOLINE, ILL.
THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

John Deere Publicity Department, Moline, Illinois

PHOSPHORUS Makes FRUIT

Ground Phosphate Rock is the most economical and profitable and only natural form of Phosphorus to use in systems of Permanent Horticulture and Agriculture, and when properly applied restores Fertility to worn-out soils and Maintains and Increases the Fertility of good soils.

Write for Our Literature.

United States Phosphate Co.
405 Marsh-Strong Bldg., Los Angeles, Cal.
Our Mines are Located in Utah, Idaho and Wyoming.

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Second Hand **PIPE** Screw Casing
ALEXANDER PIPE COMPANY
OFFICE—250 North Point Street, San Francisco, Cal.—WORKS

PERMANENT soil fertility is a factor that should never be be overlooked by livestock feeders. The fact that livestock utilizes cheap and many times unsalable products and returns valuable plant food to the land, renders livestock farming more profitable than other systems, even when the direct financial returns often indicate the reverse. Students of rural economics generally recognize the principle that the cost of maintaining soil fertility must be deducted from the selling price of crops before the real value of the latter is secured. On this basis, the practice of feeding upon the land the crops produced therefrom must continue to commend itself in ever increasing strength to the men who can successfully manage stock and who have at heart the permanent prosperity of the dwellers upon the land.

Co-operation Would Help Hog Raisers.

[Written for Pacific Rural Press.]

Complaints are often made, and justly so, by small swine raisers that they do not receive the prices they should for well-finished, grain-fed hogs. On the other hand it is the general experience of large raisers that the better a hog is finished, the better the price is almost sure to be; and it is to this point of quality that most of our largest raisers attribute their success.

Just why this difference in price between the small and large pork producer should be is not apparent to the small producer, and it is likely that some kind of different marketing system will be required before we can hope for the gap in our pork production to be materially lessened, as it is many small growers rather than a few large ones which are most badly needed at this time.

When this question was propounded to the head of a large packing concern in San Francisco he was very emphatic in his statement that the packer pays for quality above everything else, that a hog which had been properly raised and fattened invariably brings the highest quotation of the day on which he is sold and that the packers were anxious to encourage better methods of feeding in every way possible, whether the grower be large or small.

The condition, then, summed up briefly, is that while the small farmer often grows hogs for which the packer pays top price, he, the farmer, is unable to get more than the price paid for ordinary alfalfa and skimmed-milk hogs.

Many Growers Fatten at Same Time.—The remedy for this condition, according to the above mentioned packer, is co-operation among the small growers in marketing.

The reason that the large grower usually receives the top price is explained in this manner. The local livestock buyer in his community buys the hogs and then sells them to the packer direct. The large raiser usually has his sows all farrow at about the same time, with the result that his hogs are all ready to market at about the same time. This means that by making one deal and one shipment, the buyer is able to handle the lot on a smaller margin per hundred pounds than if he were forced to fill his car with several smaller lots, thus saving time and expense in visiting a number of ranches. By cutting down his buying expense he is enabled to pay the large raiser more per pound than the smaller man with only a few head at a time to sell.

In a way the buyer is not to blame, as it is strictly a business proposition with him; but that does not help the small raiser to secure better prices for a better product.

It is for this reason that the packer advocates co-operative selling methods, pointing out that instead of the man with a few head to dispose of selling to the local buyer, he make arrangements with neighbors to fatten at the same time enough hogs to make up a carload. In this manner they can get as good rates to the city market as the local buyer, and their hogs when arriving at the stock yards will be sold at a price commensurate with their worth.

In making up a shipment of this kind each farmer should take particular pains to have his stock in first class condition for butchering, as it is the percentage that a lot of hogs kill out which makes a hit with the butcher, and it is doubtful whether a second consignment would command as high a price as the first one if the quality of the first one was not right. Small hog growers' associations cannot brand their hogs as they would fruit or vegetables, but they can build up a reputation for good hogs very easily by grading their product and selling it under the same name year after year.

Your Silo Will Pay

you more profit if you spend less for *cutting* and *filling*.

Save the day wages and board of at least one hired man by getting a *Smalley*—the only *real* self-feeder—the only machine with Grip Hook and Paddle Roller outfit.

Save costly *breakdowns, repairs* and *delays*. Smalley machines are built to stand the smashing work of silo filling. They are one-fourth heavier than others and have *steel* in their castings. Sixty years of honesty and capability behind each Smalley Filler.

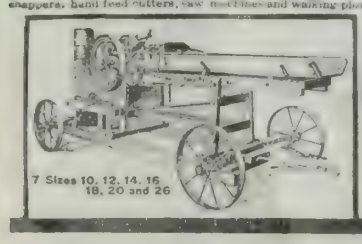
Even on Gas and Kerosene we make you a saving. That's because of our low speed chain-drive blower.

Smalley
Grip Hook Silo Filler

Send for Free Book that tells all about the remarkable construction of Smalley machines and names of well-known users. Sample of Alfalfa Meal, ground by our new recutting Device can also be had for the asking. Write

PACIFIC IMPLEMENT CO., San Francisco, Cal.

We manufacture a complete line of silo fillers, alfalfa cutters, corn shappers, hand feed cutters, saw mill lines and walking plows.



Alpha Gas Engines

No Batteries
No Coil
No Troubles

A Built-in, Gear-Driven Magneto as Regular Equipment

AN ENGINE THAT WILL DO THE work you want it to do; that will operate without being continually adjusted and tinkered with; that will burn any fuel you wish, is one of the greatest conveniences you can have on your farm.

ALPHA ENGINES ENTIRELY measure up to these requirements in every respect. You can always rely on them. They start and run on a simple, low-speed magneto. There are no troublesome batteries to watch or fuss with, or wear out and frequently require renewing. Simply turn on the fuel, give the fly wheel a turn, and the engine is good for a steady all-day run at any kind of work.

ALPHA ENGINES ARE IDEAL for farm use, because any one can operate them. Your wife or boy or hired man can use one of these engines without the least trouble, and do easily many small jobs that would otherwise require a lot of time and hard work. Alpha Engines will save you money by doing quickly those time-wasting jobs that ordinarily take you away from field work that is demanding your attention.

ASK FOR THE ALPHA ENGINE catalog 2B. It will give you a lot of valuable information on the many superior and exclusive features of these engines, and will show you how to get more work done in less time and at less cost.

Twelve sizes, 2½ to 40-horse-power. Each furnished in stationary, semi-portable, or portable style, and with either hopper or tank-cooled cylinder.

IDEAL GREEN FEED SILO
VIKING ROTARY PUMPS.
JAMES SANITARY BARN EQUIPMENT.

De Laval Dairy Supply Company

Everything for the Dairy.

SAN FRANCISCO. SEATTLE.

GRANDSONS OF TILLY ALCARTRA

At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra.

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Korndyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.

"THE NAME GIBSON INSURES QUALITY."

MILKING MACHINES

FOOT POWER. ELECTRIC POWER.

See our Exhibit at the Exposition or write for folder.

ARTHUR F. STEINER,

Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

Poland China Pigs

LARGE AND MEDIUM TYPE

A Wonder and Giantess Stock.

Prize-Winners of either type.
Several very fine young boars and a few bred sows for sale.

We guarantee to please or refund your money.

W. A. YOUNG, Lodi, Cal.

HORSE OWNERS! USE

GOMBAULT'S
CAUSTIC BALSAM.

A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Bargains, First-Class Show Bulls

We are offering for sale purebred registered HOLSTEIN FRIESIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call

PANAMA PACIFIC DAIRY

Laura J. Frakes, Sec'y. Sutter Creek, Cal.

Feed Growing on a Certified Dairy.

[Written for Pacific Rural Press.]

A short time ago a prominent breeder said: "You cannot separate live stock from agriculture. To be a successful livestock raiser, you must also be a successful feed grower. They go together and the livestock breeder of today must be as good a farmer as he is a breeder."

Perhaps this contention is nowhere more apparent than in the Coast districts of the State where alfalfa growing is of minor importance.

A particular case in this respect is the San Ramon Ranch Dairy in Contra Costa county, whose nearness to the Bay cities' markets makes it ideal for certified milk production, but whose soil and climatic conditions are such that the growing of feed is of primary importance, much more so than is usual in our alfalfa districts.

This ranch comprises 600 acres, of which there are between 150 and 175 acres of flat bottom lands, the balance being rolling hay land and hilly pasture.

Alfalfa has been planted on a part of the bottom land, but lack of irrigation water has retarded development in this direction so that it has been necessary to farm that land to other crops such as beets, carrots, squash and cow pumpkins. These feeds are supplemented with mill feeds such as rolled barley, bran, middlings, shorts, cocoanut meal, and linseed oil meal.

Varied Ration Shows at the Pail.—It is the contention of Mr. H. E. Hunt, the manager, that the more you can vary a cow's ration, the better she will respond at the pail. The nature of the ranch makes this contention entirely practicable, each season of the year bringing with it a new form of feed.

From the middle of March till the middle of July plenty of green, succulent feed has been supplied in the form of corn and alfalfa, soiling being practiced with both crops. These are supplemented with carbohydrates such as rolled barley, shorts, middlings and bran, the endeavor being to have as near a balanced ration as possible.

During the fall months pumpkins, squash, and root crops have been combined to make a succulent feed richer in carbohydrates than protein, with the result that some alfalfa has been purchased and fed in connection with concentrates high in protein.

Silo Will Cheapen Feed System.—With the construction of a stave silo this spring this order of feeding will be changed considerably, the corn going into the silo instead of being used as a soiling crop. The capacity of the silo is 275 tons, and if this year's feeding of silage proves satisfactory another of equal size will be erected next year with the expectation of feeding silage six months of the year.

This will replace the root crops, which are more expensive to grow on account of labor, and also solve the green feed problem of late summer and fall months.

Oat hay is and perhaps always will be the chief roughage, as the rolling lands can be more economically farmed to that crop than others, and yield a good tonnage per acre.

The hill pastures are utilized for pasturing the dry stock as well as young heifers; and in this respect are a real asset, as they allow breeding for production to progress even though the product is sold as whole milk.

Breeding Essential Factor.—In many instances whole-milk dairymen have preferred buying fresh cows or cows about to freshen rather than raising their young stock, with the idea that it was cheaper. That this method is not constructive has usually been admitted; and in line with his constructional policy, Mr. Hunt early saw the need of breeding and raising better heifers than he could buy at reasonable figures. Realizing that the city consumer appreciates a rich milk and that to produce such milk he must have a mixed herd, he selected four bulls, two Holsteins, one Jersey, and one Guernsey.

These are being bred to a carefully selected herd of 120 grade Holstein, Jersey, and Durham cows, the practice being to weed out the low producers through the aid of scale and tester.

The calves are fed whole milk till they are able to eat hay and practically care for themselves on pasture after that.

Care of the Milk.—As is customary with all certified plants, the care of the cows and milk varies greatly from that of the butterfat dairyman. The milking barn has a capacity of 60 cows, each milker being required to milk and wash 24 cows. The cows are stanchioned in such a way that the high testers are mixed with the low testers. This is necessary on account of the requirement that certified milk must be poured directly over a cooler from the pail into the bottling machine. This does not allow mixing the high and low testing milk except by milking from two or more cows into the same bucket to get a uniform test. By this process, the average butterfat test has been four per cent or better for the past two years.

Low Bacterial Count.—That the sanitation has been good on this ranch is evidenced by the last two bacterial counts made by the San Francisco and Alameda county officials which were 1100 and 1600 per cubic centimeter. These are far below the requirement of 10,000 or less, which the law demands, and are attributable to cleanliness in barns and milk rooms. Concrete floors, paint, and whitewash are also contributing factors.

As this is one of the last dairies to be certified around the Bay city section, there is still room for an enlargement of the dairy's market and with this will come an increased herd. It is thought that the silos will allow more cows to be kept, with which to supply more milk; and thus the silo will be the contributing factor toward higher efficiency of the land, a condition which seems invariable in many Coast districts where corn can be grown either on the flat bottom lands or gently rolling hills.

A swine breeders' organization was formed in Dixon June 16 by Farm Adviser Jas. Mills.

You might just as well wear your harness out on the grindstone as to neglect to oil it. Unoiled harness can't keep its life and strength—can't give you the service it should.

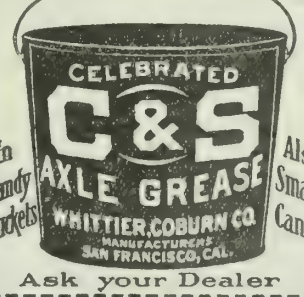
EUREKA HARNESS OIL

keeps your harness in active service. It fills the pores of the leather and protects the fibre against destruction by sweat, dust, moisture and heat—keeps your harness strong, pliable and black. Get your harness dealer to dip your harness occasionally or buy a can and apply it yourself by hand. It is easy, but it pays big.

Dealers everywhere.

Standard Oil Company (California) San Francisco

"The Farmers Friend"



In Handy Buckets Also Small Cans

Ask your Dealer

Now Ready

"Vacation 1915"

The Guide to

Summer Outing Places

Tributary to the

Northwestern Pacific Railway

Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

Copies of "VACATION" may be had free at 874 Market street (Flood building), Sausalito Ferry Ticket Office, or on application to J. J. GEARY, G. P. & F. A., 808 Phelan Building, San Francisco, Cal.

You Know

American

Surface Irrigation Pipe.

is RIGHT

—then why experiment with any other? Lasts a lifetime.

AMERICAN STEEL PIPE & TANK CO.

Suite 354-56 Pacific Electric Bldg., Los Angeles. Branch: 1228 "H" St., Fresno.

Also, single and double Well Casing.

RHOADES & RHOADES

Expert Live Stock Auctioneers

Sales conducted in all parts of California and adjoining States. Write for dates and terms.

Twenty-five years' experience.

1501-3-5 So. Main St., Los Angeles

Veterinary Queries and Replies.

[Answered by Dr. H. B. Wintringham, Petaluma, Cal.]

CALVES BLOAT AND DIE.

To the Editor: I have lost three calves in the last three months, two at one time and one later. They gradually bloated and breathed with a grunt and thump in the sides and stayed this way several days before they died. I fed skim milk and they ran on short green pasture. Would like to know the cause and remedy. —E. D., Tulare.

[Your calves had acute indigestion. In future give them 1 pound Epsom salts and 1 ounce powdered ginger dissolved in two quarts warm water. If this does not relieve them in 24 hours, call in a competent veterinarian and have him remove the contents of the paunch.]

COWS' EYES WATER.

To the Editor: Several of my cows seem to be affected with sore eyes; the water runs from the eye and it seems to be coated with sort of a whitish coating, and seems to be very painful. I have noticed that they recover in time, leaving no bad effects, but lately there have been more new cases of it. At no time have I noticed any cow that had both eyes affected at once, only one eye being affected at a time. I would be glad to have you advise me what is the cause of this and what method to pursue to cure it.—C. G. K., San Francisco.

[This is infectious Conjunctivitis and is due to bacteria. Place a few drops of the following in the eye twice a day while it is inflamed: 25 per cent solution of argyrol. Use the following after acute inflammation has subsided and the eye looks white: wool fat, 1 ounce; yellow oxide of mercury, 25 grains. Place a little the size of a pea in the eye twice a day.]

COUGH AND SORES.

To the Editor: I have a five months old Jersey heifer on pasture in a hog lot. About a month ago she had a bad cough that came on in spells during which she had a hard time to get her breath; her mouth would fill up with phlegm or saliva. The cough is hollow and deep and as I have fed her some hay containing foxtail grass, wondered if she could have got one into her lungs. Her general health seems fair, appetite fair, etc.; only recently she seems to be getting dull and a little poor. I have a cow that has small sores upon either side of tail and under her flank, behind her front shoulder, and upon her belly, which she licks and keeps raw. I can heal them up for a short time with axle grease but not permanently. Her general condition is good. Please advise me the cause, and what to do.—P. Bros., Turlock

[Have this heifer tested for tuberculosis. Put a halter on the cow and surcingle. Attach halterring to surcingle by a stick passed between the front legs. This will prevent licking of sores which will not heal while being licked. Paint sores once or twice daily with equal parts tincture iodine and compound tincture benzoin.]

SPRAY COWS FOR FLIES.

To the Editor: Would you kindly give me, through the columns of your estimable paper, a good spray to use on cows to keep the flies from annoying them so dreadfully? And how often would it be applied? I am sure many dairymen would appreciate such a thing, as cows will not do their best while so annoyed.—C. M. S., Turlock.

[The U. S. Dept. Agr. recommends the following: A mixture of fish oil (1 gallon), oil of pine tar (2 ounces), oil of pennyroyal (2 ounces), and kerosene ½ pint), applied lightly but thoroughly to the portions of animals not covered with blankets or nets. Repeat often as the flies bother.—Editors.]

MISCELLANEOUS.

The highway between Fresno and San Francisco will be completed by July 1, according to J. B. Woodson, highway superintendent.

Three tracts of land in Sonoma county have been purchased by the U. S. Gov. for the housing of homeless Indians.

President Wilson signed an order on June 9 opening approximately 242,000 acres of land in the Sequoia and Santa Barbara national forests to entry and settlement under the federal homestead laws.

Reduced carload rates on canned goods, beans, asphaltum, and salmon from California to Chicago and points west, as well as into the Birmingham and Chattanooga districts have been announced by the Southern Pacific Company.

Soil surveys by the U. S. Dept. of Agr. in co-operation with the California Agricultural Experiment Station are being made around Pasadena and San Bernardino and reconnaissance work in the San Diego section. After this work is completed, surveys will be made in the Russian River Valley and Honey Lake district and reconnaisance work in the San Joaquin valley. Accompanying the report will be a complete map of the surveyed districts.

A voluminous and thoroughly well illustrated book of 540 pages has been recently issued by the State Commission of Horticulture at Sacramento, as a supplement to its monthly bulletin, describing in detail the various "Injurious and Beneficial Insects" to be found in California, telling what plants and trees they prefer, the nature of their damage, what they look like, and how to control them. This is issued to all California farmers who desire to know what bugs are injuring their crops and how to control them. The author is E. O. Essig, formerly connected with the State Horticultural Commission but more recently in the Entomological department of the University. Application for the book should be addressed to Dr. A. J. Cook, Horticultural Commissioner, Sacramento.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also gandsons of the world's record cow. Creamcile Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BARGAIN—A Holstein Bull Calf from same dam as 26-lb. A. R. O. Cow. K. W. Abbott, Milpitas, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

HIGH GRADE GUERNSEY Bull Calf for sale, $25. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAlister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal. — Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

SWINE.

PIGS! HOGS! PIGS! HOGS! Buy a pig and see how quick he he will make a hog out of himself on the waste around your farm and orchard. California needs the hogs, you need the money, get busy, start now, but start right. Buy only cholera-proof brood stock, that is the foundation for your success. We have for sale 150 head of choice young gilts. Duroc-Tamworth breed all solid reds, cholera-proof, guaranteed. Price only $15 each. For full particulars, call or write, John H. Hollowell, local agent, 316 Investment Bldg., Los Angeles, Cal.

BILLIKEN HERD of purebred, registered O. I. C. Swine. Sows are farrowing now; pigs will soon be ready to ship. Am booking orders for singles, pairs and trios. First class in every respect. Three herd boars used. New blood lines. All stock cholera immune. Write for my new circular. C. B. Cunningham, Mills, Sacramento county, California.

BEST BIG TYPE Duroc Jersey sows. Will farrow from "Red Wonder" or "Chief." As we must have money we are selling these fine thoroughbred sows at scrub prices. You can make 500 per cent in one year. Order at once. Also pigs ten weeks old very cheap. Pedigree sent with each animal. Western Hog and Land Syndicate, 919 Hearst Building, San Francisco.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D. McCarty, 201 Sansome St., San Francisco.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Bred Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourth, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

STURDY YOUNG BERKSHIRES — Sired by Birch Champion, he by Laurel Champion, the grandest Berkshire on the coast. Pigs ready June 15. For prices and pedigrees address T. R. Nickalls, Los Molinos, Cal.

BERKSHIRES—Breed for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. F. Barrows, Los Molinos, Cal.

BERKSHIRES—Headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Farm at San Mateo. Address W. M. Carruthers, 218 Hearst Bldg., San Francisco.

BLATCHFORD'S PIG MEAL weans easily and safely no trouble; no milk. Write for free folder "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Hobson Co., 819 J St., Sacramento

REGISTERED, PUREBRED BERKSHIRE PIGS—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs $10.00 each. A few older boars. J. M. Bomberger Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

25 POLAND CHINA SPRING BOARS—Jan., Feb., March, farrow Prices, registered and crated, $20, $15 $10. Edwd. A. Hall, Watsonville, Calif.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son Morgan Hill, Cal.

WANTED—Stock Hogs weighing from 50 to 150 lbs For further particulars address Russell Mayhood, Rio Vista, Solano Co., Cal.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. E. Hanna R. 3, Riverside, Cal.

BERKSHIRES—Utility and Choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED BERKSHIRES for sale.. All ages Boars ready for service. Stanislaus Ranch Co., Crow's Landing, Cal

QUALITY BERKSHIRES- Boars, Brood Sows. Weanlings, $10. F H Wilson, Mgr., Alison Branch. Turlock,.

BERKSHIRES—Bred sows, service boars and young pigs. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa Cal.

REGISTERED DUROC-JERSEYS from Eastern sows Six months gilts and boars. S. S. Southworth, Napa, Cal

REGISTERED POLAND-CHINA SWINE—Prize winners Finest stock in State. $20 up. M. Bassett, Hanford

REGISTERED BERKSHIRES—Young stock for sale John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS—Prize-winners. Money-makers W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM- Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS — Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Pederas Ranch, El Cajon, Cal. M. S. Allen, Manager.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

REGISTERED POLOND-CHINAS—Young stock for sale Hewitt & Hewitt, Hardwick, Cal.

READOAKS RANCH herd of registered Poland China W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale F. W. White, Elk Grove, Cal.

BERKSHIRE BOAR PIGS—Butte City Ranch, Butte City, Glenn Co., Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

BOARS—BOARS—BOARS—Registered Durocs. J. M DeVilbiss, Patterson.

REGISTERED O. I. C. SWINE—C. D. CONWAY, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller Llewellyn Ranch, Lathrop.

DUROCS—A few bred gilts, boars and gilts left. I Curtis, Napa.

DUROCS—Weanlings only. H. E. Boudier & Son Napa, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal

SHEEP.

FRANK MEACHAM, Petaluma, California. — Breeder Shropshires, Rambouillets, American Merinos, both sexes Take electric car at Santa Rosa or Petaluma for Live Oak.

WANTED—A good Lincoln lamb ram. Would like to hear from Northern California breeders. James T Peterson, Lassen, Lassen Co., Cal.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. R. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Hanford, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS

OWING TO THE MANY requests of our customers to give them information as to where they can buy or sell dairy stock, we have established a livestock bureau in connection with our office. For anything in this line write us. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal

MEXICAN DEER

One pair, one-year-old, domesticated MEXICAN DEER for sale.

Graceful Beauties.

L. BURBANK,

Santa Rosa, California.

With the Live Stock Men.

DAIRYING.

Sixteen head of dairy cows at $105 a head were recently sold by W. R. Belnap for Geo. Beck of Tulare to Harold Dayton of Corcoran.

By producing 11,712 pounds of milk, 700.47 of which is butterfat, in one year, Pearl of Venadera, a Jersey cow belonging to Guy H. Miller of Modesto, has set a new Jersey record.

Governor Johnson has signed the Satterwhite-Shearer Pure Milk bill which will go into effect October 1, 1916. It provides that no milk from cows which have not passed the tuberculin test can be sold for human consumption until it has been pasteurized.

The Anderson Co-operative Creamery recently met and elected the following officers: President, Fred S. Field; vice-president, T. W. Graham; secretary and treasurer, Jno. Gilman; and directors, Dr. C. A. Bell, H. W. Knapp, F. S. Field, T. W. Graham, and John Gilman.

A co-operative creamery association has been formed in Los Banos, with the following directors in charge: O. L. Divens of Dos Palos, C. H. Waggoner and M. A. Bettencourt of Los Banos, Jos. Vocha of Volta, M. G. Oliveria and P. L. Taglio, Gustine; and M. A. Marshall of Ingomar.

Instead of demanding the return of 85 per cent of their money subscribed as capital stock of the Dairymen's Associated Condensed Milk Company, dairymen of Yolo, Ceres, and Modesto have decided to let the money stand on deposit for a while with a view to establishing either one or more condensaries in California on an independent basis.

HORSES AND SWINE.

A carload of 24 horses was sold to the French Government by Louis Gerlach of Nevada.

Orders are said to have already been received in several of the western states from Italy for large consignments of horses for war purposes.

A large horse and mule market will shortly be established on the Weed ranch in Hood River Valley, Ore., by J. Frank Adams and Sons. At present there are 10,000 acres of excellent pasture available and it is proposed to make the ranch the assembling place for all horses and mules in Klamath county.

A drastic ordinance for the purpose of controlling hog cholera and other diseases affecting hogs has been adopted by the Board of Supervisors of Kings county at the instance of the Kings County Swine Raisers' Association. It provides that ranches where cholera exists must have a sign posted informing the public of the fact, and also ranches where hogs have been vaccinated with the hog cholera virus must also have a sign posted to that effect.

E. F. Curtis, purebred Duroc Jersey swine breeder of Napa, writes us: "I am highly pleased with the results I have gotten from advertising in your paper such a short time. I have made the following sales: '9 head to W. W. Everett, St. Helena; 3 purebred and 8 grades to L. Crellin, Yountville; 2 bred gilts to Ed. Sommers, Napa; 1 gilt to F. B. Alverson, Applegate; 1 boar to A. D. Melvin, Paradise; besides many inquiries and a good number of fall orders."

CATTLE AND SHEEP.

Work at the new meat packing plant in Anaheim commenced on June 7, when twenty beeves were slaughtered for the day's market.

Twenty-six cars of lambs were recently shipped to Chicago from Willows by J. F. Garnett. There were 2,100 animals in the shipment and it is reported that they sold for $5.25 a head at Chicago

MISCELLANEOUS.

A movement to organize a cattlemen's association to be known as the Salinas Valley Cattle Association is under way in Monterey county, one object of which will be to secure the return of estrays and reduce the losses of "rustling" to a minimum.

Portland Union Stock Yards' receipts for the week ending June 10 were: Cattle, 811; Hogs, 4206; and Sheep, 2685. The cattle market was steady with the receipts light. With the demand fair, grass steers brought $7.50. Top hogs advanced from $7.85 to $8.10. Receipts of sheep have been light for this time of the year. Spring lambs brought $8.00 for top quality.

EXPOSITION HORSE WINNERS.

The Blackhawk Stock Ranch has a full exhibit at the Panama-Pacific now, having imported a number of Shires from England this May, probably the last importation to date. They barely escaped being torpedoed, as the boat ahead of them was blown up. One of the stallions is Blymhill Forester, sired by Red Lynch Forest King, one of the most noted Shires in England. Another is Witchford Albert. These were both prize winners in last season's shows in England and received the first and second prizes respectively at the Draft Horse Show held at the Exposition June 12.

At the Horse Show, Dunham McLaughlin's Meggefieur took first prize in the 2100 pound three-year-old Percheron stallions; Momfieur second prize; and Military took third. Of the three year and over Percheron mares, Mrs. Anita Baldwin's Mannon took first; Livie, second; Manerva, third. Of the Shire mares, Flawford Daisy of the Blackhawk Ranch took first; Felicity took second; and Blackhawk Blossom took third. Of the Shire ponies, Arthur Loesch took first; Richard Furay, second; and Earl Coy, third. Sperry Flour Co. took first on a wagon with four horses, and Western Meat Co. 2nd.

Classified Advertisements.

Rates, 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns

BEES AND HONEY

BEEKEEPING instruction book free for dime to pay printing, etc., which we will refund with your first order. Explains care bees, profits, size packages we ship, with prices, supplies, bees, etc. Spencer Apiaries, Gloss Ave., Nordhoff, Cal.

WANTED.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco

POSITION WANTED—Young married Swiss dairyman wants position as milker. Address John Hefty, Afton, Glenn Co., Cal.

MISCELLANEOUS.

SUCCESSFUL FARMERS are buying Lumber from us at wholesale prices. No 1 dimensions, $9 at the mill. Send us your lumber bill for figures. Our prices are lowest in the country, on quality lumber. Write today for free list. Buy while prices are at bedrock. Pacific Mill & Timber Co., First National Bk. Bldg., San Francisco, Cal.

SECOND HAND WATER PIPE and screw casing. New threads and couplings dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING—Open to all. Write for catalog and particulars. Pacific Co-operative League, Dept. D., 236 Commercial St., San Francisco.

PROFICHI FIGS—Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. R. 3, Fresno, Cal.

"SMITHS' PAYS THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

PROTECT YOUR IDEAS—Write for free patent books. Patents advertised for sale at our expense. Advice free. Pattison and Company, 971 G Street, Washington, D. C.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK

AVOCADO TREES—Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budded trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties Melrose and Special. Strong, mature slabs, $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUT TREES on Black root. Wholesale or retail. Placentia, Eureka (Stones), Franquette (Vrooman Strain), Mayette (San Jose), and others. Geo. S. Weinshank, 425 Magnolia Ave., Whittier, Cal.

AVOCADOS—Fine budded, field grown trees, 4 to 7 feet, on rented ground and must be moved; prices greatly reduced. Our loss your gain. Magnolia Nursery, Whittier.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

LAND FOR SALE

50,000 ACRES LEVEL OREGON LAND now on sale, open for settlement in beautiful South Walker Basin, Klamath county, along right of way Natron Cutoff Southern Pac. Ry. Deep soil, every acre tillable, pure water, enough timber on every forty for farmer's use. 21 years' time, $2 per acre down, balance in 42 semi-annual payments. 5½ per cent interest. We operate demonstration farm. Want settlers and agents. Hunter Land Co., Title & Trust Bldg., Portland, Oregon.

FOR SALE—Beautiful mountain ranch one mile from Nevada City. Nine-roomed house and outbuildings. Land highly cultivated. Trees, vines, shrubs, poultry, cows, horse and buggy. Abundance water. Address Owner, Ben Tonella, Nevada City, Cal.

CALIFORNIA LAND — Money-making little farms. High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

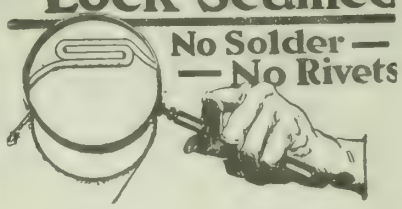
CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

WANTED—To hear from owner of good farm or unproved land for sale. H. L. Downing, 93 Palace Bldg., Minneapolis, Minn.

STOCK RANCHES for sale in Eastern Oregon. Principal only need apply. 2509 Prince St., Berkeely, Cal.

Lock Seamed



Nothing But the Sheet of Metal Itself is Used to Make

Ames - Irvin Irrigation Pipe

Neither solder or rivets are used in its construction. Each sheet is edged, locked together and then set down under 3500 pounds pressure. Such a seam will not break or leak. It is simple, solid and strong, with no holes in the steel.

Ames-Irvin Lock-Seamed irrigation pipe was the first prize-winner against all competitors at the Sacramento State Fair in 1913 and the Fresno and San Jose County Fairs in 1912.

SEND FOR BOOKLET.

It gives full information about irrigation pipe and its construction. Get it—today.

Ames-Irvin Company

8th and Irwin Sts., San Francisco, Cal.

BERKSHIRES Oak Grove

CHOLERA IMMUNE.

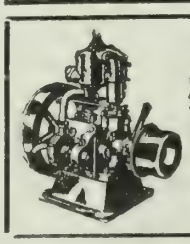
Our herd is Cholera Immune, the only immune Berkshire herd in the State.

Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.

We have at present some 300 Berkshires and we know that we can supply what you want. WRITE US OR CALL.

OAK GROVE DAIRY FARM

H. G. ARMSTRONG, Prop.
Woodland, Cal.



CUSHMAN Gasoline Engine

for all purposes. The 4-cycle, 4-H. P. only weighs 190 lbs. This is a no-trouble engine. Made in sizes from 4 to 25 H. P.

Light Weight

Write for Catalog
THOMAS R. BROWNE,
Stockton, Cal.

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENT AGENCY
PATENTS
911 Crocker Bldg., S. F.
Circular containing 100 mechanical movements mailed free.

PIPE

For Every Purpose NEW Threads & Couplings. Hot Asphaltum

Second Hand and NEW

Screw Casings Fittings and Valves Guaranteed for Pressure

Pacific Pipe Co.

Main and Howard Sts. San Francisco, Calif.

When Grain is High **Feed DIGESTER TANKAGE**

Whether intended for show or market, the hog attains perfect condition and more quickly and economically if his ration includes some DIGESTER TANKAGE. The growing pig needs DIGESTER TANKAGE as a bone and muscle builder. Write for free pamphlet on hog-feeding. WESTERN MEAT COMPANY,

Animal Food Dept., 704 Townsend St., San Francisco, Cal.

Southwestern Beef Promising.

California cattle men will be interested in knowing the conditions of the cattle industry in Arizona at this time in view of the unsettled market conditions which have prevailed in recent months. Dr. R. H. Williams, Animal Husbandryman of the University of Arizona, has the following to say of conditions in the Southwest: The spring round-ups are at their height in the Southwest. This is a good time to study the cattle situation in view of anticipating what the future will bring forth. A very peculiar situation is presented to beef producers. The combination of high-priced feeds and high-priced beef does not go well with the low values received for cattle during the past few months. Conditions in the feed lots have been extremely unsatisfactory, as feeders could not finish cattle with high-priced grain and demoralized markets due to periodic mutations, tight money, and quarantine restrictions.

It must be remembered that livestock in the large markets have not been bringing their value. Many animals have been sent to market in an unfinished condition due to the foot-and-mouth scare and the unprofitableness of holding them longer on feed. The big liquidation of calves and young animals slaughtered before reaching beef-making age had an effect in depressing values. These animals are gone and there is no further danger of the market being over supplied.

There are unmistakable indications of better times coming for beef makers. Already an increased demand and higher prices for beef are apparent. Seven million Belgians are being fed from food largely of American production. These and as many other destitute people will require large quantities of meats. Millions of men in the allied armies are consuming twice as much and wasting ten times as much as they would in times of peace. War demands will become more insistent in the future. The financial situation at home seems to be improving and this will also call for a greater domestic consumption of meat. It would seem that the supply of cattle is limited. The markets of the world have already been drawn on to take the place of animals destroyed in the war theatre and to maintain the allies. Last fall the Southwest sold more good livestock of beef-making age than ever before. If the European war continues as long as present indications lead us to believe it will, cattle are certain to break all price records. Money will be made in feeding the sort that will reach an early finish, and feeders would do well to fill their feed-lots with this kind of animals.

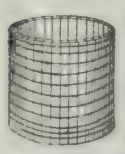
Cattlemen in Arizona are enjoying a much deserved prosperity. They have had their ups and downs, but the future never looked better than now. The range is the best it has been in years and they are confident of a good calf crop. Prices have doubled in the past four years and it is the prevailing belief that they will be higher this spring than ever before. Last fall yearlings sold for $32 per head. Bids of $32 have been offered already, but many are holding for $33. This price seems to be reasonable in view of the improved quality of the animals and the future outlook for beef-making.

"COOKING" OR SILOING ALFALFA.

To the Editor: Please let me know through your paper whether any one in this country ever tried cooking alfalfa as they do in Italy. I have a neighbor, an Italian, who says in his country the alfalfa is cut and cured in the field about as much as we cure for shocking, and is then hauled and put in stone barns. It is shaken apart well and tramped in solid. It heats and cooks and settles down in about as solid a substance and about the color of a plug of Star tobacco. It is then cut in desired squares and tied up in bales ready for market. This brings the biggest price of any hay; that is, if well cooked. But if this is not put in close or if there is much dry grass in it, it becomes moldy where these open places are. I have put up alfalfa that was rained on after cutting, but stacked in bents as loosely as possible and found places in stack cooked good and other places moldy. The cooked alfalfa was the best kind of feed for sheep or cattle. What I would like to know is if there would be danger of setting a wooden barn on fire by putting it in green. We have a hard time here to cure first crop as soon as it should be off the ground.—A Subscriber, Willits.

[Your system of "cooking alfalfa" is practically the same as siloing it, except that you have a great deal more waste owing to the amount that is spoiled by contact with the air on the outside of the stack and by too little compacting. We would hesitate to attempt it in a wooden barn because there is too much chance for air to get to the alfalfa if it should heat. Put into wooden silos and tramped down thoroughly, alfalfa makes fine silage. It may be tramped down much better by being chopped like other silage. When put in without chopping it is likely to mold more or less because it is not so easily compacted and the air driven out. It is also much harder to get out. A scoop handles chopped silage much easier than a knife cuts the other kind into chunks. There would probably be a lot of waste by drying out, for one of the chief values of silage is its succulence. A wooden or concrete silo will save so much of your crop that it will pay for itself in a short time.—Editors.]

Hopland Shorthorns
Hopland Berkshires
All Stock Registered.
Bulls of Highest Quality.
YOUNG SOWS AND BOARS
of finest
Breeding and Type
Prices on Application.
HOPLAND STOCK FARM
HOPLAND, CAL.


REDWOOD TANKS
I sell to the consumer. Box Shooks and Boxes. Am making a special price on Drying Trays. Lumber, Mill Work, Doors, Windows, Mouldings, Wagons, Tanks, Spraying Tanks. INDEPENDENT.
R. F. WILSON,
Stockton. Cal.

Luitwieler Pumps
Exhibit at Both Expositions.
Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.
Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

DE LAVAL
SEPARATORS
Save in 7 Ways

QUANTITY of cream that no other separator will recover completely, particularly under the harder conditions of every day use.

QUALITY of cream as evidenced by De Laval butter always scoring highest in every important cantest.

LABOR in every way over any gravity system, and also over any other separator, by turning easier, being simpler, easier to clean and requiring no adjustment.

TIME by hours over any gravity system, and as well over any other separator by reason of greater capacity and the same reasons that save labor.

COST since while a De Laval cream separator may cost a little more than a poor one to begin with it will last from ten to begin with it will last from ten arators wear out and require to be replaced in from one to five years.

PROFIT in more and better cream, with less labor and effort, every time milk is put through the machine, twice a day, or 730 times a year for every year the separator lasts.

SATISFACTION which is no small consideration, and can only come from knowing you have the best separator, and being sure you are at all times accomplishing the best possible results.

Easy to Prove These Savings

These are all facts every De Laval local agents is glad of the opportunity to prove to any prospective buyer. If you don't know the nearest De Laval agency simply write the nearest main office, as below.

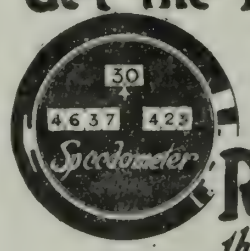
De Laval Dairy Supply Company
165 Broadway NEW YORK — 101 Drumm Street SAN FRANCISCO — 1016 Western Avenue SEATTLE
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER.

BLACK HAWK STOCK RANCH SHIRES
AT PANAMA-PACIFIC INTERNATIONAL EXPOSITION.
Twenty-two Stallions and Mares, including recent importation of last season's prize-winners from England.

BLACK HAWK VICTOR CHIEF.
Be Sure to See Our Exhibit in Barn 7. RANCH AT BURLINGAME, CAL.

Short Horn Bulls
7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.
H. L. MURPHY, PERKINS, CALIF.

Get the miles you pay for



Mixed gasoline means less kick and less mileage. The heavier vapor, being too "slow," burns without exploding.

Red Crown
the Gasoline of Quality
gives you the miles you pay for. It is a straight refinery gasoline—not a mixture. It atomizes easily—explodes quickly, completely.
Ask for Red Crown—and get it.
STANDARD OIL COMPANY
(California)
San Francisco

Effect of Breeding Young Mares.

To the Editor: Will you kindly tell me what the effect will be if I breed my young mares at two years old? Will it affect growth or disposition?—C. D., Madison.

[There is a wide variance of opinion on this subject, some breeders contending that early breeding of mares has a tendency to increase the fertility and advance the development of the mare. Also that the chances of colts from mares bred at this age are as good as the first foals from older mares. Other breeders, however, contend that early breeding has a tendency to lessen the vigor of the mare, retard her development, and handicap development of the foal because the dam is immature.

M. W. Harper in "Management and Breeding of Horses" has this to say on the subject: "From experience it seems that the practicability of breeding a two-year filly depends on at least three factors: The breed, the individuality of the mare, and the object sought. As a rule, horses of the heavy type mature younger than those of the light type. A draft filly at two years of age is often as mature as a trotting, running, or saddle filly at three years of age.

"Individual mares differ in the way they mature, as a smoothly turned, neat, and well-finished one develops much younger than a rough, coarse, and growthy individual. Maturity is influenced by the feed and care. A filly that is kept growing continuously from birth will mature earlier than one imperfectly cared for and which receives a setback each winter. If breeding purebred animals, and the object is to improve the strain, the advisability of breeding a two-year filly would be questionable. On the other hand, if working with grades and the object is to produce draft horses for the market there is no reason why fillies cannot be bred at two years if they are well grown and mature, and their owner is willing to feed and care for them properly during pregnancy.

Perhaps one reason for much of the discussion as to the wisdom of breeding a mare at two years of age is from the fact that fillies at this age breed with much difficulty. From practical experience, it seems that only about one filly out of four will conceive at so early an age."—Editors.]

RED SILAGE MOLD HARMLESS.

For the last three or four years Missouri farmers who own silos have noticed the growth of a peculiar red mold in the silage. In some years it has appeared only in small quantities, but in others it has appeared at a depth of as much as fifteen feet and has infected areas two or three feet square, often adhering to the sides of the silos.

Experiments conducted at the University of Missouri show that the growth does not occur without the presence of free oxygen. Its occurrence in the lower depth of silos is probably due to the fact that the silage when packed was not sufficiently tramped.

Moisture is another factor. Very often silage is put away too dry. Molds develop in much greater abundance where the silage is only slightly moist. The Chinese people use a red fungus—the mold of which corresponds to the red mold of silage—in manufacturing red rice, a substance used as a food coloring and a beverage. The fact that the Chinese do use the pigment in preparing a beverage tends to show that the fungus is not poisonous. Many Missouri farmers thought that it was causing death among stock. The mold has appeared in the silage on the farm used by the College of Agriculture, but it is thought that no deaths have occurred among stock because of this growth. The mold has also appeared in other states and it is possible that coast silo owners will also have it to contend with, in which case the above will be of interest.

The Stanford Vina Ranch
Offers for Sale
50 Grade Shorthorn Bulls

These bulls are about 15 months old, California bred, thoroughly acclimated, vigorous and fast growing.

Address
W. G. Stimmel
Superintendent
Vina, Tehama County. Cal.

Swineland

TAMWORTHS, DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland. Write or call and see us.
SWINELAND FARM.
W. O. PEARSON, Prop. WOODLAND, CAL.

CAMPBELL
IRRIGATION
We lead the world in overhead irrigation of all kinds. Send for revised edition of our booklet, "Modern Irrigation" and literature describing our circular Irrigation Sprinklers, the Campbell Automatic and Campbell Tubo-Irrigator, and the new Automatic Oscillator for overhead pipes.
J. P. CAMPBELL,
230 Union Terminal Building. Jacksonville, Fla.

BEWARE OF CHEAP, EASTERN MADE HORSE COLLARS

More shoulders are being ruined by poorly-constructed collars than by the work the animals are doing.

W. DAVIS & SONS' FELTFACE COLLARS are guaranteed to prevent sore shoulders.

Look for the felt at the edge of the stitching.

Made to sell as follows:

FELTFACE, medium draft, $5.00
FELTFACE, heavy draft . . . 6.00

If your dealer does not have them, we will tell you where they are to be had, or send direct if no dealer is within reach.

Our CUSHION COLLAR, a canvas and leather Boston Team Collar, is now to be had for $3.00.

ANOTHER GOOD SORE-SHOULDER PREVENTER

A selling agent (dealer) in nearly every town. If none in your town, Write Us.

W. DAVIS & SONS, 2040 Howard St., San Francisco, Cal.
California's Largest Manufacturers of Harness, Collars, Saddles.

AUCTION SALE, Tuesday, June 29, 1915
of 58 Dairy Cows and Heifers

at the farm of A. F. Scheidecker, 1 mile north of Bretona Station, on the "Old Hyatt Ranch" (16 mi. north of Woodland on the west side).

Having lost all my early hay and having under consideration the renting of my ranch, I will sell, without reserve to the highest bidder, all my cows and bred heifers as follows:

27 Cows—mostly Durham and Jersey, with a few Holstein.
27 Heifers—1st and 2nd calf.

These cows and heifers are good milkers and high testers: either in milk or due to freshen soon and nearly all bred to my high-grade Registered Holstein Sire.

4 Selected Heifers, one and one-half years old.

Most of these cows and heifers were raised by myself and are good stock.

1 Registered Holstein Bull.—"Tula Pietertje Ignaro" grandson of Ignaro de Kol. A very fine young bull, born Nov., 1912. Has had the best of care and is perfectly gentle.

1 Mare. 2 Brood Sows—bred.

Train Arrives at Bretona at 11 a. m. Lunch served
SALE COMMENCES AT 12 M. SHARP. TERMS CASH.
Train leaves Bretona for all points east, south and west at 6 p. m.
A. F. SCHEIDECKER, OWNER. W. A. MACKINDER,
Zamora, Yolo Co., Cal. Auctioneer.

Hillcrest Stock Farm
THORNTON S. GLIDE, Prop., Davis, Cal.
Breeders of
Short Horn Cattle
Shropshire and Merino Sheep

ATTENTION, SHEEPMEN

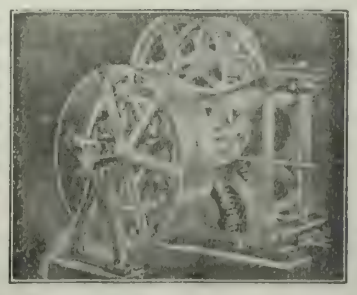
My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.

Shropshires sired by rams imported by me from England in 1911.

Pomona Deep Well Pumps

For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.

Write for Catalogue 104,



Do not get oil into the water. Consume less power per unit volume of water pumped.

Write for Catalogue 104, with valuable information on Irrigation.

Pomona Mfg. Co., Pomona, Cal.

IN REGARD to the Universal Poultry Show at the Panama-Pacific Exposition, Nov. 18 to 28, Morris Brooke, president of the Sacramento Poultry Producers' Association, writes: "I will call a special meeting of our association in a few days to consider a carload shipment of poultry by our members. I have spoken to a number of poultry breeders and they are enthusiastic. No doubt we can send a full carload made up of Fanciers' exhibits and purebred Utility fowls from our neighboring poultry farms."

Poultry in Car Lots for Exposition.

[Written for Pacific Rural Press by Geo. H. Croley, President Federated Poultry Ass'n of California.]

In June 12 issue we stated that express companies would allow two attendants to accompany each full car load of poultry sent to the Exposition poultry show and would permit the cars to remain on the tracks near the show so that it would not be necessary to remove the shipping coops from the cars. These are concessions never before made by express companies to poultry show exhibitors. This accommodation and the many other inducements made by the officers of the livestock department of the Exposition are appreciated, as is proven by the action of the Sacramento association. But these are not the only reasons for the enthusiasm—it means that the Sacramento poultry breeders have tossed their hats in the ring as a challenge to the other parts of the State to come to San Francisco and try to beat them at this show.

It has been customary for breeders in those sections of California that are considered to be real poultry centers to refer to Sacramento as a locality that is still in the infant class of poultrydom.

Now, poultry breeders of Petaluma, Hayward, Santa Cruz, and others, including the several centers of southern California, what do you think of that! And also, what are you going to do about it?

T. E. Quisenberry, Superintendent of Poultry, says he will be glad to send special literature to any place and furnish information or assistance to work up carload lots if interested poultrymen will write to him, stating something of the prospects and local conditions. If supplied with a list of possible exhibitors, he will gladly write each a personal letter.

Judges from All North America.—From the list of judges under consideration, 27 have been selected from 22 states and Canada, but prospective entries indicate that this number must be increased. At the educational demonstrations, these judges, as well as practical poultry breeders, professors of poultry husbandry from various state agricultural colleges, and experiment stations, will appear on the program daily.

Never before at any time or place has anything been undertaken like this great congress of poultry interests. Many hundreds from distant points, requiring thousands of miles of travel, have already arranged to visit this show in anticipation of gaining knowledge here that cannot be obtained elsewhere.

HATCH CHICKS THIS FALL.

[By Geo. H. Croley.]

Commenting on the article of May 29 relating to my gratifying experience of several years ago with hens that were hatched on Oct. 15, Mr. F. L. Hall, an experienced fancier well known to many poultry keepers of California, says that his experience with fall hatching in Alameda county also demonstrated that it can be readily and profitably undertaken by many poultry farmers of the Bay and Coast sections of the State.

The results also obtained by others in various places have proven that it may be safely recommended to breeders in nearly all other parts of California. However, in the attempt to establish a flock of fall layers at interior points, I recommend in nearly all cases that the first eggs for setting be obtained from flocks located in Bay or Coast districts that are cool and somewhat foggy.

The fowls that are raised from these eggs will mature the following autumn and if supplied with abundant shade, green feed, and a small patch of moist ground to scratch and wallow in—this constant supply of moist ground is important—the hens should lay as strong and fertile eggs as those of a similar age and condition that are produced by spring hatched fowls.

Naturally they will be in their prime breeding condition a year later or when two years old, and if correctly fed, are given careful attention and supplied with proper surroundings the fall chicks from eggs laid by the fowls at this age will be the real foundation for future flocks of fall layers. Occasionally this second generation will have established the tendency to become in full breeding vigor and condition in the fall, but usually it requires the third breeding for the habit to become firmly fixed. It requires patience to firmly establish such a flock of fowls, but it will pay well in the increased output of large, extra quality eggs at a time when they command the highest market prices, to say nothing of the extra vigor that naturally results from fall hatching.

Lige: "Did yo' hear about that cullud man what died f'um eatin' too many watahmillions?" Rastus: "Too many watahmillions! I didn't know dey wus dat many."—New York Journal.

NOW is the Time to Feed Coulson's Egg Food

to your pullets as well as your hens, commencing at the age of three months.

Write for free book "Chickens" from shell to market.

COULSON CO.
Petaluma, Cal.

Poultry Breeder's Directory

Rate in this directory, 3c per word each issue; or, if carried weekly for one year, 2½c per word.

RHODE ISLAND REDS—Fine yearling hens, $12 dozen. White Leghorn pullets (8 weeks) direct MacFarlane stock, $6 doz. Baby chicks—Brown Leghorns, Black Minorcas. Fast growers, early layers, the best for summer raising—9c to 11c each—any quantity. Roofden Poultry Ranch, Campbell, Cal.

I HAVE ENLARGED my capacity to 65,000 eggs room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

WHITE PLUMAGE Poultry Farm and Hatchery. Sells White Leghorns, Barred Rocks, Rhode Island Reds, Baby Chicks. Circular free. H. A. Schlotthauer, Exeter, Cal.

SINGLE COMB WHITE LEGHORN Pullets two months old, also breeding cockerels and yearling hens at reasonable prices. Model Poultry Farm, Corning, Cal.

BARRED PLYMOUTH ROCKS—"The kind that Win and Lay." Choice stock for sale. Catalog free. Chas. H. Vodden, Box 396, Los Gatos, Cal.

CROLEY'S EVERLAY EGG MASH and CROLEY'S SCRATCH FEED form a perfect balanced ration. Ask your dealer for them.

TRAPNESTED LEGHORNS—White and Buff Stock. Eggs, chickens. Arthur R. Schroeder, Box 179E, Mountain View, Cal.

SUMMER SALE of prize-winning Orpingtons, Buff and White. Eggs half price this month. Black Minorca and Carneaux Pigeons. Susan Swaysgood, Route 3, Pomona, Calif.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

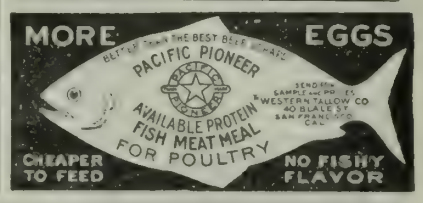
BELGIAN HARES.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAS HARES—Young stock for sale. Hurd Bros. St. Helena, Cal.

PIGEONS AND PHEASANTS.

PHEASANTS—Ringneck and Golden. Also eggs. T. D. Morris, Agua Caliente, Cal.



California Poultry Practice

Written to Teach Better Poultry Methods on the Farm.
By Mrs. Susan Swaysgood.

Every poultry raiser of California should have this book. It is very practical and will help make your business profitable. In the preface of the book the author says:

"This book is not an accident; it is born of a desire to help others to avoid the stumbling-blocks in the poultry business, and at the request of many readers of The Pacific Rural Press, and other papers.

With forty-five years of experience with poultry it is expected that I have learned a few things about it; it's a poor business that does not teach lessons in that length of time. Don't you thinks so?

There are boks, yes, books without number, on poultry matters, but many of them are mostly theory. This book tells you just what I have done and how I would do it.

It is a book of action, and it is action that counts these days. We have to act in the living present if we want to live. I want to live and I want others to live, too, and as I have learned these things by experience it is fitting that I should tell others how to obtain results without paying such a big price for the experience.

The things told you in this book are original, unorthodox, but strictly practical; and if you will read and then heed, you will be well satisfied that the author has given you your money's worth. California is an empire in itself, and I am sure there are enough men and women engaged in the poultry business, or wanting to get into it to call for a million copies of this book, though its only claim is that it is needed."

The book contains 157 pages, besides illustrations. The 45 chapters cover every phase of poultry culture from eggs to hens, and from hens to market. Feeding, housing and parasites.

Price, cloth-bound, postpaid, $1.00.

Pacific Rural Press, Publishers

525 Market Street, San Francisco.

Copro

Look for this name on every sack

If Your Dealer Can't Quote Prices Write Us Direct

Makes Hens Lay when Eggs are Worth Money

A natural feed that has not advanced in price like many other food staples

War prices for wheat and mill feeds, and importations of foreign eggs, make close figuring for rations important. Copro, high in protein and fats, will reduce the cost of your rations. Let us tell you how.

Free Sample and a copy of our booklet containing valuable information on the subject of "Successful Feeding" sent gladly on request. Write today.

Address Department B

PACIFIC OIL & LEAD WORKS
Manufacturers
155 Townsend Street San Francisco, Cal.

Farm Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

There are so many inquiries concerning turkeys and their troubles that it will be best perhaps to go into details. To begin with, the parent stock and all that it entails, while it is important, would not help out now that the turkeys are hatched, so we will just commence with the feed.

Feeding young turkeys is something that requires very good sense and judgment. It requires a person to know what to feed and when to stop giving feed. Young turkeys do not stand cramming, not the least bit, and it is more often the quantity than the quality that kills them. Paste that in your hat; always leave them a little hungry so that they could and would eat more if you would feed it. You, the feeder, are to be the judge of how much your turkeys shall eat of the feed you are serving. The reason for this is that no matter how much you feed, if they are at liberty they will pick some more, and that will be the extra that they should not have.

What to Feed.—The food for the first ten days or two weeks must be easily digested. The list comprises nice tender lettuce, onion tops, rolled oats, bread crumbs, curds, and hard boiled eggs. Corn meal and perhaps other cereals may be added. Not all to be fed at any one time, of course, but there you have a list to choose from and if two of the articles are fed at one time, the next meal can consist of two others from the list, or three as it happens to suit. Some ask, "Can't I feed grain?" You certainly can, if you want to, but you feed it at your own risk, not on mine. A young woman told me one day, not over two months ago, that she fed her young turkeys all the chick feed they would eat and it did not hurt them. I told her not to be in a hurry to say it had not hurt them until she was perfectly sure, and now she is sure something has hurt them, because they are all dead. So I say, don't feed chick feed for at least two weeks.

Grit and Charcoal.—Now the next essentials for young turks is plenty of grit, oyster shell, and charcoal. When a little turk or chick twists it's neck and tries to swallow something that is not there, it is a sure sign of indigestion and should be attended to at once. When you commence to feed grain, see that grit is handy to all turks. They must have it. The charcoal can be mixed in the soft feed and kept as a side dish, too. But if anything ails the digestion and these things have not been supplied, give a few drops of tincture of nux vomica in the drinking water for a few days and add the grit, charcoal, and oyster shells to the daily ration. About ten drops to one quart of water and let them drink all they want.

These remedies, and being careful about over-feeding, will correct all the indigestion, and bowel trouble arising from it, in a short time. Bowel trouble, yellow droppings, etc., are all caused by indigestion, and indigestion is the result of improper feeding nine times out of ten, so there we are right back at the beginning.

Given proper feed, grit, oyster shell, and charcoal, and kept free from lice, there is no need of losing turkeys at all. As they get old enough to travel they must have range and with range they need very little feed of any kind; overfeeding is the thing to be avoided; keep them hungry and they will be healthy.

This answers several inquiries of what ails my turkeys? They are victims of improper feeding and the quicker you arraign yourself as the offender the quicker your turkeys will be safe from dying.

Goslings Need Digestible Feed.—Please let me know what is the proper feed and care for goslings. Is milk curd good for young chicks?—M. S.

The feed for goslings for ten days or two weeks should be something easy to digest and not very much of it at one time. Bread soaked in milk, and the extra milk squeezed out, a little rolled oats, chopped lettuce, and a little milk curd are all good, not forgetting to add a little coarse sand to the feed, or in the absence of sand a little fine chick grit. Give warm water with the chill taken off, to drink at the same time food is served. They need none at any other time, unless weather is hot. Keep moderately warm at night, but a dry bed of straw is really the best, with a cover of some kind; and last, but not least, provide shade for the day time. A dry bed and shade are the most important things to remember in the care of goslings, for one hour in a hot sun will undo all your months' work and you will have the extreme annoyance of watching your nice little goslings fade away before your eyes.

Yes, milk curd is good for all kinds of chicks

Laying Feed for Indian Runners.—What is the proper feed for Indian runner ducks to make them lay; also what quantity for 14 ducks? Have been feeding barley and bran, and barley alone. Do they need a little oil cake and middlings? They have a free range of grass and running water.—Mrs. C. S.

The proper feed for ducks of all kinds, Runners included, is a balanced mash, and a little hard grain at night. They will not do their best unless they have it. Barley alone is a very poor ration; barley and bran is but little better. The mash should include the following ingredients and what you do not have or cannot get handy of course you will have to do without or substitute something else. Bran two parts, middlings one part, coarse ground corn-meal one part, beef scrap two parts, bone meal half a part, ground barley two parts. Mix this all together by measure and you have a mash that can't be beaten for laying ducks. A little corn, wheat, or oats, or even barley for the night meal will last them longer. Ducks that have range will regulate their grit and water themselves, but they will lay more eggs if some form of shell material is kept handy.

Do not feed a bit more than they will clean up at one time. When you have gauged the quantity once, you will know how much to mix for the next time. It is a mistake to try to stint ducks to just so much; they want "heap bellyful," and if you don't give it to them, they won't give you the eggs.

BREAK EGG-EATING HENS.

To the Editor: Why do hens eat eggs, and what is the cure for it? I feed my hens Egyptian corn, Sure lay, grit and milk, with plenty of fresh water.—A. M., Riverside.

[Hens eat eggs because they get the taste by eating fresh egg shells thrown to them, or by accidentally breaking eggs in the nest. We remember the cruel delight we had one time when we effectually broke our hens from this practice. A hole was broken in one end of each of a few eggs and plenty of red cayenne pepper was inserted. These pepper eggs were laid in the nests of the egg-eating hens and it was not long afterward that we saw certain hens going about the yard with mouths wide open trying to cool off.—Editors.]

GIVE VARIETY OF GREEN FEED.

[Written for Pacific Rural Press by Geo. H. Croley.]

In Jan. 23 issue we published an article by E. T. Lindley regarding defective eggs, in which was included an illustration and description of an "alfalfa" egg. The Telegraph of Sydney, Australia, reproduced a portion of this article evidently as a caution to its readers in regard to very excessive use of alfalfa, which is known in that country as lucerne; and the editor in commenting on Mr. Lindley's statements mentioned that the excessive use of green rape had been known to affect the quality of eggs in the same manner.

We might add that there are a number of grasses and greens that if fed exclusively and in large quanities will produce the same bad effect, causing the egg when fresh to be defective or second grade, and rendering it unfit for storage purposes. No matter how good or varied and abundant the other feed may be, fowls must have an abundance of green feed to be profitable and thoroughly vigorous, but it is just as important that the green feed be changed more or less frequently or a variety of greens be fed constantly as it is to supply the fowls with a varied diet of grains and meals.

Even Hay Must Be Varied.—Even when the green feed is in the form of hay, fowls do better if supplied with several kinds. We recall an experience in caring for our own flocks. Three pens of mature hens that were in molt and yarded under similar conditions were supplied with an abundance of hay, cut about a month prior to placing it in the scratching sheds. Two of the yards were furnished with extra quality wheat hay, while the third pen received a mixture of volunteer hay of only fair quality, but which consisted of wheat, oat, rye, barley, and rye grass, in addition to some wild grasses. Our supply of regular greens was low at that time and this fresh hay was a substitute for fully a month. It was surprising how much better the flock that were given the variety thrived in comparison to those that had the wheat hay only. The beneficial effect was noticeable long after the three yards were again furnished with the usual variety of greens; they finished the molt and were in laying condition at least two weeks earlier than the other two pens. We attributed these good results to the ability of the one pen to obtain from the assortment of hay, a greater variety of earth salts, fibre, etc., that were evidently required to build up a new growth of feathers rapidly.

A Ventura county lemon grower troubled with gummosis scraped off the diseased bark of the tree and used Bordeaux paste at a cost of $6.00 per acre on part of the orchard, and a secret remedy at a cost of $100 on another part. The Bordeaux proved the better of the two

---

A fall cattle and colt show is proposed for Dixon by Farm Adviser Jas. Mills, of that place.

Grain Bags
Twine
TENTS
Irrigation Hose
Wagon Covers—Canvas
Desert Brand Water Bags
Milk and Butter Coolers
Write for Catalog and Discounts.
W. A. Plummer Mfg. Co.
35-37 Front St., Cor. Pine, San Francisco

The Home Circle.

A LITTLE EVERY DAY.

Oh, laugh a little every day,
And make the world a bit more gay;
Don't be grumpy all the time.
Laugh a little.

Oh, give a little every day,
For giving is the easiest way
Of finding joy for others, too.
Give a little.

Oh, hope a little every day,
In every gloom you'll find a ray
Of blessed sunshine, just you look.
Hope a little.

Oh, work a little every day
To bring your friends a sight of May;
Where springtime is, there is delight.
Work a little.—Selected.

EGG SUBSTITUTES.

[By Mrs. William Provis, Grass Valley, before Agricultural Extension Club.]

Since eggs are so generally used by mankind, the question of egg-substitutes is an important one, especially when the price of eggs mounts higher. For purposes of convenience our topic will be divided into two divisions:

First: Substitutes for eggs in cooking. Second: Substitutes for eggs in the diet. An egg substitute has been manufactured from skim milk. It is said to contain the casein and albumen of the milk mixed with a little flour, and is put up in the form of a paste or powder.

Such material is evidently rich in protein and, according to reports apparently reliable, is used in considerable quantities by bakers and confectioners in place of fresh eggs.

It might be interesting to know that this egg substitute contains more protein than the fresh egg. The former contains 73.9 per cent protein while the latter contains 13.4 per cent protein.

Egg substitutes have been devised which consist of mixtures of animal and vegetable fats, albumen, starch or flour in addition to the mineral matters similar to those found in the egg.

The Taft cake, better known as the applesauce cake, requires no eggs, as the contents of the apples take the place of the contents of the eggs.

Another example is the fruit cookies made with jelly. The comparison is the same as stated in the Taft cake. Such products are designed to resemble eggs in composition.

Other egg substitutes have been marketed which contain little or no albumen, but apparently consist quite largely of starch colored more or less with a yellow substance. These goods are specially recommended for making custards and puddings, similar in appearance to those in which fresh eggs are used.

There is no reason to suppose that such products can not be made so that they will be perfectly wholesome. The fact must not be overlooked that in the diet they can not replace fresh eggs, since they do not contain much nitrogenous matter or fat.

This may be an important matter if such an egg substitute is used in the diet of invalids, especially if the composition of the egg-substitute is not known, and it is employed with the belief that, like eggs, it contains an abundance of protein.

As we know, eggs are chiefly a proteid food, hence the articles that take their place must belong to that family. The proteids are the building food furnishing muscle, bone, skin, cells, etc., and supplying blood and other bodily fluids.

Since one of the most general and well known substitutes for meat is the egg, one can, if the desire be present, use meat in preference to eggs.

The economical housewife will rarely do this, however, for the meat diet is generally more expensive This substitution must be considered a possibility rather than a probability. With both eggs and meat some carbohydrate substance such as bread must be used to have a well-balanced diet.

Substances containing proteids in abundance are, the lean of fish, peas and beans. In addition to the substances heretofore mentioned, oatmeal contains 16.1 per cent protein, wheat flour 13.3 per cent, almonds 21 per cent, and the peanuts 25.8. Since eggs are a food in which acid-forming elements predominate, if we must substitute other things of that line we can select beef, oatmeal, wheat flour, rice, bacon and corn.

WOMEN TO PROMOTE PERMANENT PEACE.

The International Conference of Women Workers to Promote Permanent Peace will be held in San Francisco at the Panama-Pacific Exposition grounds July 4 to 7. Women of all nationalities have been summoned to contribute freely their suggestions and convictions. One of the basic principles of the conference is expressed in the following sentence taken from the call to the conference: "In time of war prepare for peace—in time of peace prepare for its continuance." The conference will open July 4 with a peace meeting in every state and foreign building of the Exposition, the usual Fourth of July services, welcomes by the State of California, the City of San Francisco, the Boards of the Exposition, and a religious service. On the following days, July 5, 6, and 7, there will be two public sessions.

DOGS' FRIENDSHIP.

The wife of an English gentleman in Wiltshire owns two delightful dogs, Jasper, a large collie, and Sandie, a rough Skye terrier. The pair are devoted friends, always going out together if possible. A visitor at the house tells in the London Spectator an anecdote of this canine friendship:

"One afternoon I called them as usual, to go for a walk, and, making my way to the lake I determined to row across and wander about in the deer-park. Without thinking of the two dogs, I got into the boat and pushed off.

"Jasper at once jumped into the water and gayly followed the boat. Half-way across, he and I were both startled by despairing howls, and, stopping to look back, we saw poor little Sandie running up and down the bank, and bitterly bewailing the cruelty of his two so-called friends in leaving him far behind.

Gas Stove Convenience with Kerosene

Cooks the Cooking Not the Cook

A good oil stove concentrates all its heat at the cooking point. That avoids an overheated kitchen and that means comfort for the cook even on hot, sweltering summer days.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

An oil stove brings the convenience of gas to homes without gas. No heavy fuel to carry. No dirt and ashes. And yet it cooks anything a big coal or wood stove does. It is clean, convenient, economical. No odor. Does not taint the food. Ask your dealer. See exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

CALIFORNIA POULTRY PRACTICE
By Mrs. Susan Swaysgood.
PACIFIC RURAL PRESS, Publishers.
525 Market Street, San Francisco, Cal.

At the Exposition

Visit the miniature chocolate factory, Ghirardelli Building. See the care taken—the pure ingredients used—the ponderous machinery necessary to produce the famous Ghirardelli brand of cocoa products.

Enjoy a cup of Ghirardelli's Ground Chocolate—made as it should be made—served day and evening.

D. GHIRARDELLI CO.
San Francisco
Since 1852

Many People Suffering From Ants

Thousands of People Welcome This Simple Method of Relief.

Certain pests are often confined by conditions to certain localities, but ants can be found most anywhere. Ants not only are an annoyance, but they are dangerous as well—spreading disease germs in the same manner as flies and mosquitoes. Nothing tries the patience of the good housewife any more than to find them in the sugar and the jam, and over-running the entire pantry.

There is no need of putting up with this annoyance any longer, however, for a very simple remedy is now available. It is known as Kellogg's Ant Paste and can be obtained at all modern druggists. This paste seems to have almost supernatural powers over ants. Not only will it drive every ant out of a house, but will prevent their ever getting a foothold in your place again.

Try a package today—the results will be a revelation.

Manless Land
for the
Landless Man

2,000,000 Acres
of Good Land Along the
Western Pacific Railroad
IN CALIFORNIA, NEVADA and UTAH

Opportunities for The Man of Modest Means As Well as the Capitalist

EVERY SECTION HOLDS OUT A WELCOME

Write for Copies of Our "Opportunities" and "Homeseekers" Folders

Western Pacific Railway
BODE K. SMITH,
Asst. General Pass. Agent.

SWIFT SAFE SATISFACTORY SERVICE

Excellent Freight Facilities

Oakland, Antioch & Eastern Ry.

Direct Service Between
SAN FRANCISCO — OAKLAND and SACRAMENTO
Through Electric Trains to Chico, Marysville, Oroville, Colusa, Woodland and other Sacramento Valley Points in connection with Northern Electric Railway.
Low Round-Trip Rates Each Week End and on Holidays.
Key Route Ferry, in San Francisco, Phone Sutter 2339.
Third and I Sts., in Sacramento, Phone Main 261.
Fortieth and Shafter Avenue, in Oakland, Phone Piedmont 870.

BLAKE, MOFFITT & TOWNE

Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

"Hardening my heart, I sat in silence and simply watched. Jasper was clearly distressed. He swam around the boat, and, looking up into my face, said unmistakably with his wise brown eyes, 'Why don't you go back for him?'

"Seeing, however, that I showed no signs of inteligence, he made up his mind to settle the difficulty himself, and swam back to forlorn little Sandie.

"There was a moment's pause, I suppose for explanations; and then, to my surprise and amusement, Jasper stood still, half out and half in the water, and Sandie scrambled onto his back, his front paws resting on Jasper's neck, who swam across the lake and landed him safely in the deer park. I need not describe the evident pride of the one, or the gratitude of the other.—Woman's Journal.

ECONOMIC NEEDS OF FARM WOMEN.

Heretofore most of the work of the U. S. Department of Agriculture has been along farm lines, but since the act passed by Congress in May, 1914, providing for co-operative agricultural extension, the Department has, among other things, undertaken the work of helping the farm women. Report No. 106, just published, contains letters from many women from farms covering the whole nation, in response to an inquiry "How the Department can better meet the needs of farm housewives," with special reference to the provision of instruction and practical demonstrations in Home Economics.

Following are extracts of letters from farm women giving their ideas of fundamental economic needs:

I think a bureau for the sale of needle and other woman's work might enable them to stay at home on the farms.

To meet the difficulty of low prices from local dealers and high prices from middlemen, increase the scope of the parcel post.

By assisting in organizing associations to co-operate in buying, selling, collecting, and distributing products to and from producer and consumer.

The majority of the men folks are not very liberal toward the women folks of the farms. They buy machinery for the farm while the women are allowed to carry the water and supply the wood.

First and above all, educate the men to the needs of the women; then, or at the same time, teach the women what they need in up-to-date kitchen and household helps.

Some wish to know how to market the surplus products of the farm, such as jellies, canned stuff, eggs, chickens, etc., so that the farm woman would have a source of income entirely her own.

One of the greatest services that organizations of women can render to their communities is to become intelligent guides in public health matters. They can do much effective work in making certain that the water supply is not polluted; in improving sewage disposal so that it will not become a carrier of infection; and in working intelligently for quarantines and safeguards that will prevent the spread of infectious and contagious diseases.

We ask that the Department of Agriculture endeavor to arrange a system of farm loans on long time at low interest, so that the farmers will be able to get into the live-stock production once more. Second, a law regulating the interest rate to be charged by banks, even if it would "stretch the Constitution," would be of great help to the people. Government abattoirs for the slaughter and distribution of meat animals would greatly reduce the cost and is worth consideration. Fourth, the elimination of a great many middlemen in the handling of farm products will help in reducing cost.

Our kitchen work at best consumes long hours. We should have an outlook on the shade by the river or the stretch of plain beyond. Thrice bereaved is she who, instead of these things of beauty, msut face a line of tumble-down buildings, specters of old sheds, the long-forsaken old house, the rickety open countenance of the henhouse, and the clutter of discarded machinery.

A writer in the Strand tells of visiting a castle where the custodian was a relative of the owner and it seemed difficult to offer him the usual fee. The visitor said, "We thank you for your courtesy, and would be glad to give a small sum to any cause, if you have a box here for that purpose." "Sir," was the reply, "we certainly have such a box." "Then may I see it?" "Sir," came the answer with a pleasant smile, "I am that box."

The STEPHENSON PATENT COOLER

No Ice Required

Perfect Ventilation
Absolutely Sanitary

Award first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

PRINCE ALBERT
the national joy smoke

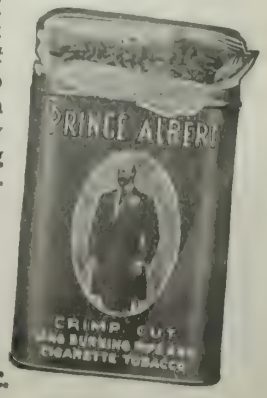
Just pulls down the bars!

Copyright 1915 by R. J. Reynolds Tobacco Co.

Men, P. A. leads you right into the pipe and cigarette makin's pasture; just issues a peace permit to smoke away all day long *without* a nipped tongue or parched throat—and makes you realize for *once* that you never tasted such happy days tobacco in your whole life! *The patented process fixes that*—and muffles the bite!

To you men who "roll your own," or who would smoke a pipe if you dared, we say Prince Albert has made thousands of men change their notions; has dug thousands of friendly old pipes out of dark corners; has put a new delight into cigarette papers.

You stand right up from where you're sitting and declare for yourself that you'll try out this Prince Albert tobacco. *And do it mighty quick,* for P. A. will prove out so true, puff by puff, whether it's rolled into a makin's cigarette or packed into that old jimmy pipe—that you'll stay up pretty late trying to get your fill before the cocks call the opening of tomorrow!



For cigarette rollers, in particular, Prince Albert is put up in the handy toppy red bag, protected by three wrappings to keep all the goodness within. It sells for 5c. P. A. is also sold in the tidy red tin, for 10c. Or you may buy it in the handsome tin pound and half-pound humidors and in the classy pound crystal-glass humidor with the sponge-moistener top that keeps P. A. fit like a fiddle.

R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.

The Markets.

Unless otherwise noted, prices are f. o. b. San Francisco.

San Francisco, June 16, 1915.

WHEAT.

With large crops coming on and a limited export movement, the Chicago market has again dropped, and the decline is reflected in all grades in the local market. Business here is almost entirely limited to small jobbing operations.

Cal. Club, ctl.	$1.80	@1.82½
Forty-fold	1.85	@1.90
Northern Bluestem	1.87½	@1.92½
Northern Club	1.80	@1.82½
Northern Red	1.77½	@1.85

BARLEY.

The current demand for feed is limited, and there has been little speculative buying activity lately. Prices continue to decline.

Choice Feed, ctl. ...$1.00@1.07½

OATS.

Oats hold fairly steady at the recent decline, though the local demand is light at present and supplies appear to be ample for all requirements.

Red Feed	$1.40@1.50
White	1.55@1.60

CORN.

White Egyptian is practically off the market for the present. This grain has done well for the last year, and a good demand is expected for the new crop. Other grades are rather quiet at present, but steady in price.

California Yellow	$1.75@1.80
Eastern Yellow	1.80@1.85
Milo Maize	1.75@1.80
Manchurian	1.40@1.60

BEANS.

The bean market shows little feature at this time, the only changes in value being in a downward direction, while few of them are of an important nature. The decline is not taken as an indication of great weakness, but is simply due to the fact that the end of the season is approaching, with no extraordinary demand and apparently sufficient supplies of most varieties. It is still too early to figure much on the new crop.

(On wharf.)

Bayos, Cal., per ctl.	$4.25@4.50
Blackeyes	5.50@5.65
Cranberry Beans	4.00@4.25
Horse Beans	3.50@4.00
Small Whites	4.35@4.40
Large Whites	4.25@4.40
Pink	3.50@3.65
Limas	4.15@4.35
Red Kidney	4.90@5.00
Mexican Reds	4.90@5.00
Garbanza	7.00

SEEDS.

Everything under this head is quiet, as the buying season is over and no new stock is coming out yet.

(Wholesale prices, San Francisco.)

Alfalfa	17½@18½c
Brown Mustard, per lb.	Nominal
Canary	10 @12½c
Hemp	3 @ 3½c
Millet	2½@ 3 c
Timothy	7½@ 8 c

HAY.

No new hay has come in yet, except some first-cutting alfalfa from the river. This moves slowly, though a better market is expected as offerings improve. While the local market is naturally rather quiet at this season, the current arrivals are moving off with little difficulty, though they have been comparatively large and mostly of poor quality. With the old crop pretty well cleaned up, and the average quality of the new hay better, some improvement in prices is expected, though the crop appears to be rather larger than was predicted in some quarters.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$11.00@12.00
do No. 2	8.00@ 9.00
Barley	5.00@ 8.00
Tame Oats	7.50@12.50
Wild Oats	6.00@ 8.00
Alfalfa	6.00@ 9.00
Stock Hay	4.50@ 5.00
Straw, per bale	.40@ .45

FEEDSTUFFS.

The only quotable change is another drop in rolled barley, in sympathy with the whole grain. An article that is gradually making a place for itself is rice bran, though so far it is not much handled by the trade.

(Wholesale prices per ton, carload lots, San Francisco.)

Alfalfa Meal, ton	$14.00@15.00
Alfalfa Molasses Meal per ton	18.00@19.00
Bran, per ton	29.00@30.00
Oilcake Meal	None here
Cocoanut Cake or Meal	25.00@26.00
Cracked Corn	40.00@41.00
Middlings	34.00@36.00
Rolled Barley	23.00@24.00
Rolled Oats	33.00@34.00

VEGETABLES.

Prices in many lines show considerable firmness for this time of year, as stock has been coming forward less rapidly than a week or two ago, while the local demand is active. Asparagus has been marked up again, while rhubarb moves rather slowly and is lower. Peas and beans show another advance, as offerings are limited and the market is well cleaned up. Lettuce also is quite firm, and summer squash shows a slight advance. Tomatoes are offered more freely from several sections, and prices are steadily declining. Cucumbers and eggplant also are lower. Green corn has been added to the list, and a good deal has been sold in the last few days.

(Wholesale prices, San Francisco)

Asparagus, box	$1.00@1.25
Peas, sack	1.50@2.25
String Beans, lb	2½@ 5 c
Peppers, bell, lb	10 @15 c
Tomatoes, crate	50 @90 c
Celery, crate	50 @1.25
Lettuce, crate	.75@1.00
Rhubarb, box	40 @65 c
Cucumbers, S'thrn, lugs	.75@1.00
Eggplant, lb.	4 @ 8 c
Summer Squash, lug	.75@1.00
Green Corn, doz.	40 @50 c
Okra, crate	.75@1.25

POTATOES AND ONIONS.

There is not much change in this line. River potatoes are coming in a little more freely, but Oregon stock is still firmly held. Imported onions are cheap, with new reds coming in more freely, though the latter are still fairly firm.

Potatoes, Oregon, ctl.	$1.75@2.00
New River Potatoes, ctl.	1.25@1.50
Onions, yellow, sk	65 @85 c
Red, sk.	1.00@1.10
Australian, ctl.	1.75@2.00
Bermudas, crate	.75@1.10
Garlic, per lb, new	5 @ 7 c

POULTRY.

The demand is hardly up to expectations, and as a good deal of stock is coming in right along prices show little strength. Live turkeys are lower, and the top figure for broilers and fryers has been marked down a little. Old roosters also are weak, with offerings rather in excess of demand.

(Wholesale prices, San Francisco.)

Live Turkeys, lb.	15 @17 c
Broilers	19 @21 c
Fryers	23 @26 c
Hens, extra, per lb	16 @17 c
Small Hens, per lb	14 @15 c
Smooth Young Roosters, per lb	24 @27 c
Squabs, per doz.	$2.00@3.50
Geese, per pair	2.00@2.50
Ducks, young, lb	14 @15 c
Old	13 @14 c
Belgian Hares	7 @ 8 c

BUTTER.

The market has been aided by further shipping business, a large lot going to the Philippines a few days ago. With this and a fair local demand, the week opened strong at an advance, but increasing supplies have eased the situation a little.

(S. F. Dairy Prices)

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extras	24	24½	24½	26	25	25
Prime Firsts	23	23	24	24½	24½	24½

EGGS.

The tendency of egg prices is again downward, though there is no quotable change from the last quotation except on pullets, which are now coming forward in large quantities.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extra	22	22	22	21½	21½	22
Firsts	19	19	19	19	19	19
Sel Pul	19½	19½	19½	19½	19	19

CHEESE.

The only quotable change this week is a ½c advance on fancy flats, which are moving off in better shape. Monterey cheese is dull and weak.

S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy	12½c
Fancy Calif. flats, per lb	11 c
Monterey Cheese	10 @12 c

LOS ANGELES DAIRY PRICES.

	Wed.	Thu.	Fri.	Sat.	Mon.	Tu
Butter	24	24	24	24	26	26
Eggs	21	21	21	21	21	20
Cal. Cheese	12	12	12	12	12	12

DECIDUOUS FRUITS.

Strawberries are in good demand and bring better prices than last week, though with increasing arrivals a decline is expected. Currants also are higher, with limited offerings, while gooseberries are easier. Blackberries are about the same, while raspberries are a little lower, and logans have dropped sharply. Ordinary plums are easier, and clean up slowly, while Clymans are readily taken at the old prices. Figs are well maintained, offerings so far being moderate. Present offerings of cherries are generally of good quality, and with only moderate arrivals prices are stiffening up. Apricots and peaches are rapidly weakening, and melons are much lower. New Red Astrachan apples are appearing in considerable quantity.

Loganberries, blk, chest	$2.50@ 3.50
Loganberries, red	2.50@ 3.50
Strawberries:	
Longworth, chest	4.50@6.50
Other varieties	3.50@5.50
Raspberries, chest	8.00@10.00
Gooseberries, drawer	40 @60 c
Blackberries, crate	7.00@8.00
Currants, chest	5.00@7.50
Plums, crate	50 @75 c
do. Clyman	75c @1.00
Figs, box, single layer	1.00@1.50
Cherries, lb., fancy blk	4 @ 7 c
Royal Anne	7 @ 9 c
Apricots, box	50 @75 c
Lug	65 @75 c
Peach, crate	.75@1.00
Small box	50 @75 c
Apples, new Red Astrachan, box	$1.00@1.25
Apples, Newtown, fancy	1.50@1.75
Cantaloupes, pony crate	35@75 c
Watermelons, lb	½@ 1½c

DRIED FRUITS.

Old stock is no longer worth quoting separately, as it is practically all out of growers' hands in most lines, and such odd lots as are left move at irregular prices. Buyers are actively in the market for new crop fruit, and are making many purchases, though a great many growers are disposed to wait until the crop is made. Apricots remain steady as last quoted, and new stock will soon be coming in. There is a very good demand for figs, especially Calimyrnas, as the prospect of getting new goods from the Orient is very poor. There is considerable disagreement over the prune outlook, with the usual effort on the part of packers to get prices down; but there is a good strong spot demand in the east, with considerable export buying, and from some reports better prices have been offered in the country than are quoted here. Peaches are slow, and there is so far no indication of improvement in values; but it is found that the carry-over is much less than was expected, and the feeling in this line is accordingly much better. Moreover, it is understood that occasional lots are still being taken for export. Pears are a little lower. The New York Journal of Commerce says:

The improvement in the demand for spot California prunes held in New York, as reported by brokers, is still making progress. All sizes appear to be involved, but in the immediate and smaller counts business is restricted by the extreme scarcity. According to some reports, there are very few prunes in 60s and lower to be found here at present. The demand from consuming markets in the East is increasing, especially on European account, and several thousand boxes more were reported sold for export from New York to European markets at prices close up to quotations. The domestic demand is also growing, and numerous sales were made here in connection with the wider distribution which has come with increased orders from markets which look to New York. In the opinion of well advised brokers, this increased interest in the prune situation warrants the prediction made by them of a stronger and probably higher market during the course of the next week or two.

Little activity is to be found in the trading in apricots and peaches. The market is dull and very quiet on the whole, prices remaining the same as they have been for several days past. There is reported to be a scarcity of Coast seeded raisins on the spot here. The demand is still limited, and very little trading is being done. The trade is waiting for the announcement by the Associated Company of prices on August-September shipment, which are expected to be put out about the middle of this month.

INSURE YOUR SEED

Get a "catch", a good stand, and a big yield of ALFALFA, BEANS, Peas, Vetch, and *all other Legumes*—inoculate with

The Improved German Soil Inoculator, Nobbe-Hiltner Process

NITRAGIN

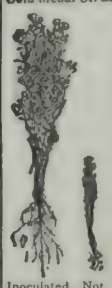
TRADE MARK REG'D DEC. 4, 1898 NO. 32212

PURE CULTURE

Gold Medal St. Louis 1904

THE SIMPLEST SAFEST AND SUREST SYSTEM OF SOIL INOCULATION FOR ALL LEGUMES

In half-acre, 1-acre and 5-acre cans



Inoculated ALFALFA Not Inoculated

"NITRAGIN" is the *original* Pure Culture—*a granular* medium (*not* a jelly)—nothing to break or spill—packed in a ventilated can, containing millions of surfaces, supporting billions of nitrogen-gathering germs, their health, strength and virility

Guaranteed for Six Months by the Armour Fertilizer Works.

Absolutely harmless. Easy to use. An investment—not an expense. Remember—legumes not inoculated take *no* nitrogen from the air. Inoculated legumes mean bigger yields, richer feeding value, better soil. Pure Culture inoculation is endorsed by the U. S. Dept. of Agriculture and other authorities. Thousands of satisfied California ranchers testify to the wonderful results obtained with "NITRAGIN"—the *Original* Pure Culture.

Avoid Imitations. LOOK FOR THE ARMOUR OVAL LABEL.

Make your crop sure. Inoculate with "NITRAGIN". It can be obtained for *any* legume.

See your seed dealer or write for FREE BOOKLET.

Armour Fertilizer Works, Dept. 137, 803 Central Bldg., Los Angeles 1019 Front Street, Sacramento

(Prices to Growers)

1915 crop.

Apricots, per lb	5½ @ 6½c
Figs, white	3¾ @ 4¼c
Black	2¼ @ 3 c
Calimyrna	4½ @ 5 c
Prunes	2¾ @ 3¼c
Peaches	3 @ 3¼c
Pears	5 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½c
Seedless Sultanas	4½c

CITRUS FRUITS.

All California navel oranges have been shipped and those appearing on eastern auctions are bringing fair prices, ranging from $1.80 to $2.85 per box, average. Valencias are bringing good prices also in the east. On the New York auction, Monday, June 14th, valencias averaged from $2.70 up to $3.90 per box. Tulare county reports its entire crop of valencias as having been shipped.

Lemons are in slow demand and prices low. The eastern auctions show sales averaging $1.40 up to $2.45 per box. A few weeks of hot weather will cause a demand that will force higher prices. Shipments of oranges from Southern California up to June 13th were 26,999 cars, and of lemons 4,270 cars.

Oranges are fairly firm in the San Francisco market at the old figures, with some improvement in demand. Lemons show a slight advance in fancy lots, and are moving about as usual at this season.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.75 @ 2.75
Valencia, box	1.75 @ 2.75
Grapefruit, seedless, bx	1.75 @ 2.25
Fancy	2.25 @ 2.75
Lemons, box	1.50 @ 3.50

NUTS.

There is not much to report in this market, as offerings of California almonds and walnuts are both well cleaned up and both find quite a strong demand, though reports to the contrary are common, as usual at this season, with a view to getting lower prices. It is reported that the crop outlook for walnuts is very good, and prices are expected to be about as high as last year, though it is too early to make predictions.

(Prices f. o. b. San Francisco)

Almonds, 1915 crop:	
Nonpareil	17 c
IXL	14½c
Ne Plus Ultra	14 c
Drakes	12½ @ 13 c
Languedocs	11 @ 11½c
Walnuts:	
Jumbo, lb	10 c
No. 1 Softshell	16½c
Budded	18 c
Ungraded	8 @ 10 c
Manchurian	6 @ 11 c

HONEY.

No new extracted has yet appeared, old stock being fairly steady at the old figures, with offerings fairly well taken up. New comb is not yet plentiful, and first-class stock sells at 18c.

Water White, comb	10 @ 18 c
Light Amber	8 @ 10 c
Water White, extracted	5 @ 6 c
Light Amber	3½ @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

Local supplies of beef cattle are ample for the present, though stockmen are holding a little more firmly than for some time past. Sheep are firmly held, the differential against shorn stock being no longer quoted. Young lambs are very firm at an advance, with lighter offerings. Hogs are easier, as arrivals are increasing.

(Prices at San Francisco.)

Steers, No. 1	6¼ @ 6½c
No. 2	6 @ 6¼c
Cows and Heifers, No. 1	5¾ @ 6 c
No. 2	5½ @ 5¾c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
225 to 300 lbs.	7½c
100 to 225 lbs.	8 c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½c
Suckling lambs	8 @ 8½c

DRESSED MEATS.

Steers	10½ @ 11 c
Veal, large	12½ @ 13 c
Small	14 @ 15 c
Prime Wethers	13 @ 14 c
Ewes	11½ @ 12 c
Suckling Lambs	15 @ 16 c
Hogs	12 @ 12½c

WOOL.

The California market is still comparatively quiet, but there has been a gradual movement at about the range quoted, and a considerable proportion of the California clip has been disposed of. The eastern market is quite strong, but local buyers have been operating with caution.

Wool, Sacramento Valley, lb	18 @ 22c
Southern, year's staple	16 @ 20c
Six months	15 @ 17c

HORSES.

No new stock worth mentioning is coming in this week, and the market is decidedly stagnant. Values stand about the same for desirable horses, but much of the miscellaneous all-purpose stock coming in sells at irregular prices. There is said to be a fair demand in some parts of the country, and the war demand is cleaning up a lot of stock which would find little demand in this market in any circumstances; but there is no great demand for horses locally.

(Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up	$275 @ 300
Light drafters, 1550 to 1650 lbs.	175 @ 200
Chunks 1350 to 1500 lbs	150 @ 175
Wagon horses, 1050 to 1350 lbs.	100 @ 140
Green Mountain range horses, 950 to 1200 lbs	50 @ 90
Farm workers	60 @ 75

MULES.

1200 lbs and up	$225 @ 250
1100 lbs.	200 @ 225
1000 lbs.	150 @ 175
900 lbs.	125 @ 150

HIDES.

Hides are firmly held at the last quotations. Tanners are actively in the market, and it is understood that the situation is strengthened by export demand for leather goods.

Heavy Steers, over 56 lbs	15½ @ 16 c
Medium	15½ @ 16 c
Light Steers, under 48 lb	15½c
H'vy Cows, over 50 lbs	15½ @ 16 c
Light Cows, 30 to 50 lb.	15 @ 15½c
Kip	16 @ 16½c
Veal	16½c
Calf	16½c
Dry Hides	26½ @ 27½c
Dry Kip, 10 to 15	25½ @ 26½c
Dry Veal, 5 to 10	30 c
Dry Calf, 7 down	30 c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

HOPS.

Values stand about as before, though in some cases a little more has been paid than formerly, and some fairly large sales of future hops are reported.

1915 crop, lb	7 @ 8½c

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Sacramento, June 14, 1914.

Though the shipments of mixed cars have been fairly liberal during the past week, where the market has remained firm prices on sound arrivals have been very satisfactory, due to the fact that the deliveries to the auction markets have been equalized on account of the distribution. All shippers have been inclined to favor private sale markets earlier this season than in former years, a system that has always been advocated by the Exchange.

We have reason to believe that prices will remain firm and that demand will continue active during this week, though Georgia and Louisiana peaches have already made their appearance in the East. It is too early to determine the keeping quality of these early peaches, but if the grade is equal to that of last year, the effect of competition will be felt in about ten days.

We have nothing to report regarding the canning situation, but think that there will be little or no demand by the canners for peaches. We feel that offers of from $35.00 to $40.00 a ton for Bartletts will soon be made.

Dried apricots of this year's cut can be sold as futures at 6¼c, but indications are that clean stock should sell for a price equal to or better than that offered by the driers.

The following prices have ruled for the week:

New York—Tartarians, 80c to 1.40; Royal Annes, $1.25 to $1.60; Bings, $1.80 to $2.17; Bigarreau, $1.12 to $1.40; Republicans averaged $1.45; Centennials, $1.05; Oregons, $1.40; Oxhearts, $1.50; Clyman Plums, $1.20; Tragedy Plums, $2.50; Newcastle Cots, $1.50; Royal Cots, $1.60; Seedling Cots, $1.70 to $2.08; Alexander Peaches averaged $1.25; Pringle Cots, $1.35.

Chicago — Tartarians averaged $1.00; Royal Annes, $1.15; Oregons, $1.15; Republicans, $1.25; Bigarreaus, $1.25; Bings, $1.65; Seedling Cots, $1.65; Royal Cots, $1.65; Newcastle Cots, $1.07; Alexander Peaches, $1.84; Clyman Plums, $1.90.

Philadelphia—Royal Annes averaged $1.50; Tartarians, $1.25; Bings, $1.75; Oregons, $1.10; Bigarreau, $1.00; Bonnie Brae, $1.45; Republicans, $1.30; Alex. Peaches, $1.25; Royal Cots, $1.60; Seedling Cots, $1.55; Newcastle Cots, $1.90; Clyman Plums, $1.40.

Boston — Tartarians averaged $1.25; Royal Annes, $1.35; Bigarreau, $1.15; Bings, $1.75; Oregons, $1.60; Clyman Plums, $1.35.

Shipments of deciduous fruit to date 403 cars, as against 843 cars same date last year.

Almond Growers

Membership books will soon close. Those who desire to become members should make application at once.

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

Publisher's Dept.

For nearly forty-five years the Pacific Rural Press has been published without missing a single week. During all of that time it has been printed upon book paper in a high class way. For nearly forty years it has been edited by the greatest agricultural authority of the Pacific Coast—Prof. E. J. Wickson. All of the time it has stood for constructive ideals in progressive agriculture. By its absolute policy it has gained thousands of readers who are supporting its every effort for betterment. No farm paper has a stronger backing and every advertiser in its columns gets the benefit of this great force. Last week we gained 176 new subscribers.

Announcement is made by the Pennsylvania Rubber Company of a substantial increase in the guaranteed mileage of their Vacuum Cup tires. This raises the guarantee to 6,000 miles, and the new basis of mileage adjustment not only applies to tires bought since the increase became effective, but also to those now in actual service all over the country.

This announcement, according to James F. Madden, local branch manager of the company, logically follows the result of the official test by The Automobile Club of America of strictly stock tires, bought by club officials from dealer stocks at widely scattered points. In this test, nine tires were run to a finish on heavy cars and rolled up a certain average of 6,760 miles, three casings exceeding 8,900 miles.

"Adjustments on the former basis were negligible," says the announcement. "Having, by this conclusive test, proved to the entire satisfaction both of prospective tire users and ourselves that our tires were capable of averaging far in excess of the stipulated guarantee, we felt more than justified in boosting the guaranteed mileage service to 6,000 miles, basing our action on the excellent showing made in this severe tryout.

"Since earning this certified average, however, we have developed and applied a new toughening process to 1915 V. C. Tires which provides fully 50 per cent additional wear resistance. With this fact in mind, coupled with the remarkable average officially established, it may readily be seen that our increase in guaranteed mileage simply was a matter of course, prompted by our desire to give tire users every service advantage and absolute assurance that Vacuum Cup Tires are lowest in ultimate cost."

A wonderful opportunity is presented to farmers at this time to exploit their special productions through advertising. To be sure, the idea will take some time to grow, but for those of our readers who can take advantage of the chances presented and will stick to the game, there will be no failure in the end.

Poultry products should be marketed in much better shape than at present. When the eggs are gathered daily they should be stamped, sorted and packed into cartons or cases and the public should be notified that you have strictly fresh ranch eggs for sale. City trade is willing to pay more for good, fresh produce of all kinds, attractively put up and marketed fresh. If you are a breeder of stock, the first thing you should do is to announce that fact to the other breeders and buyers of the State. Don't wait until you have a lot of fine stock on hand and then look for a buyer. Prepare your market co-incident with your production. Farming simply to produce something is not all of the game. Don't wait for a buyer to come along and fix a price for your goods. Get your products before the public and set your own price. The Pacific Rural Press would never have secured over 22,000 subscribers if it waited for people to come to it. We could not sell great quantities of farm books if the public did not know that we had books to sell.

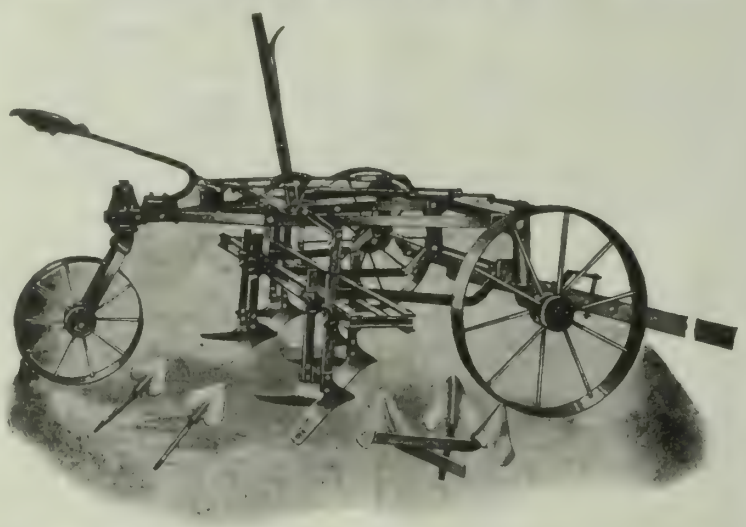
The citrus industry of California is the richer for the new book just issued by the Macmillan Company of 66 Fifth Avenue, New York, under the title of "Citrus Fruits," by J. Eliot Coit of the University of California. Professor Coit has been working for several years in the southern California orange groves, which gave him the opportunity to study carefully the various phases of the industry and the results of his work are given in the 500-page volume. The book is handsomely illustrated and bound and may be had from its publishers at $2 per copy.

MAKING DRIED PEACHES TASTE.

People do not like to eat dried peaches partly on account of the fuzzy skin and partly on account of the flavor. G. A. Bolster of the Cured Fruit Exchange says that the higher grades of Muirs especially may be made to taste almost like canned peaches by simply allowing them to soak all night in fresh water, when the skins will slip off easily; and when cooked they will have an entirely different flavor from the ordinarily cooked dried peach.

Beet and Bean Hoe Cultivator

Killefer Quality — Killefer Efficiency



The frame of this Cultivator is made of one continuous piece of high carbon steel with a truss connecting it to the main castings, supporting the two steering wheels. This construction make a cultivator that is almost impossible to break down in the center and in consequence the wheels are always in line and under easy control.

The lower frame or tooth bar is from the same quality of steel, with a strong arm at each end, which connects with the lifting rod, allowing no chance for the frame to dip or run deeper at the ends. The seat is set back far enough to give an unobstructed view of the rows.

The foot control of the front wheels is adjustable with a turnbuckle for taking up wear, and is very easy on the operator. A lock is provided for the rear wheel that holds it rigidly in line except on the turns. An important item for the beet-grower is that the sweeps, hoe steels, chisel points and all repair parts, are carried in stock. You do not have to wait for them to be sent from the Eastern manufacturer.

Four Row Beets. Two Row Beans.

The Killefer Manufacturing Company

2209 Santa Fe Ave. .. Los Angeles, Cal.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

THE HAY STACKER THAT SAVES TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

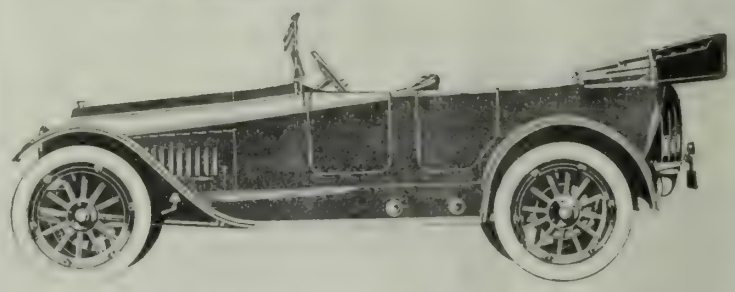
WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us NOW for full details explaining just what it can do and how it can save you time, work and money. Address

SCHMEISER MANUFACTURING CO.
Box 87
Davis, California

PILES UP HAY AND PROFITS

USED BY ALL MODERN FARMERS

Mitchell



THE SIX OF '16

$1250 F. O. B. Factory

Also 8 Cylinder $1450 F. O. B. Factory

See these cars on display at our showrooms. Study these Mitchells---You'll long to drive one. Drive one---You are sure to own one : : : :

Osen-McFarland Auto Co.

Distributors

661 Golden Gate Ave., San Francisco.

1st & St. James Sts., San Jose.

Vol. LXXXIX—No. 26 Forty-Fifth Year

THE PACIFIC RURAL PRESS

SAN FRANCISCO Saturday, June 26, 1915 LOS ANGELES

Agricultural Marketing Wastes.

[Written for Pacific Rural Press.]

"Not only does the tremendous sum of $6,000,000,000 annually disappear or become absorbed between the farm and the consumer's kitchen, but products of the farm go to waste and bring nothing, while hungry consumers would gladly pay prices running into millions for them if there was a way of getting these to markets, so that a product which has no value where it is, might be placed where it has excellent value, to the benefit of all concerned," says Senator D. U. Fletcher of Florida.

G. Harold Powell writes that it costs the American farmers 7 to 20 per cent of what wholesalers pay for their crops just to get them to the wholesalers. This 7 to 20 per cent of gross sales, if paid into a co-operative marketing organization whose management is properly supervised by the growers, would create a fund that would make the growers the masters of the markets for their products.

Some years ago potatoes were quoted at 10 cents a hundredweight in California fields without attracting buyers. At the same time, Berkeley people were paying 80 cents. A barge load of the ten-cent potatoes would quickly have sold in Berkeley at 60 cents, allowing 50 cents per hundredweight for hauling down the river and marketing.

Potato growers are raising thousands of acres in California, with no particular effort to secure a market for them. Now the prices will be away up; again, they will not pay for production. The potatoes are shipped to commission men who charge 10 per cent for selling on a hit or miss market. About 3,000 cars of potatoes were shipped out of California last year, according to the California Fruit News. This equals about 900,000 hundredweight, whose wholesale price averaged somewhere about $1. The selling commission on this part of the crop was thus about $90,000 last year. If the growers had all combined, say in the lull after potato planting, and contributed to their organization the amount that they afterward paid to commission men, they could have built up a marketing organization that might have sold their crop and at profitable prices

Upper—Grand Champion carload, at Portland International Livestock Exposition. Center—Auctioneer for California Fruits in Boston, with representatives of the shipping companies ready to record sales. Lower—Hauling Vegetables to the Car in Imperial Valley. It is easier to produce well than to market well.

Producers' Share of Consumers' Prices. — Even when prices are fair, the agricultural producer gets but a small percentage of what the consumers pay. In citrus fruits, the California Fruit Growers' Exchange has shown that the agencies for marketing their fruit after it leaves the packing house until the consumers buy it, take 63.5 per cent of the consumers' price. Dr. L. D. Weld of the University of Minnesota has shown that the marketing agents for Minnesota butter in Minneapolis take 23 per cent of what the consumers pay; 31 per cent on eggs; 39 per cent on turkeys; 42 per cent on livestock; 45 per cent on potatoes; 55 per cent on chickens; and 62½ per cent on milk. They take 10 per cent of the miller's cost of wheat and 36 per cent of the consumer's cost of bread, etc. With Minnesota butter sold in New York, the marketers took 24 per cent of the consumers' price. The marketers took 80 per cent of what the consumers paid for California cantaloupes sold in New York.

Such figures are based on voluminous records of careful investigations, but in the nature of the case they can be only approximations. Nevertheless, these figures and others show that in general the percentages taken by marketing agencies vary as the perishability of the goods. Yet regardless of this general relation, there is a justified feeling that the "differential" is too wide.

Much Waste in Distribution.—While some of the $6,000,000,000 is due to excessive middlemen's profits, especially when they combine

(Continued on page 726.)

PACIFIC RURAL PRESS

Issued Every Week at 525 Market St., San Francisco
LOS ANGELES OFFICE, 239 South Los Angeles St.

ONE DOLLAR PER YEAR IN ADVANCE

ENTERED AT S. F. POSTOFFICE AS SECOND-CLASS MAIL MATTER

Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS. - SAN FRANCISCO

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week

E. J. Wickson - - - - - - Editor
Frank Honeywell - Publisher and Manager
W. H. Schrader - - Advertising Manager
D. L. Schrader - - Subscription Manager
R. E. Hodges
J. C. Loomis - - - Assistant Editors

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agricultural Weather Bureau, at San Francisco, for the week ending at 5 p. m., June 22, 1915.

Stations.	Rainfall Date			Temperature Date Past Week	
	Past Week	Seasonal to Date	Normal to Date	Max'm	Min'm
Red Bluff..	.01	42.40	45.93	58°	48°
Sacramento.	.00	34.79	24.97	94	56
Eureka.....	.00	17.21	20.09	86	52
S. Francisco.	.00	27.41	22.27	68	48
San Jose...	.00	22.71	16.79	78	44
Fresno.....	.00	10.92	9.68	94	50
Ind'p'd'nce.	.00	3.80	9.53	90	50
S. L. Obispo.	.01	28.17	20.51	78	42
L. Angeles..	.00	17.04	15.64	84	54
San Diego..	.00	14.41	10.01	76	60

The Week.

Since we were driven from these trenches about a week ago there has evidently been a bombardment with saccharine schrapnel, which has so douched the place with slithery sentiment that we find it hard to get firm footing. As we reach for our accustomed weapons, in the hope of striking a blow at something, the hand returns full of fragrant flowers of friendship, and, glancing around in surprise, we find the trench-walls covered with sugar-stick caricatures—extending and multiplying the few steps of our short pilgrimage, as though the artist were trying to depict a road of a thousand wonders!

As we thus grope in surprise along the shady side of the ditch the impulse is strong to doze again—in fact, to sleep continuously beneath the patter of the oozy gum-drops of good-will, which have been falling all around us, intoxicating us with the pleasures of appreciation and encouraging us to forget that such things have saccharine power a thousand-fold beyond that which even the most kindly efficiency-expert could ever count deserved. But, fortunately, for our good sense, the sun is heating even in the shade; the flies are biting fiercely at the ambrosia which bespreads our features: one must live and rise and strike, as becomes a man in a trench in these sad days of the world.

We feel strong within ourselves all those sournesses which are counted signs of convalescence, and we call upon them to unbind from us the dreams of the last few days and set us free for action in a life of which, possibly, only the longer and better half has yet been told. If, then, we write crossly this week, let the reader but see in the fact, a demonstration that the obituary decorations of the last issue were tasteful enough, perhaps, but premature, because still forfeitable!

Doughty Eastern Congressmen.

There is one thing which makes us mad enough to feel really well, and that is the behavior of a bunch of Eastern Congressmen toward the duly constituted citizenship of California. It does not matter who the Congressmen were, nor the occasion of their assembly in this State, save that they were figures of political importance, and certain California women appeared at their public meeting, duly vouched for and introduced, and their request to make a statement of five minutes' duration was curtly refused by the presiding genius of the bunch, and the ladies requested to withdraw from the public hearing which was being held. What excites us in the incident is that these Eastern representatives were either unaware or unappreciative of the fact that in California a delegation of women, desirous of making a definite statement on a matter of public interest, cannot legally be denied a hearing, as possibly they may be in a State where women have no political rights. In the Eastern States chairmen of visiting delegations of Congressmen may, perhaps, be legally warranted in protecting themselves from a petitioning class by refusing them a hearing, and we note that they sometimes pat themselves on the back for acuteness in such behavior. But when Congressmen visit in California and set dates for hearings on public business, they should remember that to exclude women as such is denying rights as citizens which belong to them by the Constitution and laws of the State of California. We do not know whether these Congressmen have yet awakened from their smug satisfaction at thus having put to flight a flock of California women by the same methods they apply to shoo away their own wives and sisters when they appear in public places, but they are liable to realize ere long that such a transaction by them as representing a dominant interest in the national Congress, is an egregious political mistake. Of course, we would not brook such an insult to a delegation of California women as such, but it might be a matter of opinion as to whether such treatment were really an intended insult or not, and therefore debatable. There is, however, no doubt but that this delegation placed an affront upon California citizenship, and it will take them some time to explain away the motives and results of such action as that.

State Marketing of Produce.

We use another twinge of convalescence to remind our readers that it now becomes them to take most serious hold upon this question of State marketing of products, the preliminary machinery of which was set in motion by Governor Johnson's approval of the McPherson law, as stated in these columns last week. Many times during the last two years we have had our suggestions of the desirability of rural credit institutions met by the claims of readers that a more important matter would be for the State to regulate the sale of farm products so that producers could get what rightly belongs to them. Well, by the action of the last Legislature and the current State administration, we now have that matter provided for, at least sufficiently to determine the practicability of it, and everyone who has believed that this was really the important thing for the State to do, should rise to the responsibility of a share in making this new thing work. For it is really a very new thing in government undertakings in this country. It may be fairly believed that the system will never successfully market a hill of beans, unless the growers thereof get together and work together to find out what it is necessary for them to do to make it work. The Governor will appoint, in due time, the man whom he believes best qualified to carry out the provisions of this law, but the best man in the world could do little but clerical and idle work unless he can muster the support and energetic assistance of those who believe that this legislation is of the right kind. If the people say of this, as they have of other things: "We now have a law which will straighten things out," they will soon find that they have a law which will straighten nothing out. We do not propose to let things go that way if we can help it. We do not know how much this law is worth legally, economically and practically, but we are pretty sure that it will demonstrate no value of any kind unless the people, who have called for this sort of thing, fill it with their spirit, and get behind the man upon whom the Governor places the executive responsibility. It can go for nothing, or it can be made the nucleus for the most wide-reaching and effective organization of producers ever attained in this State. Who will help make it work, and how?

California on Wheels.

No one has sent us an automobile to get well in and that, too, is fortunate, for we would probably have broken our neck with it even by this glad day. A clothes'-wringer seems to be about our personal limit in mechanical efficiency. And yet, now that we are so glad that the farmers of California are going to have a chance to show how fast they can get around, it is very important to note that California affairs are going on wheels in constantly increasing ratio, and that the proportion of motor vehicles which go for business over those which go for fun, is notably increasing. At the close of last week the Motor Vehicle Department of the California State Government reported 136,631 automobile licenses have been issued by the State in the first five and a half months of the present year, and of this number 66,706 are for the Northern California district, running from Fresno county to the Oregon line. The Sacramento district is now only 300 behind the Los Angeles district, a gain of approximately 1500 in the last fortnight. The total receipts from the automobile tax to June 18th are $1,824,363.76, against $1,218,466 for the entire year of 1914. This is a gain of $606,000. It is announced that when the new motor vehicle license law goes into effect August 7th, licenses will be considerably cheapened. It is altogether probable that when the new methods of public marketing are developed, the speed and cheapness with which the producers can get to them will have much to do with making their benefits available. Besides the motor farmer will be within reach of the many forms of organization which should be engendered. Farming is going to be a much livelier business, friends

Standards of Farm Journalism.

We do not often try to tell a real farmer just what he should or should not do. When it is a matter of near-farmers we do not hesitate to lecture and scold them as pointedly and definitely as we can, for they have no respect for

what we consider higher forms of instruction. They have no background of experience upon which we can lightly trace suggestions of better ways, nor do they have insight, born of contact and concrete thought, which qualifies them to catch the real significance of an impressionist or cubist delineation. Therefore, when we try to teach a near-farmer we read the riot-act, but with a real-farmer, who knows well the conditions which open and close opportunities, we have found that a whisper of suggestion has greater force and carrying power.

This declaration is prompted by the following, which we find in an Eastern exchange: "Writing in a prominent Southern agricultural paper, a young man says that one of his college professors told him that careful reading of a good farm paper would be of as great value to him as any course he took in the institution. Too much stress can hardly be laid on the importance of the farmers' reading a sound, well edited agricultural paper. Nothing can quite take its place."

This statement is for those who need the direct and declaratory style of teaching and it is true. But the reader with insight will discern that the real force of it lies in the qualifications in the sentence next to the last. Farm-journal teaching is just like any other: good, indifferent and bad. Its statements must be "sound"—that is, true: they must be "well-edited"—that is, set forth as general or as limited by special conditions, and always judged by the editor from the point of view of their effect upon the readers, whose controlling general, natural and economic environment the editor should know and whose confidence, once gained, should never be abused for business or personal reasons of any one, because such confidence and trust, on the part of the reader, are the most precious possessions the publication can possibly acquire.

We speak of publication-policy: there is, beyond that, moral obligation which need not be argued, although it is so high and so often beyond the sight of those who undertake publication. An agricultural journal, to do good and merit patronage, should possess knowledge of its subject far beyond the average of its readers, and be respected for that knowledge: it should be recognized as sincere and actuated by honest and intelligent desire to help every patron attain fuller reward for his thought and labor, and it should have optimism to be sure that good work well done will make both men and nations prosper. Such quality may be claimed, of course, to be the foundation of all good editorial work with this difference. In the service of a single technical pursuit it is possible for a journal to reach closer personal relations with its patrons than a publication dealing with general news, politics, arts and letters can do, but it is only a "sound, well-edited" journal which is ever admitted to such relations. Such relations are helpful to patrons and helpful to the journal, because of the greater interest and respect which its contents command. Its circulation is to be estimated both for quality and extent, and it includes in its clientage a purchasing desire and capacity which a journal which works by cheapness and claptrapery, merely for numbers on its subscription lists, can never attain.

In this, the last issue of the greatest volume of the Pacific Rural Press, it seems fitting to cite these few facts of our principles and policies, for they explain the position of leadership in California farming patronage and esteem which this journal now occupies, and which we plan to merit in the future even more abundantly.

Queries and Replies.

Querists must give name and address.

Growing Ginger in California.

To the Editor: Will you kindly describe the best way to grow ginger in California?—H., Lindsay.

Ginger is the commercial product of the roots of several species of Zingiber—some of them strictly tropical, others rather more hardy—but two conditions are essential: Freedom from frost and assurance of continual soil moisture. The plant is propagated by planting pieces of its fleshy roots which roughly resemble those of the sweet flag. These are planted about three inches deep in a light soil mulched with well-rotted manure and kept moist continually by irrigation. Under such conditions the plant makes a large weight of fleshy roots. Ginger root has been planted in California many times during the last forty years and we hear now and then of the plant growing in a garden, but there is probably no chance of succeeding with it as we usually grow field crops, and no one should plant it except in an experimental way.

Almond Leaves.

To the Editor: I have ten acres of almond trees that are two years old, that is, they were planted two years ago this month. The leaves are now commencing to turn yellow. The leaves of a few of the trees are all yellow, while most of the trees have only a few yellow leaves. I find a little web on all the trees. On about a dozen trees the leaves have hardly grown any, but I noticed that two months ago. What is the reason of this? I do not think they are suffering for water. Is it the red spider, and should the trees be sprayed with sulphur?—J. E. L., Delano.

We see no signs of red spider, but the leaves remain green along the veins longest, seeming to indicate starvation. Are they set on hardpan, or in worn-out soil, or in alkali? Dig up one of the worst cases with all its roots and see if it is affected with root knot or crown gall, or if the roots have rotted from alkali. If there is nothing of that sort wrong, and if good cultivation has been practiced, a fertilizer is probably needed. Nitrate of soda will give the quickest results, being soaked into the loosened ground. Barnyard manure may then be mixed in the soil at once to feed the trees when the nitrate shall have done its work. Then in September, sow a good legume cover crop and plow it under as late as possible next spring.

Resistant Vines or Otherwise.

To the Editor: I would like your advice in setting out a vineyard. Would it be better to set out grapes on resistant roots than on the common roots?—Subscriber, Red Bluff.

We have stopped giving advice on this subject. Some years ago we were sure we knew all about it and should have advised you to plant resistant vines and not to waste time and money on others. Now we have grown older and wiser and do not know so much about it. If you know how to propagate vines, rooting, grafting, etc., and wish to get a vineyard which will cost you more time and money and enable you to laugh at the phylloxera—go in for resistants. It will be sure to bring grapes for an indefinite term of years, if everything else is right—that is, the bugs will never get it. If the insect is established near by we would plant that way or not at all. If, however, you are not in an infested locality, and especially if you are planting in a light soil in which the insects spread very slowly, we should save money and time by planting thoroughly disinfected, non resistant cuttings of the varieties desired and take the chances of the bug getting them

Summer-Pruning Young Trees.

To the Editor: I would like to get a few pointers on the summer pruning of prunes and almonds. Should they be cut back during the early summer of their first year, or should that be done the second year?—K. R. C., Chico.

A very good form of low branching tree can be had by summer pinching and suppression of shoots not desired. This is a desirable method on rich, moist land, where extraordinary growth is to be expected but with ordinary planting it is far better to allow a young tree to make all the growth it will and then cut back in winter, shortening severely branches which are to be retained and removing others. This induces a break of stronger shoots because the roots have been strengthened by action of a large summer foliage. It is almost universally believed that young trees should not be summer-pruned, except to check growth of shoots which are wrongly placed and liable to divert sap from those which are desired to grow strongly.

Failure to Root in Standing Water.

To the Editor: I have encountered a costly experience with prune trees on myrobolan roots. Everything I have heard or read regarding the planting of these trees say to plant them as soon after the 1st of January as possible so they will get the benefit of the rains I did so. They were splendid trees 4x6 feet and the ground was in fine shape, but it is a heavy soil that holds the water and we had an unusual rainfall. The trees started to bud out when we had three days of strong north wind which seemed to cook the buds and they turned black as though they were frozen and then the trees died. I do not know whether it was the north winds or the roots souring from too much water. If you have any way of getting an expert opinion on it I would like to have it; also it may save the readers of your valuable paper a great deal of trouble and expense.—T. H. C., Tudor.

The trees were killed by standing water which caused the roots to ferment and prevented normal development of rootlets which should precede top growth and enable the top to maintain it when the buds start the shoots. The north wind would not have blasted the buds if they had been sustained by healthy start of roots. It is of course always dangerous to plant fruit trees in land which can not rid itself of surplus water rather quickly. After the tree is established, the myrobolan root will stand a good deal of standing water but at new setting it is rather easily injured. In planting in land not well drained, either artificially or naturally, one has to take considerable risk. If he plants too early he may lose by standing water; if he plants too late he may lose by lack of moisture to start the trees well. It is not determinable by the calendar. It depends upon the local soil and the seasonable rainfall. The experienced planter goes by his judgment and not by the almanac—planting later in a wet year and earlier in a dry year and at the same time remembering that even this rule does not always fit

Details of Top Budding Orchard Trees.

[Written for Pacific Rural Press.]

Among the objects of budding over old trees are (1) changing varieties of the same fruit to more profitable ones, (2) changing one kind of fruit to another expected to be more profitable, (3) the invigoration of trees by taking off old growth and starting new, (4) shading the trunks so they will not be so likely to sunburn, especially if they have become rather bare, (5) greater economy than grafting, especially if buds are scarce and valuable, because one bud will do the work of a graft which contains several buds.

Bud When Sap Flows and Mature Buds are Available. — All stone fruits may be budded over and there is less trouble getting different kinds of stone fruits to unite with each other this way than by grafting. Top budding is done at any time during the growing season when the bark slips loose from the wood easily. In spring budding, the buds must be taken from their tree while dormant and kept cool so that they will not start growth until after the trees on which they are to be inserted have begun to grow.

J. L. Magray of Sacramento county "likes the sap to follow the knife." M. Kerwin of Santa Clara county says the bark must be sappy and slip loosely so that when the bud is shoved into place it will go straight down easily and not have a tendency to slip sidewise, nor to go in so hard that the extra pressure exerted would injure the bud or would give it a sudden shove, bursting out the bark unexpectedly.

June Budding Gives Orchard Trees Next Spring.—P. D. Bane of Glenn county plants bitter almond seed in January and buds them in June or July so that he may plant the trees next spring. This seems economical of time for all stone fruits; since buds inserted in October remain dormant until spring, while those inserted in August and September may not make enough growth to stand the winter weather properly. At any rate, avoid as much as possible hot, windy days or those during which it is raining. It is well to irrigate a week or ten days before summer or fall budding in order to insure better sap flow in the tree.

Select Well-Matured Dormant Buds.—Except in unusual cases, bud sticks should be of medium length and diameter of this season's growth, from vigorous, fruitful branches bearing a good quality of fruit regularly through many years. The best buds to be used from these sticks are those at least a few inches away from the tip and from the base. It is best to select single buds, if possible to find them on desirable wood. This is hard on apricots, but easy on prunes. Buds at the base of mature leaves are mature in the summer and fall, yet are as dormant as desirable. Prof. S. B. Johnson of the University of Arizona points out that those on short-jointed wood are better than those on long-jointed sticks, but only young wood is really satisfactory. Sap sprouts and tips of limbs should be avoided. In cutting the leaves from a budstick, a short piece of the stem may be left to protect the bud.

In handling the stick, be careful not to rub off those buds that are destined to form leaves. Some buds are compound, including fruit as well as leaf buds and some perhaps are entirely fruit buds. This seemed to be the case with Clark Heisel of Sacramento county where he got a dozen blossoms from one plum bud, but no leaf growth. In some localities and some trees, not enough mature buds can be found in June naturally. To hasten their maturity, pinch off the end of a growing branch and then watch it closely after a week has passed, to get the buds during the short time after they become plump but before they break into growth. Growing buds can rarely be used successfully.

Carry Budsticks in Wet Cloth.—Wrap the budsticks with wet burlap if they are to be used at once or store them in moist, but not wet, sawdust if they are to be held any considerable time. Sawdust will not injure the budding knife as sand would. Do not carry them in water because this may loosen the bark and waterlogs the buds.

Buds take better on new wood than on old ordinarily, so they should be inserted on the current season's growth of sufficient size. Where the fruit being worked onto an old tree is naturally a lolling growth, the buds may well be inserted on top to help correct this tendency; otherwise, they should be inserted on the sides or underneath to avoid direct sunshine and any danger of wetness.

Cut Stock Before Bud. — With a sharp budding knife, which is better than an ordinary knife because thinner and less likely to bruise the edges of the bark, make a vertical cut about 1½ inches and then a horizontal cut across the top part way around the stock, twisting the back of the knife blade toward the stock as the cut is made in order to turn up the corners of the bark. In late fall budding, it is sometimes preferable to make this horizontal cut at the base of the vertical cut to prevent the entrance of moisture which is the cause of many failures.

After the stock is cut ready for the bud, hold the budstick in the left hand right side up as it grew, with the bud on top and the first finger under the stick opposite the bud, place the right thumb above the bud and with the knife in the fingers cut a very slight curve from a half inch below the bud toward the thumb, cutting just a little wood under the bud for safety, then slightly curving it back to bring the knife out a half inch above the bud, meantime holding the bud with the right thumb so that when it is cut loose, its upper end will be held firmly between the knife and the thumb. Another way of holding the stick is between the left thumb and first finger, resting against the fleshy base of the thumb opposite the bud. This gives a little more clearance for the knife.

No Waste Motions. — From the time the slit is cut in the bark of the stock until the bud is tied, avoid all waste of time by reducing motions to a minimum. Much failure is due to slowness in this operation because the bud becomes somewhat dry; and if it makes any growth at all, it is likely to be feeble and not long lived unless all conditions are very favorable.

With the bud between the knife and the right thumb, insert its lower end under the upturned corners of the bark of the stock, and shove it to place without letting go of it if possible; if it is necessary to let go, finish placing it by pushing on the bud with the thumb nail or end of the budding knife. No injury will be done to the bud if the bark is slipping properly.

Immediately tie it tightly with moistened string, raffia, or with waxed cloth if rains are likely to come soon. The entire slit in the bark should be covered with the string and it will not hurt if the bud also is covered except when it is of especially large size. In using waxed cloth for rainy seasons, begin wrapping at the bottom so that the lapping edges will shed the rain. In wrapping with string, let the end of the string lie against the stock so that in making the first turn below the bud, the string will cross itself and also at each succeeding turn so as to bind the lower end tight. The string should be drawn tightly; but Mr. Kerwin points out that as each turn is made, it should not be pulled so much as to loosen the bark the rest of the way around the stock beside and opposite the bud. The last turn should still leave enough of the end of the string so that the end may be slipped under the last loop and pulled tight

Don't Allow Sprouts to Rob Bud Shoot.—Nothing more is necessary for two or three weeks except sometimes irrigation to furnish more sap to help the bud make its union and start to grow. In winter the string may be left on during the dormant season. When, however, the bud is united with the stock, the string may be cut on the opposite side with a knife; and it will not injure anything if the knife cuts into the bark a little way. The string must be taken off in any event as soon as it begins to show pressure in the bark of the expanding stock. At this time, too, it is well to cut a notch through the bark above the bud or break the limb over, so it will still draw sap but leave some available for the bud. A stub may be finally left above the bud, to which the new shoot may be tied for strength until the union is well made. Enough sprouts and laterals may be left on the old stock to shade the trunk and to draw sap temporarily; but no more, because these are likely to rob the new shoot. When the latter is well started all other growth except what is needed for shade, should be cut off close, and the branch cut off sloping just above the bud. Only one shoot per bud should be allowed, but enough laterals may be left on this to shape the tree as desired.

DATA collected at the Ariz. Expt. Sta. farm, where one coal pot to every tree was used during the cold periods of December 22 and 23, 1912, and January 5, 6, and 7, 1913, indicate that when temperatures lower than 23° F. are reached little benefit results from their use. At the same time two vigorous yearling Mediterranean Sweet trees were only slightly injured when exposed to a temperature of 11° F. on January 7, 1913, while an adjacent weak tree of the same variety was killed to the ground. This test suggests that it may be possible to develop the citrus industry in Salt River Valley by a careful selection of hardy varieties and the maintenance of high individual tree vigor.

Co-operative Lemon Storage.

[Written for Pacific Rural Press.]

"Our average decay last year was one-quarter of one per cent from the time the lemons were picked until they were shipped, an average of about a month later," said G. W. Hosford of the San Dimas Lemon Association, one of the 115 locals of the California Fruit Growers' Exchange.

The Association has a gang of experienced pickers who go from one orchard to another, being careful to pick the lemons at the right stage of maturity, the right size, and in the best condition. The foreman of each gang watches to prevent all clipper cuts, long stems, cutting too close to the button, dropping fruit into the baskets, or other rough handling. This, in addition to suitable storage and packing, tells the tale of profits for the Association.

Benefits of Combination. — "Suitable storage is possible only through co-operation," says Mr. Hosford. "Few of our growers own over ten acres and could not economically provide the best storage. Many together, however, can employ competent help, suitable buildings and equipment. It is a necessity to store lemons in the winter when the eastern consumption is low. We have as many as 250 cars stored at once The right kind of fruit properly stored can be held as much as four months."

The San Dimas Association has 300 members and owns $90,000 worth of real estate, buildings and equipment, though only $35,000 worth of stock in $1.00 shares has been subscribed. Their object is to maintain a high, uniform grade and pack and to develop a steady demand for their brands of fruit. They keep a regular supply on all the big markets of the East. This is possible on account of their large membership, and fine storage facilities They study the markets and ship to each to suit the buyers. Fort Worth prefers straight cars of small fruit; Boston wants carloads of the first grade, 300 or larger—not smaller or of lower grade. For the past two years, the Association has not had enough fruit to supply its trade, but there is plenty now.

Separate Washing.—The fruit is hauled to the packing house in lug boxes, which are weighed and stacked in a separate pile for each grower. It is also dumped into the washer, separately in its turn.

The washer is a cylindrical tank

full of water, in which two rotating brushes with bristles pointing upward revolve in horizontal circles a few inches under water. Stationary brushes whose bristles are as soft as those of an ordinary hair brush, hang directly over the rotary brushes with the bristles down just in the water; and other brushes are located around the sides of the tank where the lemons bump against them in being brush-propelled through the washer. Fruit having been dumped into the washer is carried by the rotary brushes, rolling and twisting around the circle to the other side where a paddle wheel forces it onto a belt which travels faster than the paddle wheel so as not to bruise the fruit in forcing it ahead.

The belt carries it out of the water and past nine or ten men who grade it for color. New water must be continually added to take the place of what goes out on the lemons; and the water is entirely changed once a day. Where lemons are especially dirty, it is changed twice per day.

At the other washer in this establishment, the lemons are run into a long tank full of water instead of on a belt, whence the graders separate the different colored lemons. The belts make it possible to grade closer for color, than where the fruit is picked out of the water, according to C. W. Hightower, packing house foreman.

A washer used in Orange county by the Tustin Packing Co. runs the lemons down a slope of several feet in the groove between cylindrical brushes both revolving the same way. An auger like projection of certain bristles the whole length of the brushes forces the fruit through while driving streams of water from a pipe sprinkler keeps it wet.

Graded to Three Colors. — Three colors are recognized at San Dimas: green, silver, and tree ripe (yellow). Some of the lemons are sent back for hand washing, if they are badly sooted by black scale. The rest are laid on different belts according to their color and are dumped into a tank of water through a trap arranged to prevent bruising.

The dark and the light green are most preferred, being the longest keepers and the best quality of fruit. The yellows scarcely pay for shipment east. The graders are not supposed to know whose fruit they are working on. Cotton gloves are worn by everybody, to prevent finger nails injuring the skin and providing a place for the entrance of blue mold or other fungi. Only those graders whose hands are continually in the water are allowed to work without gloves and their finger nails are watched and kept short.

After being dumped into the tanks after grading, the lemons are dipped up in packing boxes loose. They are then weighed to check the first weighing, and stacked in the curing room until ready to ship.

Each grower's fruit is stacked in separate lots, with the grower's number and the lot number on a card in a metal case on one of the boxes. The top box of each pile in the stack is capped with a black cover. Doors all around the house are kept open when the outside temperature is cool and the humidity not too high. They are closed in hot weather, especially during the daytime, because too much dry air would shrink the fruit and reduce its marketability.

DIG PEACH BORERS TWICE.

[Written for Pacific Rural Press]

"We ought to dig out the peach borers every spring and fall," says F. M. McCurdy of Santa Clara valley. It is true that in his neighborhood a majority of the prune and apricot orchards in the springtime show basins around the trees with heavily whitewashed trunks where borers have been dug out. The heavy whitewash is used to repel the insects.

A tool is used made of a bar flattened at one end to dig the dirt away from the bark and hooked at the other end to dig out the borer. Thorough work is required as the borer moths lay their eggs close to the ground and the borers soon get into the trees of all stone fruits. By girdling the trunks, they reduce the vitality, and often kill the trees.

A young tree in Mr. McCurdy's front yard set out a year ago was rather slow putting out its leaves this spring, but no serious attention was paid to it until the rest of the trees were in full leaf. Then Mr. McCurdy took his shovel, dug around it, and found five borers. It is dead now.

NEW PRUNE WOOD AND FRUIT.

[Written for Pacific Rural Press]

Last winter we printed a description of the twig pruning methods used by A. Taylor of Santa Clara valley on his prune orchard. Late in May this spring we looked at the orchard and found the tops a mass of newly grown healthy wood, while the orchard beside it showed many bare twigs in the tops of the trees.

Mr. Taylor's crop last year was 35 tons green. "This year it will be at least 45 tons and my neighbors think 60 tons." A big branch had broken off the night previous under the weight of fruit and the ground was well besprinkled with prunes besides what hung onto the limb. Fruit was well distributed in the older wood and some new growth was breaking out of the main limbs.

"Look at the bark on these big limbs now, bursting lengthwise. That shows the limb is growing and expanding healthfully because clipping the twig ends as I told you last winter draws the sap to the ends of the limb, furnishing food for all the cells along the way."

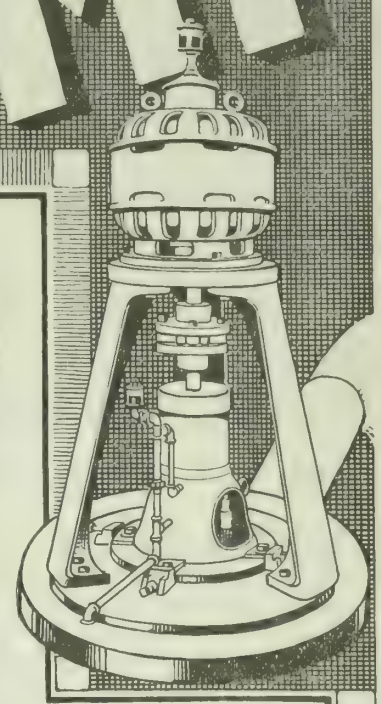
GROWING DATE SEEDLINGS.

To the Editor: I have some Date Palm seed. Will you kindly tell me when I should plant them, also should I soak them before planting? —J. W. B., Placerville.

[It is better to plant earlier in the season; but go to it now; planting about an inch deep in light soil which does not crack, and cover with a litter of chaff or rotten straw to keep the surface moist, and give about half shade. Water frequently, but do not keep too wet. Soaking is not necessary. The plants usually come quite easily from the seed and the first shoot looks much like a blade of grass.—Editors.]

The Colfax unit of the Placer County Farm Bureau has been organized with 32 members to start with. J. W. Mowrer was elected Director of the Unit.

Layne & Bowler PUMP



You don't buy cumbersome trouble-giving machinery when you buy a Layne & Bowler Pump. You get the most compact, simple, efficient pumping plant ever built—a pump you can ALWAYS depend upon, no matter how rigid your requirements are. The thousands of installations we have made during the last few years offer splendid evidence of the wonderful service the Layne & Bowler Pump gives. In all parts of the West—in fact, in many parts of the world, you'll find the Layne & Bowler Pump, giving the utmost satisfaction. It is the cheapest water producer today. Write for Catalog No. 25. It gives valuable pump information

See our big exhibit of pumps in the Palace of Machinery, San Francisco Exposition. Every rancher and prospective irrigator should see this interesting and instructive exhibit

Layne & Bowler Corp.

900 SANTA FE AVENUE, LOS ANGELES.

READ-MILLER CO.

The kiss of the Sun for pardon,
The song of the Birds for mirth
One is nearer God's heart in a garden
Than any place else on earth

California Garden Flowers,

TREES, SHRUBS, VINES.

By E. J. Wickson, A. M.

is just what you need as an aid in your every-day work in the yard. It is written by a Californian who knows, to meet your conditions. It tells the how, when and why, and is very practical in its suggestions

Do you realize the contentment, happiness and profit gained by a well-cultivated garden?

The book is divided into six divisions and these parts are divided into twenty-six chapters, which cover California conditions, cultural suggestions, California garden year, ways with garden plants, shrubs, trees and vines, methods against pests and diseases.

The work contains 258 pages of closely packed information of absolute value to plant growers, besides numerous illustrations — handsomely bound in cloth. Price, $1.50 postpaid.

Pacific Rural Press, Publishers

525 MARKET STREET, SAN FRANCISCO, CALIF.

Change the waste places in your yard into a garden
It grows while you sleep

Agricultural Marketing Wastes.

(Continued from page 721.)

in price agreements or territorial divisions, most of it is cost of operation and legitimate profit. But the cost of operation includes a tremendous waste, due: (1) to too many middlemen criss-crossing and duplicating operations, (2) high margins of middlemen's profits made necessary to cover losses due to perishability of produce, (3) great variation in quality due to lack of standardized packing (4) trouble and expense made necessary in figuring on different sized packages used in different parts of the United States for the same class of produce, (5) uneven distribution, causing disastrous gluts of certain markets at irregular intervals, due to lack of co-ordination among producers' interests, (6) inadequate supply at other markets which reduces consumption unnecessarily.

Wastes Could be Reduced.—These wastes could be greatly reduced to benefit both the producer and consumer by proper co-operation of proproducers, part of the middlemen's of all co-operative organizations. Then, should all middlemen except transportation companies be eliminated, the vital work those middlemen now do must be performed by someone else, preferably the producers' exclusive agents. This would perhaps result in saving for producers' part of the middlemen's profits mentioned, but its greater result would be to avoid duplication of effort, and waste of time, which is most important in handling much of the farmers' produce.

Necessary middlemen would become the farmers' employees with identical, instead of conflicting and overpowering, interests. Trying to do business before the crops are half grown, with its resultant lowering of prices, would be done away. One of them would not be beating the price down to get business away from the other.

Consolidating Middlemen's Functions.—That classes of middlemen may be consolidated and their numbers reduced, preventing duplication, is shown by a number of cases already working.

In California the meat packing companies combine the middlemen largely in themselves, having their own local buyers through the State and their own city stockyards to which the beef animals are shipped as needed. Wholesalers in the East and West often have their jobbing department, combining at least two classes of middlemen in one.

For groceries, it is generally acknowledged to be necessary to scatter small stores throughout consuming districts where rent is low and the stocks of groceries are convenient to the modern, improvident housewife. These small retail groceries do not have enough business to justify buying in carloads or taking advantage of numerous other facilities in the line of equipment and labor, which larger stores get.

Chain Groceries.—These facts are largely responsible for the nine "chain" groceries in Philadelphia, which own 1260 little corner grocery stores located throughout eastern Pennsylvania in the midst of consumers. These chain stores buy in carlots and distribute to their little retail stores as needed, thus getting the benefit of carload rates of transportation and of purchases, and at the same time turning the stock often enough to reduce interest charges and to keep the stocks fresh. Buying in large quantities, they often make "leaders" of certain commodities such as oranges, which some of them were featuring last summer when a Pacific Rural Press representative visited that city. They advertised them prominently in the city papers at prices barely covering the cost. They displayed placards in the retail stores, and put the fruit prominently before the purchasers to tempt their appetites. Their solicitors made a specialty of heavy sales on these "leaders." This could not be done by independent small retail stores; but, being done by the large stores, increases consumption very greatly and introduces the California product to people who never before knew how good it is. The Philadelphia manager, B. M. Young of the Fruit Growers' Exchange, was vigorously fostering this business last summer.

Among producers, those raising citrus fruits, raisins, walnuts, almonds, and Gravenstein apples in California have taken to themselves through their own efficient and widespread marketing specialists the functions of local shippers, brokers, and wholesalers, using both the private sales system and the public auction. There is even some mail order retailing by these Statewide growers' organizations which are properly supported by a large majority of the producers in their lines.

Need Standardization.—One of the great wastes in marketing food products is due to lack of standardized grading, packing, and packages. This increases the risk of spoilage and of dissatisfaction among the jobber's customers due to uneven quality and sizes of fruit. The risk is covered by the greater margin paid to jobbers on the business transacted. This reduces the price to the producer but not to the con-

RECEIVER'S PUBLIC SALE of Nursery Stock

To be held at Claremont, Cal.

Wednesday, July 7, 1915

Peaches, Pears, Apples, Olives, Citrus and a large variety of Deciduous Fruit Trees, Ornamental Plants, Shrubs and Trees, Roses, etc.—to be sold to the highest bidder, at office of Claremont Nurseries, Twelfth Street and Indian Hill Blvd., City of Claremont, Los Angeles County, California

All stock is divided in blocks and will be sold as it stands.

Particulars regarding parcels, contents of each parcel, and any other information regarding the sale will be furnished upon application to the Receiver.

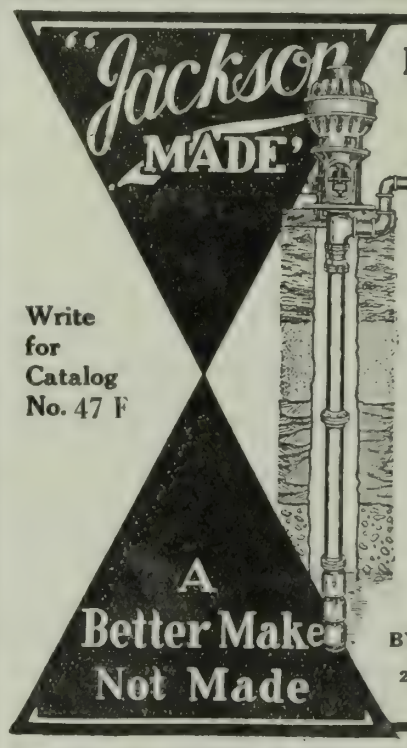
Possession is acquired on day of sale, and growing stock may remain in the field until the next digging season, by making arrangements with the present owners of land. Labor can be arranged for, by contracting with responsible parties, now in the employ of the Receiver.

Sale continued to following day, if necessary.

TERMS: One-third of purchase price at time of Sale, Balance in Ten Days.

A. D. THORBURN, Receiver

CLAREMONT NURSERIES. CLAREMONT, CAL.



For Water Deep Under The Ground

Jackson Deep Well Turbine Pumps give continuous and efficient service. They do not get out of order as they have no valves or plunger rods. Very little care or attention needed as they are oiled from the surface. Are much lower in cost than other types of deep well pumps when the expense of dug pits, cribbing and timbering is reckoned. They raise water from the very bottom of the well, thus eliminating heavy vacuums and delivering all the water the well yields. They develop slow wells and increase their flow.

Like all Jackson Made Pumps These Deep Well Turbine Pumps Are the Very Best Pumps Made for the Purpose—They are Dividend Earners, Not Expense Makers

Whatever your water problems may be our Expert Pumping Engineers will help you out free of charge—write

BYRON JACKSON IRON WORKS, Inc.
357-361 Market St., San Francisco, Cal.
212 N. Los Angeles St., Los Angeles, Cal. and Visalia, Cal.
Works: West Berkeley, Cal.

Kill Morning Glory

NOXIOUS WEEDS AND INJURIOUS INSECTS

Use NONPAREIL

Used and recommended by the largest berry-growers in the State and many of the horticultural commissioners. The growing season is the time to apply NONPAREIL. Send for booklet P, which gives full particulars and prices. Very low rates in drums and tank cars.

For sale by all dealers.

Wheeler, Reynolds & Stauffer

624 CALIFORNIA ST.,

San Francisco, California.

KOPPEL PORTABLE TRACK

ON STEEL TIES

Also Steel Rails, Steel Ties, Tray and Transfer Cars, Turn Tables and Special Material for

DRY YARDS

Proper Equipment Costs Little and Saves Much

ORENSTEIN-ARTHUR KOPPEL CO.

241 Rialto Bldg., San Francisco 757 So. Los Angeles St., Los Angeles

Our Instructive Catalogue P will be Mailed on Request

P For Every Purpose NEW Threads & Couplings. Hot Asphaltum I Second Hand and NEW P Screw Casings Fittings and Valves Guaranteed for Pressure E

Pacific Pipe Co.

Main and Howard Sts. San Francisco, Calif.

sumer. With most vegetables there is woeful lack of standardization and consequent increased margin for marketing to cover spoilage and inferiority, and then follows sullen discontent of the producers.

But when an eastern man orders wheat, he usually knows just what he will get without looking at even a sample of it, for a number of states have official grading standards and inspectors. Moreover, there is very little chance of spoilage and the methods of packing and storage are thoroughly standardized. That the same advantage can be applied to fruit with but little extra risk on the part of the buyer is illustrated by the northwestern apples. Large growers' organizations there have established definite rules describing the apples which will be found in each grade of each variety. When the buyer gets a box of Hood River apples of fancy grade, he knows just what to expect both in size of the box and the quality of the fruit.

Standardized Brands Sell.—Such standardization is being done in a local way by cooperative associations all over the United States. Its effect is seen in the ready market demanded and received by products under certain brands where others unknown or known to be undependable receive scant attention. But there is very little co-ordination between the associations in order to get uniform packages or uniform rules for grading between the producers of different localities. For this reason, deciduous fruits and vegetables in general are not yet "on a stable merchandizing basis," though the new State law standardizing fruit packing is a far step forward.

Need National Distributing Agency. One of the greatest sources of waste, due to the overloading of one market while another would willingly pay higher prices, is now being abolished so far as California fruit is concerned, by the good work of the California Fruit Distributors, the California Fruit Exchange, and the California Fruit Growers' Exchange. Royal Meeker, U. S. Commissioner of Labor Statistics, calls attention to the fact, however, that one day last August, 58 cars of peaches from various states were dumped into St. Louis which can absorb only 14 or 15 carloads a day during the peach season. One day last November, 116 cars of apples so glutted the New York markets that a shipment from northeastern Pennsylvania yielded only 17 cents a bushel besides freight and commission; on the other hand, some markets at the same time not receiving enough.

Most California deciduous fresh fruit is sold through local shipping companies, who sell largely on the public auctions in the big eastern cities controlled by the same capital which controls some of the shipping companies. This is said to have led to the burdening of the producers by influencing most of fruit sold through the shipping companies to be sent to the auction cities regardless of opportunities to ship direct to smaller towns on an f. o. b. basis subject to inspection at destination, at the same freight rate as to the larger cities. This neglect of the smaller towns, if a fact, reduces the consuming power of the nation for California fruit, and is thus largely responsible for the low prices of which we hear so much.

Unified, stable, permanent co-operation along lines already proved efficient in a few organizations would enable producers to prevent most of the waste effort and spoiled produce which now makes the cost of marketing such a burden both to themselves and to the consumers. It would increase consumption of our agricultural products by making the supply and quality dependable, and by developing new markets.

Congress Considers Plan.—Not supplanting but supplementing the producers' co-operative organizations mentioned above, is the National semi-official organization of all farmers for marketing purposes explained before the Congressional Committee on Agriculture by David Lubin. Local voluntary associations of producers, bounded by township lines, would elect county committees; these would elect State committees; and the State committees would get national and foreign information from the national commission which would formulate the general policy for the entire system.

Middlemen Farmers' Employees.—What are now commission men and other classes of middlemen would be simply employees of the organized farmers. One nationally coordinated information bureau of crops and market needs would do away with the complex, inter-crossing, multi-duplicating private bureaus of information now maintained by each shipper. The national association would avoid such duplication, saving a tremendous amount of cost; and would distribute the information freely to the producers. By the present system, after the money is spent for such information, it is exclusively locked up with each of the shippers. The producer gets none of the information, though all of the cost is paid from his goods.

This Man Needs Market.—During the past week we have received from one of our Sacramento Valley subscribers a letter referring to our article on alfalfa through the Panama Canal, especially to that paragraph speaking of the opportunity of working up an alfalfa trade in the Gulf states. He says that he and his neighbors will have 300 tons to dispose of and would like to know how he shall go about it to find a buyer in the Gulf states and what prices he can get, in order to compare them with the San Francisco prices. Under the national marketing system, all he would have to do would be to ask the secretary of his local association, who would either have on file the information desired or would get it very promptly from the State or National commission. As it is, there is no practical way of answering this question. The best we can do is to refer him to dealers in that section to whom he may consign his hay at the usual risk.

SUMMER PRUNING APRICOTS

[Written for Pacific Rural Press.]

"Eleven years ago I began summer pruning my apricots and I have reached the conclusion that the best results come from trees that are pruned just before the sap stops flowing in the fall. I aim to catch the sap flow just enough to develop the buds and not to start new growth. This condition depends much on the moisture in the soil. I certainly believe in summer pruning; and I never hesitate to make a cut in the summer that I would make at pruning time. The principal summer pruning, however, is done much later than I did several years ago," writes C. S. Shafer of Stanislaus county, a picture of whose orchard appeared on our front page April 24.

Horticultural Commissioner A. L. Rutherford, of the same county would summer prune in July, if at all; though he discourages the practice of summer pruning. It is in July that the fruit buds have been formed and the trees have just hardened their branches and become temporarily dormant. Summer pruning at any other time, according to Mr. Rutherford, should be confined to clipping off the new red growth which is taking reserve energy from the tree, anyway. Removal of old leaves takes away the ability of the tree to elaborate plant food for itself.

PIPE--PIPE--PIPE

100,000 ft. 1½-in. water pipe, only 5½c per ft.
15,000 ft. 3-in. casing, only 13½c per ft.
10,000 ft. 3¼-in. casing, only 14c per ft.
12,000 ft 3½-in. casing, only 15c per ft.
10,000 ft. stove pipe well casing, from 12-in. to 20-in. made from No. 10 gauge iron.

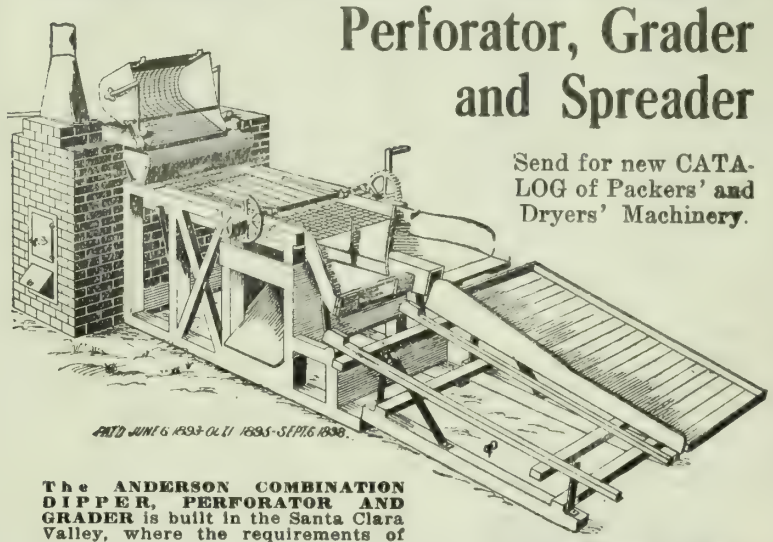
Never before was there a better lot of used pipe put on the market for sale. We make no charge for cartage to any depot in town and fully guarantee any length.

We surely advise you to place your order at once. Special attention given to mail orders.

Aqueduct Pipe Co.
Los Angeles, Cal.
907 Haas Bldg., Bdwy 3754. A4917.

Anderson Combination Dipper, Perforator, Grader and Spreader

Send for new CATALOG of Packers' and Dryers' Machinery.



The ANDERSON COMBINATION DIPPER, PERFORATOR AND GRADER is built in the Santa Clara Valley, where the requirements of prune growers have been carefully considered and every possible advantage incorporated into the machine. Can be furnished with or without rinse tank. Made in various sizes for hand or power.

SEND FOR 1915 CATALOG.

It illustrates and describes the entire Anderson-Barngrover line of Fruit Packers and Dryers' Machinery. A copy will be sent free to all who are interested. A postcard will bring it.

See our Exhibit in the Palace of Horticulture at the Panama-Pacific Exposition adjoining the Cuban Gardens, which are under the Big Glass Dome.

Anderson-Barngrover Manufacturing Co., 20 West Julian St., San Jose, Cal.

Efficiency

An organization along broad and liberal lines for a nation-wide, safe, and sane distribution of tree and vine fruits. Our services are available through our associate members to any and all shippers of fruits.

MEMBERS:

Geo. H. Anderson	Newcastle Fruit Co.	Producers Fruit Co.
A. Block Fruit Co.	Penryn Fruit Co.	Schnabel Bros. Co.
Earl Fruit Co.	F. B. McKevitt Co.	Silva & Bergtholdt Co
Geo. D. Kellogg & Son.	Pioneer Fruit Co.	Vacaville Fruit Co

California Fruit Distributors

CHAS. E. VIRDEN, General Manager,
SACRAMENTO, CALIFORNIA.

Special discount on the first 100

Kirstin One-Man Stump Puller

Discount positively only on first 100 orders Write quick for folder today. Double the value of your land. Buy now. Make big profits on this year's crop. Only $30 to $50. Agents wanted

W. E. MORRISON.
821 Riverside, Dept. L, Spokane, Wash.

Mechanical Power on the Farm.

RESTORING ELECTROCUTED PERSONS.

Persons whose breathing has been stopped by electric shock have been restored after two hours of artificial breathing performed according to the rules below. It is easy to do, and avoids danger of the tongue falling back into the air passage.

The set of rules as printed by the San Joaquin Light and Power Corporation have been recommended by the Commission on Resuscitation from Electric Shock representing the American Medical Association, the National Electric Light Association and the American Institute of Electrical Engineers.

Admonition is given to follow these instructions even if the victim appears dead.

Immediately Break the Circuit.—With a single quick motion, free the victim from the current. Use any dry non-conductor (clothing, rope, board) to move either the victim or the wire. Beware of using metal or any moist material. While freeing the victim from the live conductor have every effort also made to shut off the current quickly.

Instantly Attend to Victim's Breathing.—1. As soon as the victim is clear of the conductor, rapidly feel with your finger in his mouth and throat and remove any foreign body (tobacco, false teeth, etc.). Then begin artificial respiration at once. Do not stop to loosen the victim's clothing now; every moment of delay is serious. Proceed as follows:

(a) Lay the subject on his belly, with arms extended as straight forward as possible and with face to one side, so that nose and mouth are free for breathing (see Figure 1). Let an assistant draw forward the subject's tongue.

(b) Kneel, straddling the subject's thighs and facing his head; rest the palms of your hands on the loins (on the muscles of the small of the back), with fingers spread over the lowest ribs, as in Figure 1.

(c) With arms held straight, swing forward slowly so that the weight of your body is gradually, but not violently, brought to bear upon the subject (see Figure 2). This act should take from two to three seconds.

(d) Then immediately swing backward so as to remove the pressure, thus returning to the position shown in Figure 1.

(e) Repeat deliberately twelve to fifteen times a minute the swinging forward and back—a complete respiration in four or five seconds.

(f) As soon as this artificial respiration has been started, and while it is being continued, an assistant should loosen any tight clothing about the subject's neck, chest or waist.

2. Continue the artificial respiration (if necessary, two hours or longer), without interruption, until natural breathing is restored, or until a physician arrives. If natural breathing stops after being restored, use artificial respiration again.

3. Do not give any liquid by mouth until the subject is fully conscious.

4. Give the subject fresh air, but keep him warm.

ENGINES AND BELTS.

To the Editor: How much horsepower will be required of a gasoline engine to work a 5-inch centrifugal pump with a maximum lift of 28 feet? Is lagging a pulley to prevent belt slippage a good practice? When a rubber belt is worn threadbare on one side can we turn it inside out and use it about as long again?—P. A., Lodi.

[Answered by A. H. Gregory, New York Belting & Packing Co.]

It requires .34 h.p. per foot lift to run a 5-inch centrifugal pump, therefore it would take a 9½ h.p. engine to run a centrifugal pump with a lift of 28 feet. It is well not to overload an engine, therefore as engines are made up only in even multiples, it would be better to order a 10 h.p. engine.

The necessity for lagging a pulley generally indicates that an abnormal condition prevails, otherwise the belt would not slip; it may be due to one of several causes, the most important of which is that the belt runs too slowly for the horsepower required; (2) the width of the belt is not sufficient to grip the face of the pulley tight enough to carry the load; (3) the belt may be too heavy in the number of plies and not wide enough; a 10-inch 5-ply belt will deliver the same horsepower as an 8-inch 6-ply and the cost of the two belts is about the same.

If a belt is worn threadbare on one side it is an indication that that belt should be replaced; after it is

Now Ready

"Vacation 1915"

The Guide to

Summer Outing Places

Tributary to the

Northwestern Pacific Railway

Make your vacation plans beforehand by consulting its pages. Profuse illustration and reliable descriptive text afford an instructive and reliable guide to this inviting VACATIONLAND, lying in Marin, Sonoma, Mendocino, Lake and Humboldt counties. It contains a complete list of Hotels, Town and Rural Homes and Camp Resorts.

Copies of "VACATION" may be had free at 874 Market street (Flood building), Sausalito Ferry Ticket Office, or on application to J. J. GEARY, G. P. & F. A., 808 Phelan Building, San Francisco, Cal.

You Know

American

Surface Irrigation Pipe.

is RIGHT

then why experiment with any other? Lasts a lifetime.

AMERICAN STEEL PIPE & TANK CO.

Suite 354-56 Pacific Electric Bldg., Los Angeles. Branch: 1228 "H" St., Fresno.

Also, single and double Well Casing.

Little Stories of Success

No. 8.

R. F. Schmeiser of Winters, who bought a 75-h. p Caterpillar back in 1913, wrote us recently: "I am farming 1500 acres and I have used nothing but my Caterpillar to do the farm work with since I have had it; and besides my own work, I have done work on the outside which amounted to over $10,000 for the year 1914. This outside work consisted of plowing, harrowing and harvesting for my neighbors, and hauling rock and sand for the State Highway."

Mr. Schmeiser has some interesting figures on work done with his Caterpillar—harvesting 3100 acres in 60 days—hauling in one week 1596½ tons of rock and sand for an average distance of 2½ miles—plowing 260 acres in 4 days, pulling 6 three-gang 10" plows. All this with an upkeep cost of less than $200 since he bought this machine.

"The Caterpillar is the only practical farm tractor built today," is the way Mr. Schmeiser sums it up.

The Holt Manufacturing Company

(Incorporated)

San Francisco Stockton Los Angeles

Both Expositions—San Francisco and San Diego

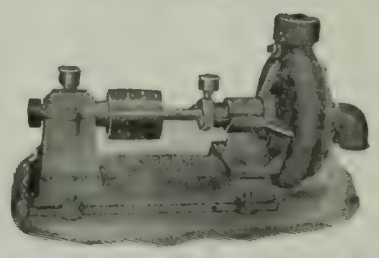
CATERPILLAR

Reg. U.S. Pat. Off.

Don't say Caterpillar unless you mean Holt

THE WINSBY PUMP

Our New 1915 Type Pump



Best Model for Low Lift Pumping

Size	1 in.	1¼ in.	1½ in.	2 in.	F. O. B. Cars
Price	$16.00	$20.00	$25.00	$30.00	Oakland

Larger Sizes at Proportionate Prices.

Complete Pumping Plants of Any Size or Type Furnished and Installed

WE MANUFACTURE

Pumping machinery of all kinds and for all purposes.

Mining, Milling, Concentrating and Rock Crushing Machinery.

Ice and Refrigerating Machinery, Cold Storage Rooms and Counters.

Water Wheels, Dredges and Hydraulic Machinery.

Fire Hydrants and Cast Iron Fittings.

WRITE FOR CATALOGUE AND PRICES.

Pipe Casing Valves and Fittings	Belting Leather Rubber and Canvass	Pulleys Wood Steel and Cast Iron	Shafting Hangers Collars and Boxes	Boilers Steam Engines and Supplies

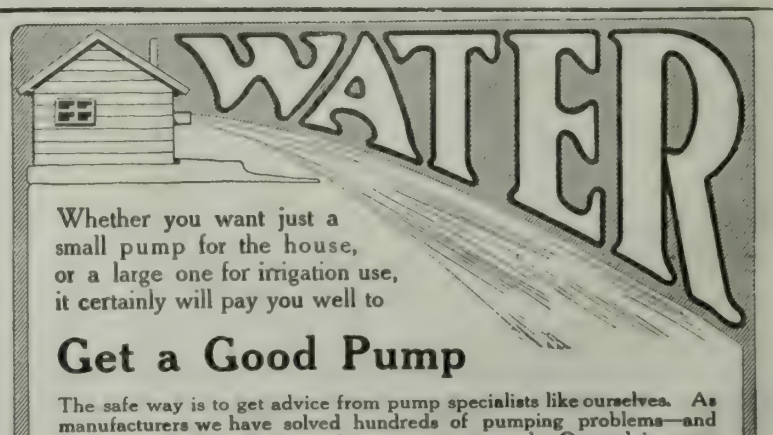
WE CARRY IN STOCK

UNITED IRON WORKS

Branches: Los Angeles; Seattle, Wash.; Spokane, Wash.

GENERAL OFFICES AND WORKS: OAKLAND, CALIFORNIA.

We are the largest manufacturers of pumping machinery on the Pacific Coast.



Whether you want just a small pump for the house, or a large one for irrigation use, it certainly will pay you well to

Get a Good Pump

The safe way is to get advice from pump specialists like ourselves. As manufacturers we have solved hundreds of pumping problems—and our accumulated experience is at your command. Our advice may save you both money and trouble. We manufacture and sell

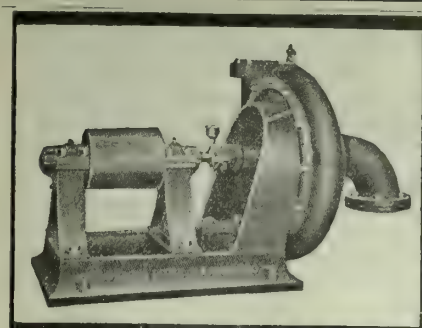
Horizontal and Vertical Centrifugal Pumps
Deep Well Pumps, Windmill Pumps, Etc.

THE BEAN IS THE BEE-N TRADE MARK BEST

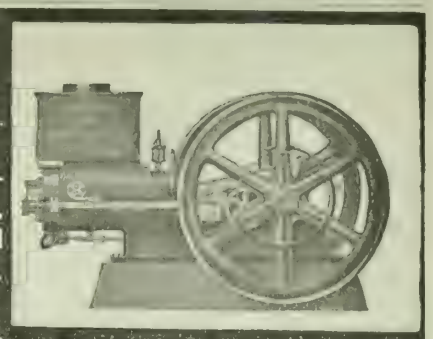
Let us help you select a pump adapted to your particular requirements. CATALOG 28-B describes Bean Centrifugal Pumps. CATALOG 28-D describes all other pumps (also Bean Distillate Engines). A postal will bring either or both. Why not send now?

BEAN SPRAY PUMP CO.

211 W. Julian Street San Jose, Cal.



WOODIN & LITTLE
PUMP HOUSE
33 TO 41 FREMONT ST. SAN FRANCISCO, CAL.
PUMPS FOR EVERY SERVICE AND USE
FOR IRRIGATION—Power, Belt, Electricity, Air, Vacuum, Ship, Spray, Wine, Oil, Mines, Steam, Water Works, Wind Mills, Road Sprinkling, Rams, Hand, Deep and Shallow Well Pumps, Goulds Celebrated Triplex Pumps.
W. & L. PNEUMATIC WATER SUPPLY SYSTEMS
Pipe, Pipe Fittings, Brass Goods, Tanks, Wind Mills.
Send for our large No. 36 Catalogue Mailed Free. GASOLINE ENGINES Inquire of your Local Dealer for full particulars.



Manless Land
for the
Landless Man
2,000,000 Acres
of Good Land Along the
Western Pacific Railroad
IN CALIFORNIA, NEVADA and UTAH

Opportunities for
The Man of Modest Means
As Well as the Capitalist

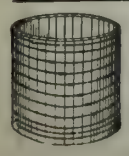
EVERY SECTION HOLDS OUT A WELCOME

Write for Copies of Our
"Opportunities"
and
"Homeseekers" Folders

Western Pacific Railway
BODE K. SMITH,
Asst. General Pass. Agent.

200,000 FEET CHEAP
WATER PIPE
Just received several carloads of new and 2nd hand water pipe. Oil Well and Water Casing; Riveted and Surface Irrigation Pipe. Big Stock. All sizes. Prompt shipments. Lowest price. Write, phone or wire.
ADAMS PIPE WORKS
2030 Bay St., Los Angeles
Phones Bdwy 1264—F1917
(Under entirely new management.)

SECOND HAND PIPE
Very best quality of selected second-hand water pipe and standard screw casing pipe. For quality and low price you make no mistake when buying water pipe of the Weissbaum kind. Largest pipe works in the West.
WEISSBAUM PIPE WORKS
160 Eleventh St., San Francisco



REDWOOD TANKS
I sell to the consumer. Box Shooks and Boxes. Am making a special price on Drying Trays. Lumber, Mill Work, Doors, Windows, Mouldings, Wagons, Tanks, Spraying Tanks. INDEPENDENT.
R. F. WILSON,
Stockton, Cal.

turned over it will be running on the seam side which will soon open up the belt and destroy it; a rubber belt cannot very well be turned over with any degree of satisfaction; it is made only to run one side next to the pulley; the seam side should be out.

FARM VULCANIZER.

When you have a blow-out on the road, it is mighty handy to have a vulcanizer with which you can fix it up in a few minutes.

"I have one here," says Jos. Wolf of Santa Clara county, "which cost me $3.50, with which I can fix up blow-outs of most any usual extent. I use it not only on my car, but to fix up those of the neighbors, and I made more that way the first month than two of them would cost.

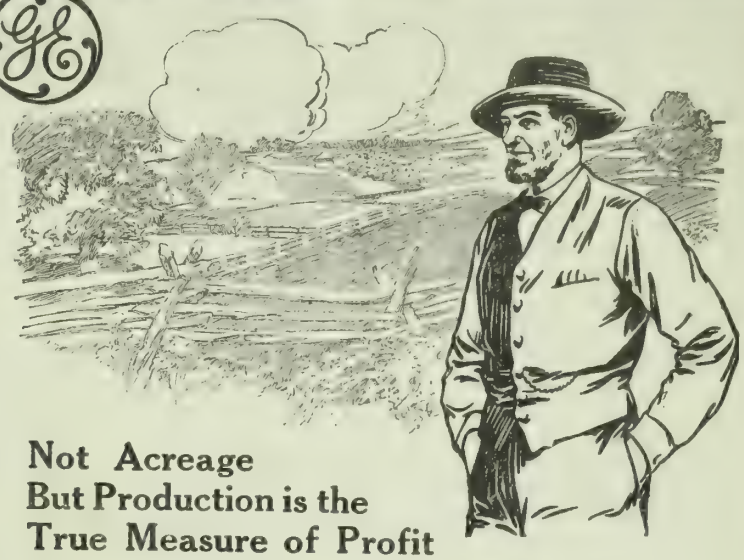
"I just clean out the hole with sand paper, wash it with gasoline, then cut a sheet of pure gum a little larger than the size of the hole, put some cement on both the tire and the patch, measure a little gasoline in a tube which comes with the vulcanizer, pour it onto the vulcanizer wick, clamp the vulcanizer over the patch, light it with a match. It will burn about 20 minutes; then leave it about five minutes more for a margin of safety, and you have a solid patch. If the hole is over 2½ inches long, however, it will require two settings of the vulcanizer."

THE MOON'S POWER.

To the Editor: I see in your issue of May 1st you are skeptical as regards the moon's influence over vegetation. One thing you must admit, that the moon governs the high and low tide, so if it can have power over two large bodies of water as our oceans why not have something to do with vegetation? I am going to give you my experience. In York State, Illinois, Nebraska and California if you plant potatoes in the light of the moon (or when the moon points up) your potatoes will crowd out at the top and get sunburnt, when if you plant them in the dark of the moon they will all grow under ground. Then again, if you plant your cucumbers in the sign of the posy you will not have many cucumbers. I am not an old fogy, but my observations have been that the moon has (as the Tennesseean would remark) a "right smart" influence over vegetation.—J. B. Train, Ventura.

[Did you ever wonder why the moon, if it has such power over bodies of water, as it undoubtedly has, does not roll the watermelons off the earth instead of trying to pull up the potatoes?—Editors.]

A billion bushels of wheat is the estimated United States crop for the coming harvest, according to the forecast of the federal crop reporting board.



Not Acreage
But Production is the
True Measure of Profit

Profit is the difference between what your crops cost you and what you get for them. The ratio is the same whatever the acreage of the farm.

The farmer who can cut down cost and increase production is the one who will make the most money on his investment.

G-E ELECTRIC MOTORS FOR RANCH AND FARM

will positively accomplish the following results:—

Save loss from drought and increase crops by supplying steady, dependable power for irrigation.

Save labor by driving farm machinery formerly worked by hand.

Save repair bills—owing to their simple, sturdy construction, G-E motors operate for years without getting out of order.

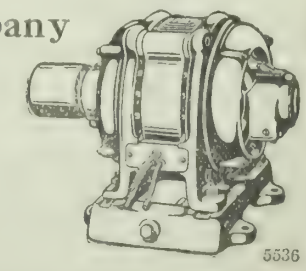
Save time,—G-E motor-driven machinery does job or "chore" in a fraction of the time taken by slow hand methods.

Ask your local power company to demonstrate what electricity will do for you in the house, dairy, barn and field.

General Electric Company
Los Angeles Office:
124 West 4th Street
San Francisco Office:
Rialto Building

The General Electric Company will gladly answer questions relating to the use of electric power for ranch and market garden irrigation.

Address nearest office.



5536

The Williams Patent Portable Alfalfa Mill with Sack Packer

Can be driven with steam, oil, or electricity. Three sizes. One, two and three tons. Don't Haul Hay—HAUL THE MEAL.
Address Oliver J. Williams, 25 California St., San Francisco.

General Agricultural Review.

FARMERS' UNION PICNIC.

Nine hundred people seated amid the columns of a young eucalyptus grove wherein were placed long tables loaded with such food as city folks seldom eat, and a lot more people scattered about on the grounds of the Machada school near Morgan Hill, was the welcome sight which greeted a Pacific Rural Press representative last Saturday. It was the annual picnic of the Morgan Hill Farmers' Union carried out this year in connection with other Farmers' Unions of Santa Clara county under the able management of the local secretary, W. S. Breton, and President G. R. Lynch

A considerable part of the picnickers were young men and maids, boys and girls, and their grandparents, and the farmers' wives who know how to handle such crowds of men folks and children. Everybody was having such a soul-satisfying good time as would make the theatre-going, excitement-craving, city good times seem like blue skim milk.

After dinner most of the picnickers gathered to hear L. C. Crow, President of the Washington State Farmers' Union, deliver the address of the day. From Mr. Crow's remarks, we select a few significant statements.

Active work in the Union of Washington was started six or seven years ago and they now have over 10,000 members. The Farmers' Union is now organized in 26 states with over three million men and women cooperating. If there were not something radically wrong, the farmers could not be organized.

Fifty-four syndicates control more land in the United States than would comprise six or eight of our northeastern States, or more than several European countries.

Every year sees more tenants and fewer farm owners on the farms of the United States. In some states 63 per cent of the farmers are tenants. Farm tenancy is the result of the greatest curse which ever blighted humanity — speculation in land. There ought to be a land tax which would prevent it. In the U. S. less than 50 per cent of the farmers own their own homes; in Germany, 87 per cent; in Denmark, 89 per cent. This is due to the foreign rural credits systems by which the government guarantees the payment of principal and a low rate of interest. "No rural credits system is any good at all unless it has the government guarantee back of it."

The indebtedness of U. S. farmers amounts to approximately six billion dollars, on which they are paying about 510 million dollars annually interest at the rate of 8 to 8½ per cent.

The farmers can accomplish everything through solid organization. Independently, they can accomplish nothing. It is the unorganized farmers that fix the prices for all farm products.

Farmers generally do not believe the Bible, for it says: "Thou shalt earn thy bread by the sweat of thy brow," but most farmers go ahead and earn their bread by the sweat of their backs, allowing the rest of the nation to make its bread by sweating their brows for what the farmer produces by the sweat of his back. Every other line of commercial activity is well organized so that even the bootblack on the street can demand a certain price or no shine, while the farmers go on allowing other folks to fix prices on what they produce.

CITRUS AND SEMI-TROPICAL.

The June drop of oranges in the Porterville section is so extensive that crop prospects are reduced.

A carload of oranges shipped to New York by the Anaheim Citrus Fruit Association brought the top price of $4.10 per box.

A reduction of $5 per car in the through citrus rate, under refrigeration, to points in the East will be secured by shippers as soon as formal permission for the change can be obtained from the Interstate Commerce Commission

DECIDUOUS FRUITS.

The packing of plums and apricots has commenced in Visalia at the plant of the Earl Fruit Company.

It is expected that the Hunt Bros. Cannery at Los Gatos will open for apricots on July 1, with the prospects good for a big pack.

Watsonville shipped the last carload of apples for this season last week. The season's shipments numbered about 3400 cars, which is slightly less than last year.

A co-operative company to handle the marketing and shipping of fruits and produce has been formed in Colfax, known as the Colfax Fruit Growers' Association.

Peach growers of Selma have organized for the purpose of marketing the crop to some advantage to the growers. L. D. Scott was made president of the organization and C. W. Christensen, secretary.

The Tulare County Growers' Association recently named R. A. Powell, of Fresno, manager of their cannery at Porterville to succeed Vernon Campbell, who has become manager of the Central California Association of Canners.

The Fresno Peach Growers' Committee announces inability to determine satisfactorily the 1914 holdover, but it is practically all in the hands of packers. Promising markets were located, but the packers did not co-operate with the committee.

Dried peaches from Winters took first prize at the Panama-Pacific Exposition in competition with the rest of the world. The county also took second prize for figs, prunes, pears, and Imperial prunes, a bronze medal for silver prunes, and a silver medal for olive oil sent from Woodland.

OLIVES AND NUTS.

Two men have been detailed by the U. S. Dept. Agr. to investigate thrips in Butte county olive orchards.

Orland will shortly be visited by T. Francis Hunt, of the University of California, to learn the cause of so many young almond trees dying.

Conditions are reported to be very favorable for a heavy walnut crop throughout the southern portion of the State. If the present crop reaches maturity, it is estimated

THE
HAY STACKER THAT SAVES
TIME, WORK AND MONEY

This derrick will handle hay, loose or baled, in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved from place to place as easily as a farm wagon. With it three men can do the same amount of work as nine men by hand. Has great lifting capacity and is unequalled for hoisting machinery, timbers, or heavy loads of any kind.

WRITE US TODAY and we will send you descriptive and illustrated literature. The Schmeiser Portable Automatic Derrick is not an experiment. It is the result of 25 years of actual experience gained in farming. It is being used with great success all over the Pacific Coast. Write us NOW for full details explaining just what it can do and how it can save you time, work and money. Address

SCHMEISER MANUFACTURING CO.
Box 87
Davis, California

PILES UP HAY AND PROFITS

USED BY ALL MODERN FARMERS

KIRKMAN NURSERIES
WHOLESALE GROWERS OF
True to Name Nursery Stock
Main Office: 2523 TULARE STREET, FRESNO, CALIF.

Second Hand PIPE Screw Casing
ALEXANDER PIPE COMPANY
OFFICE—250 North Point Street, San Francisco, Cal.—WORKS

Improved Fruit Pitting Machines

CAPACITY:
APRICOTS, 1 ton per hour.
PEACHES (freestone), 2 tons per hour.
Write for Circular
Does the Work of 15 Men. Guaranteed.
BERGER & CARTER CO.
1045 17th ST., SAN FRANCISCO

BEE-KEEPERS' SUPPLIES
We keep a full line of supplies and are prepared to serve bee-keepers promptly.
Write for Catalogue A.
A. I. ROOT CO.,
58 Sutter St., San Francisco.

Permanence
IN FARM STRUCTURES
is absolutely assured if you make them of
Concrete
Silos, horse troughs, dairy barn floors, cold storage houses, septic tanks, fence posts, milk houses, oil or water storage tanks, feeding racks and many other equally important uses for Portland Cement Concrete.

Your local dealer can tell you about them.

REMEMBER
That if you make it of
Portland Concrete Cement
The first cost is the last cost.

that it will be about 30,000,000 pounds.

GRAIN AND FIELD CROPS.

Imperial Valley is shipping four or five cars of melons daily.

On land west of Lemoore in Kings county over 2500 acres has been set out this year to beans.

The second crop of alfalfa in Sanger is being harvested and it is said to be selling at $6 a ton.

Over 1,000,000 pounds of "American Wonder" potatoes were recently shipped from Merced county to the San Francisco markets.

Harvesting of grain has commenced in Glenn county and from all indications the yield will be greater than that of past seasons.

After completing an estimated pack to exceed a million cans, the Pacific Pea Packing Company of Oakdale closed down. No fruits or tomatoes will be canned this year.

One million five hundred thousand pounds of onions were recently shipped from Merced county. The shipment consisted of five carloads—two to eastern markets, one to Oregon, and two to the Bay cities.

Ten acres of alfalfa near Willows has been turned over to Ralph D. Robertson of U. S. Dept. Agr. by the Sacramento Valley Irrigation company to find the best methods of irrigating and handling alfalfa.

The sugar beet crop of the United States will be an exceptionally large one this year, according to the forecast of the U. S. Dept. Agr. based on conditions on June 1. The total acreage is 659,300 acres, and California is third in the area planted.

Merced shipped the first carload of green tomatoes to the northern markets last week. The shipment consisted of 1000 boxes of 20 pounds each. It is estimated that about 1,500,000 tomato plants are in bearing within a three-mile radius of Merced.

About 1000 acres are planted to rice in the Corcoran section of Kings county on alkali tracts. Although this is the first year that rice has been planted to any extent in that district, the growers are well pleased with the success of the experiment.

Scott, Magner & Miller of San Francisco write us as follows: "It will be a relief to this market when some fancy wheat hay becomes available to supply the demand for such stuff, as it has been nearly impossible to obtain a suitable quality to satisfy the exceptionally particular trade on this type of hay. A little new first cutting alfalfa has been coming in, but during the coming week some good second cutting is expected for shipment."

MISCELLANEOUS.

July 1 is Oregon Cherry Day at the Panama-Pacific Exposition.

An agricultural fair will be held in October at Dorris, Siskiyou county.

Farmers' short courses will be held at the University Farm, Davis, from October 4 to November 12.

The Turlock Merchants and Growers' Corporation has filed articles of incorporation, with a capital stock of $75,000, of which $13,000 has been subscribed.

County Horticultural Commissioner H. P. Stabler has been appointed squirrel inspector of Sutter county with authority under the state law to enforce the extermination of squirrels.

On June 26 the Ione Development Association will hold a meeting at Ione to discuss the irrigation of 200,000 acres in Amador county. An address on irrigation will be delivered by Prof. Clarke Dean, of the University of California.

The Board of Supervisors of Stanislaus county have set aside $2000 to pay the expenses of a farm adviser for one year. The adviser will be named as soon as one can be chosen by Prof. B. F. Crocheron of the University of California.

The State Civil Service Commission of California announces state examinations on July 3 for the position of Vegetable Gardener. This position requires thorough knowledge of vegetable raising and may include the charge of several acres of vegetables for a State institution, as well as supervision of inmate help. Salaries range from $30 to $60 per month and board

Make Rain Keep Your Crop Growing

We manufacture sprinklers for almost any kind of irrigation, Lawn, Park, Garden, Orchard or Field; **specially for Alfalfa.** This irrigation by sprinkler is suitable for any land, level, hillside, or sandy soil. The water is thrown high in the air and drops on the land as natural rain. The advantages of this system are great labor saving, economy of water, and it leaves the land free to cultivate. To accomplish this we designed such sprinklers as will cover the largest area with any given pressure at the same time properly distribute the water over the area irrigated. Of course you must have water pressure. With heavy pressure and one of our large type sprinklers you can irrigate one-half acre per unit. When writing it is absolutely necessary to give all details of water pressure and supply, also purposes intended for. We want to demonstrate this system. Address all communications to

H. E. J. VACHER,
Sprinkler Manufacturer.
19 W. Mason Street.
Santa Barbara. California

IDEAL GOPHER TRAP

Only Trap guaranteed to catch large or small gopher. Being round with thin edges gopher walks into trap before detecting anything in runway. Positive grip, jaws always hold. 100% efficient—catches gopher every time. Easiest to set. Far safer and surer than poisons or gas. Farmers say it's worth dozen other makes. Price 50c. If your dealer can't supply you, will be sent postpaid on receipt of 60c; two traps for $1.10; six for $3.00. Money back if not satisfied.

E. J. CHUBBUCK, Dept. B.
731 Market St., San Francisco, Cal.

SULPHUR

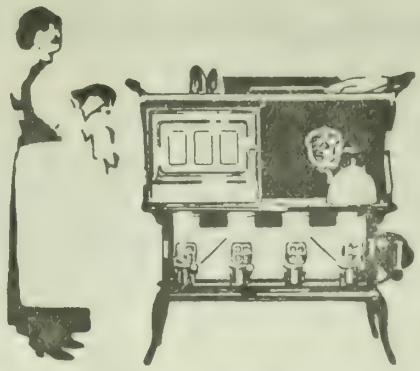
Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand. Packed in barrels and double sacks. Are the fluffiest Sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH. SEND FOR ILLUSTRATED BOOKLET; also PRICE LIST and SAMPLES.

SAN FRANCISCO SULPHUR CO.
634 California St., San Francisco, Cal.

EUCALYPTUS SEEDS.

Forty species to select from. Write for free pamphlet "Eucalyptus Culture." It tells how to sow the seed, raise the young plants and plant out in the field. Trial packets 15c each. 4 for 50c. Special prices on large quantities

THEODORE PAYNE,
345 S. MAIN STREET, LOS ANGELES, CAL.



Gas-Stove Convenience with Kerosene

A good oil stove is like a gas stove—ready at the touch of a match. Any degree of heat you want *instantly* by simply raising or lowering the wick.

New Perfection Oil Cook-Stove

For Best Results Use Pearl Oil

Burns oil, the clean, cheap fuel. It roasts, toasts, broils, bakes—better than your kitchen range. No wood, coal or ashes to lug—no soot or dirt—no odor—does not taint the food. And your kitchen is always *cool*. Several sizes and styles. Ask your dealer. See Exhibit, Palace of Manufactures, Panama-Pacific Exposition.

STANDARD OIL COMPANY
(California)
San Francisco

Grain Bags
Twine
TENTS
Irrigation Hose
Wagon Covers—Canvas
***Desert Brand* Water Bags**
Milk and Butter Coolers

Write for Catalog and Discounts.

W. A. Plummer Mfg. Co.
35-37 Front St., Cor. Pine, San Francisco

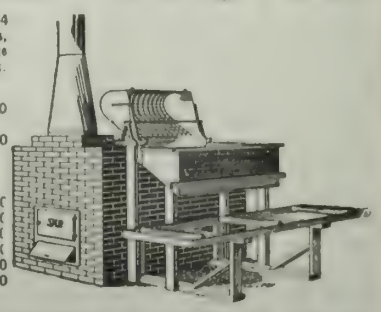
PRUNE DIPPERS

with all the latest improvements. Best and cheapest on the market.

Our dipper consists of tank made of No. 14 steel with 1½ in. pipe coil. Basket weights, levers and frame. Furnace front and irons, grate bars, tie rods, 10 ft. 9 in. galv. iron smoke stack.

PRICE, F. O. B., $60.00.

Hopper and Spreader	$15.00
30 in. Green Grader, 3 grades, suitable for above	85.00
Large Power Dipper and Grader, capacity 75 tons per day.	
24 in. Hand or Power Dry Graders:	
3 grade	$55.00
4 grade	60.00
5 grade	65.00
Field cars, wood or steel frame	6.00
Transfer cars	8.50
Turn Tables	8.50
8-lb. steel rails, 7 cts. per foot.	



SMITH MFG. COMPANY., 200-224-226 THE ALAMEDA, SAN JOSE, CAL

Why Humboldt Makes Good Butter.

[Written for Pacific Rural Press.]

The determining factor in good butter is good cream and the only way to get good cream regularly is to pay the dairyman for quality, is the principle upon which creamery men of Humboldt county have worked in their effort to produce a superior grade of butter.

It is conservative to say that nowhere have we seen cream arrive at the creameries in as good condition as is general in Humboldt county; even though a casual visitor to that section would at first consider equipment and buildings anything but conducive to good cream. In fact Humboldt dairymen have often been severely criticised for their methods of milk handling; yet the fact remains that practically all of the cream reaches the creamery in a sweet stage; and it has been possible for the California Central Creameries to turn out at their Ferndale plant 275,000 pounds of butter this year with which to fill a government contract that called for a score of 94 to 95 points. To be dead sure that this standard was sustained, they placed a government inspector on the job to sample and test every churnful that was made.

True, climatic conditions are most favorable for the production of good cream in that county even in face of the relatively poor buildings and equipment as compared with other sections. This is due to the prevailing cool weather which does away with the fly evil almost entirely; and the damp fogs and grass pastures which practically eliminate the dust factor. Thus one finds corral milking in the summer almost universal and few screened milk rooms.

Without the cream grading system which is in vogue in the county, however, even these favorable climatic conditions would not overcome the objectional feature of sour cream.

Casein, dry powdered milk, and cheese constitute the real reasons for the grading system which is now in use, the premium being paid on the skim milk rather than on the butterfat.

At the Central Creameries plant in Ferndale, three grades of milk are recognized, A grade, AA grade and B grade. The A grade is milk which is delivered twice a day and which passes the alcohol test. This test is made by mixing two c.c. of alcohol with an equal amount of milk. If the milk and alcohol do not coagulate, it passes the test. AA grade milk is that which will pass the alcohol test but which is delivered only once a day; while B grade is that which will not pass the alcohol test, whether it be delivered once a day or not.

For A grade 21 cents is paid for every 100 pounds of milk delivered, or for about 83 1-3 pounds of skim milk. AA grade brings 18 cents per hundred on the same basis; while B grade only brings 10 cents a hundred. Eight cents a hundred is charged the dairymen for collecting the milk, it being optional with him to either deliver it himself or hire the creamery to do so. It is interesting to know that the amount of B grade delivered is of minor importance, the dairymen finding it profitable to deliver the better grades.

The result of this system naturally leaves the dairyman without any skim milk unless he separates a part of his milk, which most of them have done for their calves. More recently, however, some of the dairymen have started to use buttermilk for their calves. This is purchased from the creamery and delivered to them at their ranches at 10 cents a hundred. That its use is meeting success is evidenced from the heavy demand made upon the creamery, its supply being eagerly sought by patrons.

Grading Increases Price. — To show what this premium system means to the dairyman, it is pointed out that one large patron received $1,017.64 more for his A and AA grades of milk last year than he would have received had it been B grade. This meant that he received $5.50 per cow more through careful handling and prompt delivery. A noteworthy fact of this system is that much of the A grade milk reaches the creamery before having had time to cool off.

While only the one dried milk factory is in operation, and does not therefore handle anywhere near all of the product, casein and cheese aid the other creameries in the county in solving the cream question in much the same manner.

In such cases the dairyman is paid 10 cents a hundred for his cream that will not pass the alcohol test the same as in the former case, the premium, however, being but four cents a hundred for milk which does pass. That which passes is used for the manufacture of casein while the A grade is used for cheese making. The same is also true of the one condensary which is located in the county.

Could such a system of grading be carried out by creamery managers in other parts of the State, there is little doubt that California could soon find a market for any surplus dairy products that she might have, and thus work a big benefit to the dairy industry of the State. Until such steps are taken by the creamery men, however, it is agreed that little if any betterment may be expected. In this case the creamery men have been far sighted enough to see that they must put a premium on good cream rather than upon rotten cream, as is now the practice in other parts of the State.

The mother asked little Dot to go into the next room, and see if the clock was running, for she had not heard it strike all the afternoon. Dot came running back, put her curly head into the door, and exclaimed: "Why, no, mamma, de clock ain't a-runnin'. It is des stannin' still and a waggin' its tail."

Segis Pontiac de Kol Burke

1st Prize 2-year-old Cal. State Fair 1914.
The bull that combines the blood of the greatest producing families in Holstein history. He is an outstanding individual, weighing 2200 at just three years of age. His dam RIVERSIDE SADIE DE KOL BURKE, is the heaviest milker that the breed has ever developed. She and six of her sisters have records above 30-lbs. butter in seven days.

A few sons of this sire are now available, some of which are soon ready for service. Several are from half sisters to Aralia De Kol, 30-lbs. butter in seven days at 12½ years, 28090 lbs. milk and 1142 lbs. butter in one year. Prices reasonable.

Pedigrees and Prices on Application.

A. W. Morris & Sons Corporation
Box 398-D. Woodland, Calif.

FIRST HONORS
Panama-Pacific International Exposition

First among products of their kind—first in quality, first in efficiency. Zerolene and Red Crown have been awarded the

GOLD MEDAL

—the highest honor the Exposition can bestow—the acknowledgment that the "best oil and gas the Standard Oil Company can make" are the best that human skill and experience can produce.

ZEROLENE
the Standard Oil for Motor Cars

RED CROWN
the Gasoline of Quality

GRANDSONS OF TILLY ALCARTRA
At Prices within Reach of Every Breeder and Dairyman.

A Grandson of Tilly Alcartra

We have several splendid grandsons of this now famous cow which we can deliver to you at prices which will suit the pocketbooks of every dairyman wishing to improve the quality of his herd, whether it be a grade or pure-bred herd. These bulls are sired by our herd bull, Prince Alcartra Kornbyke and out of A. R. O. cows, and the only living grandsons of a cow having a record of over 30,000 pounds of milk in a year. Such an opportunity for increasing production has never been offered DAIRYMEN AND BREEDERS in California, price and quality considered. Buy one of these bulls and solve your low production problem. Write

J. S. Gibson Co., Box 97 Williams, Cal.
"THE NAME GIBSON INSURES QUALITY."

MILKING MACHINES
FOOT POWER. ELECTRIC POWER.
See our Exhibit at the Exposition or write for folder.
ARTHUR F. STEINER,
Block 1, Palace of Agriculture, P. P. I. E., San Francisco.

HORSE OWNERS! USE

GOMBAULT'S
CAUSTIC BALSAM.
A safe, speedy and positive cure. The safest, Best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Luitwieler Pumps
Exhibit at Both Expositions.
Be sure and see these interesting exhibits. All sizes and styles shown. Write for free pump catalogs.
Luitwieler Pumping Eng. Co.
711-13 N. Main St., Los Angeles.

More Facts About Silos and Silage.

We shall certainly have to keep a stream of information running if we are to satisfy the demands of readers who are becoming interested in this subject. Professor A. B. Conner of the Texas Experiment Station is ministering to a similar demand from his constituency through the Farm and Ranch, treating of plants which can be most easily grown in this state:

How Big a Silo?—The size of the silo will depend upon the number of animals to be fed and the length of the feeding period. It is necessary to remove two inches of silage each day after feeding has begun to avoid loss by spoiling. One cow will eat 30 to 35 pounds or one cubic foot daily. To find the number of cubic feet contained in two inches of a given silo, multiply the circumference by one-fourth the diameter and divide by six. Accordingly one can figure the size of silo required to feed a certain number of cows a given number of days. One can also figure the exact period required to exhaust a silo of a given height.

Silage Crops.—A silo 30 feet deep will furnish silage for practically six months if fed at the rate of two inches daily. A silo 30 feet deep will hold a greater tonnage than two silos 15 feet deep, all being the same diameter. A silo 32 feet deep and 14 feet in diameter has a capacity of approximately 100 tons. A silo of the same height and 20 feet in diameter has a capacity of approximately 200 tons.

In constructing a silo the wall should be sufficiently strong to withstand the pressure imposed upon it after being filled so as to insure against side openings. This outward pressure is 11 pounds per square foot for every foot of depth and amounts to 330 pounds per square foot at the base of a 30-foot silo.

Corn silage is generally reputed to produce silage superior in quality to other crops. Recent experimental work indicates that Kafir-corn silage is approximately equal in feeding value to corn silage. Milo, feterita and other grain sorghums produce good silage, perhaps of about the same feeding value as Indian corn. The sweet sorghums produce silage of good quality, but not equal in feeding value to either Indian corn or grain sorghums. Legumes cannot be siloed alone satisfactorily because they do not contain the sugar necessary for proper fermentation. Legumes are higher in protein and add materially to the feeding value of ensilage made from corn, Kafir corn and so forth. They can be utilized to great advantage either by mixing at silo or by growing in the same row with corn, Kafir corn or sorghum.

Since the semi-arid region is primarily suited to the production of grain sorghums, this section is admirably provided with silage crops that equal Indian corn in quality and excelling it in point of yield.

Indian corn should be harvested for ensilage after the ears have become well glazed. This may not be possible at times on account of drouth, but even in such case the corn should not be cut green as it will produce inferior silage. Kafir corn, milo, feterita and similar grain sorghums should be allowed to ripen seed before cutting, as they contain a higher percentage of juice and sugar than corn; hence, if cut earlier, would likely produce sour silage. The sweet sorghums must be allowed to ripen thoroughly on account or their high juice and sugar content Too often silage crops are cut green, which result in poor silage.

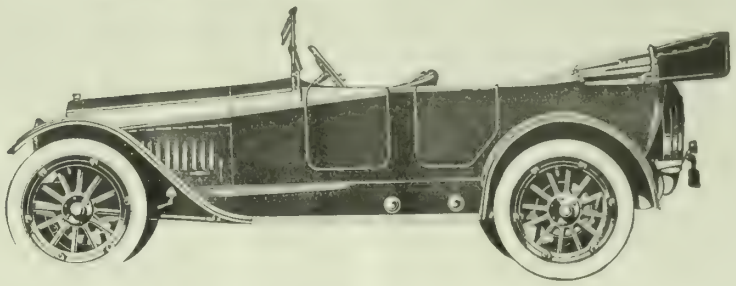
Cost of Filling the Silo.—The cost of filling a silo varies considerably depending upon the management of labor and the length of the haul. This cost, on 31 different farms in Michigan and Wisconsin reported in Farmers' Bulletin 292, United States Department of Agriculture, 86 cents per ton. Increased cost due to length of haul is unavoidable. Much depends, however, on the management of labor and teams in filling. The figures compiled from these 31 farms bore out the fact that the type of machinery used had little to do with the cost so long as the machinery was efficient. They also brought out the fact that much of the increased cost of putting up silage is due to the poor utilization of teams and labor. The man who hauls small loads increases his cost materially. About eight men are required ordinarily. One man with three horses to the corn harvester; two men to load wagons in the field; three or four men with teams to haul to the cutter; one man to feed the cutter, and one man in the silo to spread and tramp silage, exclusive of a man to attend the engine. This outfit may be reduced by two men by utilizing two boys to drive wagons from the field to the cutter and by having one man unload wagons.

Feeding Value.—The Indiana Experiment station found silage extremely palatable as a winter feed for breeding ewes and young lambs. Silage-fed ewes gave birth to lambs one pound heavier than ewes receiving dry feed. It apparently has a desirable effect on the digestive system and general health of breeding ewes in winter. The Ohio Experiment station found that silage may be used advantageously in fattening cattle where stover and hay are high in price. They found one ton of silage to equal for beef production 4.42 bushels of corn, .03 tons of stover and .25 tons of hay. Valuing corn at 50 cents per bushel, stover at $5 per ton and hay at $10 per ton, the value of corn silage is $4.96 per ton.

Three cars of sheep were shipped to San Francisco recently by John Sheehy of Maxwell, the animals bringing from $5.50 to $6.50 a head.

FOR SALE
Pure Bred and Registered Polled Angus
Bulls
from the most fashionable families including Queen mothers, Heroines, Blackbirds, Prince Ito's, Ericas and Prides. I purchase individuals nearly every year at the International at Chicago. I can refer by permission to Prof. Gordon H. True of the University of California.
A. W. LONGLEY,
Bishop, Inyo Co., Calif.

Mitchell



THE SIX OF '16
$1250 F. O. B. Factory
Also 8 Cylinder $1450 F. O. B. Factory

See these cars on display at our showrooms. Study these Mitchells---You'll long to drive one. Drive one---You are sure to own one : : : :

Osen-McFarland Auto Co.
Distributors
661 Golden Gate Ave., San Francisco.
1st & St. James Sts., San Jose.

Veterinary Queries and Replies.

[Answered by Dr. H. B. Winstringham, Petaluma, Cal.]

WEANING PIGS.

To the Editors: Would like to know how old pigs should be before you wean them. Also I have a heifer that has been fresh about six months, and she gives only a small quantity of milk on two teats, a nice mess on the other two. Can you tell me what causes this? Can you give me a receipt for spraying cows for flies?—G. S., Corning.

[Pigs may be weaned at between six weeks to two months, depending on their growth and thriftiness. Massage the quarters of your heifer which have not a good flow of milk for ten minutes night and morning. Spray animals with fish oil to repel flies. Do this twice a day, as it evaporates.]

HORSE'S MOUTH BAD.

To the Editor: My buggy horse has some sort of trouble in the mouth; chews the bit, and slobbers considerably, which seems to indicate soreness, but nothing is visible. Will you kindly inform me what is the probable cause? The trouble, whatever it may be, has developed quite recently.—B. G., Pepperwood.

[Your horse probably has either a sore tongue, loose tooth, or rough edges on the teeth which are cutting the gums. Have a competent veterinarian examine his mouth.]

DUROC PIGS GROW FAST.

To the Editor: In your issue of June 5 is an article on "Breeding, Feeding and Gains of Hogs." I have been interested in the subject for some time, especially the gains a pig should make. I have a litter out of a Duroc sow, Lamb's American Beauty 124634, farrowed May 17, 1915. This is the sow's second litter. She had ten and saved eight, which weighed at birth 24 pounds; at one week old they weighed 42½ pounds, a gain of 21.5 pounds, or an average of 2.7 pounds per pig. We weighed again at two weeks, and they weighed 67 pounds, a gain of 24.5 pounds for the eight, or an average of a little better than 3 pounds for the second week. The third week they weighed 101 pounds, a gain of 34 pounds, or 4.25 pounds per pig. The fourth week they weighed 128 pounds, a gain of 27 pounds, an average of 3.3 pounds per pig; and today, the fifth week, they weigh 154 pounds, a gain of 26 pounds, an average of 3.25 pounds. During the last week one pig got his leg hurt, and only gained one pound, which brought down the average. After the third week the litter was moved from the farrowing pen and put on alfalfa pasture, which may account for the gain being less than the previous week when confined in a small pen. Compared with Henry's report, these weights are almost unbelievable; yet I have had several litters which were equal to this one. I sold three pigs from one litter last October which weighed at 8 days old 84.91 and 94 respectively. Who can beat it?

Ceres. Elmer Lamb.

NEW WORLD'S RECORD COW.

To the Editor: The Holstein-Friesian cow Finderne Pride Johanna Rue 121083 has broken all records for fat production, of all breeds, by producing in 365 consecutive days 28,403.7 pounds of milk containing 1,176.47 pounds of butterfat. She freshened at 5 years, 4 months, 4 days. Her sire is Johanna Rue 3rd's Lad 26939; her dam is Jondine Pride 60247. She was bred by Mr. Bernhard Meyer, Finderne, N. J., and is now owned by the Somerset Holstein Breeder's Company, Somerville, N. J. The test was made under the supervision of the New Jersey Agricultural College. Near the close of her eleventh month in yearly test Finderne Pride Johanna Rue was placed on strict official test for thirty days with every milking watched, weighed, sampled and tested by the supervisor then in charge, and in that time produced 2,437.3 pounds milk containing 117.639 pounds. During the best seven days, beginning 358 days after freshening, the production was 602.4 pounds milk containing 28.831 pounds butterfat; and by this production she for the second time broke the record in the division of records begun not less than 240 days from freshening. Thus, this great cow produced in seven days almost as much fat at the close of her yearly test as she did in her best seven days at the beginning of that test, and she now stands as queen of all dairy cows

MALCOLM H. GARDNER,
Supt. A. R.

The Sacramento-Yolo Cow Testing Association tested over 927 cows during the month of May. Over 37 of that number made over 45 pounds of butterfat in 30 days.

LIVESTOCK DIRECTORY.

Rates in this directory, 3c per word each issue; or if carried weekly for one year, 2½c per word.

DAIRY CATTLE.

REG. HOLSTEINS—We offer choice grandsons of King Segis, also gandsons of the world's record cow. Creamelle Vale; blood that increases the value of your herd. Write or call and see our herd. F. H. Stenzel, San Lorenzo, Cal.

REGISTERED HOLSTEINS—Young bulls sired by King of Riverside and Lakeside Model Prince from A. R. O. dams. J. H. Harlan Co., Woodland.

HOLSTEIN BULLS—Pure-bred young Holstein bulls for sale on Thompson Ranch, near Napa. For prices and particulars, address J. B. Agee, Napa, Cal.

AYRSHIRES—For sale, fine young bulls from imported dams and sires. E. B. McFarland, 412 Claus Spreckels Bldg., San Francisco.

FRANK MEACHAM, Petaluma, California.—Breeder Red Polled cattle, both sexes. Take electric cars at Santa Rosa or Petaluma for Live Oak.

CALVES RAISED WITHOUT MILK—Cost less than half as much as the milk-raised calves. Write for free book to COULSON CO., Petaluma.

REG. GUERNSEY BULLS for sale. Grapewild Farm, Mayhews, Sacramento county, Cal. A. B. Humphrey, Prop., P. O. Box P.

THE McCLOUD RIVER LUMBER CO., McCloud, Cal.—High-class, thoroughbred Holstein bulls for sale. Write for prices and pedigrees.

JOHN LYNCH, breeder of Registered Shorthorns. Milk strain choice. Young stock for sale. Box 321, Petaluma, Cal.

BREEDERS OF REGISTERED HOLSTEIN cattle and Berkshire pigs. Whittier State School, Whittier, Cal.

FINE REGISTERED HEREFORDS—Charles Rule, Breeder and Importer, Duncan Mills, Sonoma Co., Cal.

REG. JERSEYS—Herd established 1868. Young bulls from best cows. Rancho Dos Rios, R. 2, Modesto.

BARGAIN—A Holstein Bull Calf from same dam as 26-lb. A. R. O. Cow. K. W. Abbott, Milpitas, Cal.

REGISTERED GUERNSEYS—Both sexes for sale. Mrs. Charles G. Lathrop, Stanford University, Cal.

REGISTERED HOLSTEINS—A. W. MORRIS & SONS, Corp., Importers and Breeders, Woodland, Cal.

REGISTERED HOLSTEIN BULLS from A. R. O. dams. J. W. Benoit, R. 2, Modesto, Cal.

CREAM CUP HERD—Registered Holsteins. Pontiac bull calves. M. Holdridge, Modesto, Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

PELANDALE HERD of Reg. Holsteins. Young bulls for sale. J. A. Pelanda, Salida, Cal.

SUNNYSIDE HERD—Registered Holstein cattle. R. F. Guerin, R. 3, Box 58, Visalia, Cal.

REGISTERED HOLSTEINS—Auctioneer and Breeder. T. J. Gilkerson, Stratford, Cal.

REGISTERED JERSEYS—Young bulls and bull calves. T. B. Purvine, Petaluma.

REGISTERED JERSEYS—Young males for sale. O. J. Ames, Oakdale, Cal.

HOLSTEINS—Registered exclusively Tuberculin tested. Linwood Farm, Santa Cruz, Cal.

REGISTERED GUERNSEY BULLS for sale. J. S. Moulton, Ripon, Cal.

BREEDERS OF REGISTERED HOLSTEIN CATTLE—McAllister & Son, Chino, Cal.

BREEDER of Registered Holstein Cattle. Ernest Otto McClure, R. 2, Modesto, Cal.

N. H. LOCKE CO., Lockeford, Cal. — Choice young Jersey bulls for sale.

COPA DE ORO FARM—Pure-bred Holstein cattle. Los Banos, Cal.

PACKWOOD FARM HERD for Holsteins. W. F. Mitchell, Visalia, Cal.

HORSES AND MULES.

PURE-BRED Registered Percherons—A few choice young stallions two years old; also two, three and four-year-old fillies, majority in foal, for sale. Los Altos Stock Farm, Los Altos, Cal.

BEEF CATTLE.

HOPLAND STOCK FARM—Registered Short-horns. Prices on application. Hopland, Cal.

SIMON-NEWMAN CO., Breeders of registered Herefords. Newman, Cal.

TWENTY Shorthorn Bulls from Nebraska. G. A. Murphy, Perkins, Cal.

SWINE.

BEST BIG TYPE Duroc Jersey sows. Will farrow from "Red Wonder" or "Chief." As we must have money we are selling these fine thoroughbred sows at scrub prices. You can make 500 per cent in one year. Order at once. Also pigs ten weeks old very cheap. Pedigree sent with each animal. Western Hog and Land Syndicate, 919 Hearst Building, San Francisco.

MODESTO HERD LARGE YORKSHIRE SWINE—For sale Boars ready for service. Satisfaction or money refunded. Can show you splendid results from crossing with common sows. More pigs per litter; more pounds per pig. Riverina Farms, R. F. D. 2, Box 74B, Modesto, Cal. For pedigrees and prices, write A. D. McCarty, 201 Sansome St., San Francisco.

BILLIKEN HERD of pedigreed O. I. C. Swine; weaned pigs of both sexes ready for immediate shipment. Pairs and trios mated, not akin. All from big type stock of extra heavy bone. Immunized against hog cholera, crated and registered free. Write for descriptive circular and price list. C. B. Cunningham, Mills, Sacramento County, California.

HOGS—Forty head of Big Type Poland-China boars of any age. Sired by Iowa Wonder, who is a son of A. Wonder, the greatest hog living or dead. No females to sell at present. On account of the large number on hand will make special prices. Geo. A. Smith, Corcoran, Cal.

STURDY YOUNG BERKSHIRES — Sired by Birch Champion, he by Laurel Champion, the grandest Berkshire on the coast. Pigs ready June 15. For prices and pedigrees address T. R. Nickalls, Los Molinos, Cal.

BERKSHIRES—Bred for size and bone and quality. Herd boar won gold medal at Nevada State Fair, 1913. Write for pedigrees and price. J. L. Gish, Laws, Inyo county, Cal.

REG. BERKSHIRES—Fine 3 months old pigs, both sexes, by Panama Lee, Gold Medal Winner at 1914 State Fair. Also bred sows. C. E. Barrows, Los Molinos, Cal.

QUALITY BERKSHIRES—Boars, Brood Sows, Weanlings, $10. F. H. Wilson, Mgr., Alison Ranch, Turlock.

BERKSHIRES—Bred sows, service boars and young pigs. Brae Bourne Ranch, R. 3, Box 172, Santa Rosa, Cal.

BERKSHIRES—Headed by Bandmaster 2nd, junior champion Iowa State Fair. My females were winners at Iowa, Wisconsin and Minnesota State Fairs. Farm at San Mateo. Address W. M. Carruthers, 218 Hearst Bldg., San Francisco.

A FEW BERKSHIRE BOARS for sale. Age 3 to 6 months. Sir Falstaff of Bookhaven No. 185,324, Dan Sebastopol Countess No. 184,511. J. M. Robinson, Sebastopol, Cal.

BLATCHFORD'S PIG MEAL weans easily and safely; no trouble; no milk. Write for free folder, "The Safety Route from Pighood to Porkage." Coulson Co., Petaluma.

REGISTERED DUROC-JERSEY BOARS from prize-winning stock. Cholera immune. From 12 to 16 weeks old. D. W. Hobson Co., 819 J St., Sacramento.

REGISTERED, PUREBRED BERKSHIRE PIGS.—(Weanlings) both sexes. Reasonable prices. Write for full information. J. E. Hall, Sebastopol, Cal.

REGISTERED BERKSHIRES — Weanling boar pigs, $10.00 each. A few older boars. J. M. Bomberger, Modesto, Calif.

REGISTERED BERKSHIRE SWINE—All ages, for sale. Grapewild Farm, Mayhews, Sacramento, Cal. A. B. Humphrey, Prop., P. O. Box P.

25 POLAND CHINA SPRING BOARS—Jan., Feb., March farrow. Prices, registerer and crated, $20, $15, $10. Edwd. A. Hall, Watsonville, Calif.

REGISTERED POLAND-CHINAS—Prize-winning Nebraska stock. Large type. Young pigs for sale. C. N. White, Phelan Bldg., San Francisco.

DEL DAYO FARM—(Old Haggin Bottom Ranch) Breeders of Registered Berkshires, both sexes for sale. P. O. Box 1140, Sacramento, Cal.

GLENVIEW POLAND-CHINAS—Baby pigs from best families for sale. From $15 up. Chas. R. Hanna, R. 3, Riverside, Cal.

IMPERIAL STOCK FARM BERKSHIRES—Quality and price guaranteed to satisfy. R. J. Merrill & Son, Morgan Hill, Cal.

BERKSHIRES—Utility and Choice Registered Pedigree stock. Correspondence solicited. C. H. Thompson, Novato, Cal.

REGISTERED BERKSHIRES for sale. All ages. Boars ready for service. Stanislaus Ranch Co., Crow's Landing, Cal.

BLUE-RIBBON HERD DUROC-JERSEY HOGS—Breed Gilts a specialty, 15 bred now, 20 ready to breed. Sires and dams win all blue ribbons 1912, 1913, 1914 State fairs. 15 first, 13 seconds, 6 thirds, 7 fourths, 1 fifth. Will show 1915. For prices, write Jno P. Daggs, Modesto, Cal.

REGISTERED DUROC-JERSEYS from Eastern sows. Six months gilts and boars. S. S. Southworth, Napa, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners. Finest stock in State. $20 up. M. Bassett, Hanford.

REGISTERED BERKSHIRES—Young stock for sale. John H. Stewart, Elk Grove, Cal.

REGISTERED POLAND-CHINA HOGS—Cholera Immune. W. D. Trewhitt, Hanford.

POLAND-CHINAS Prize-winners. Money-makers. W. Bernstein, Hanford, Cal.

HOPLAND STOCK FARM Registered Berkshires. Prices on application. Hopland, Cal.

POLAND-CHINAS—Large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

POLAND-CHINAS — Prize-winners. Satisfaction or money back. Geo. V. Beckman, Lodi, Cal.

REGISTERED DUROC-JERSEY SWINE—Las Pederas Ranch, El Cajon, Cal. M. S. Allen, Manager.

REGISTERED POLAND-CHINAS. — Young stock for sale. Hewitt & Hewitt, Hardwick, Cal.

KNOB HILL STOCK FARM—Registered Poland-China swine. A. M. Henry, Farmington.

READAKS RANCH herd of registered Poland China. W. J. Hanna, Gilroy.

REGISTERED BERKSHIRES—Young stock for sale. F. W. White, Elk Grove, Cal.

BERKSHIRE BOAR PIGS—Butte City Ranch, Butte City, Glenn Co., Cal.

CHAS. GOODMAN, Breeder of high-class Berkshire Swine. Williams, Cal.

BOARS—BOARS—BOARS—Registered Durocs. J. M. DeVilbiss, Patterson.

REGISTERED O. I. C. SWINE—C. D. CONWAY, Lakeport, Cal.

POLAND CHINA HOGS—Registered. R. J. Miller, Llewellyn Ranch, Lathrop.

DUROCS—A few bred gilts, boars and gilts left. F. Curtis, Napa.

DUROCS—Weanlings only. H. E. Boudier & Son, Napa, Cal.

REGISTERED DUROC-JERSEYS—T. H. Beckman, Lodi, Cal.

POLAND-CHINA HOGS—C. A. Stowe, Stockton, Cal.

SHEEP.

FRANK MEACHAM, Petaluma, California. — Breeder Shropshires, Rambouillets, American Merinos, both sexes. Take electric car at Santa Rosa or Petaluma for Live Oak.

WANTED—A good Lincoln lamb ram. Would like to hear from Northern California breeders. James T. Peterson, Lassen, Lassen Co., Cal.

YEARLING SHROPSHIRE BUCKS for sale, single or carload lots. J. R. Bloom, Dixon, Cal.

BULLARD CO.—Breeders and Importers of Rambouillets. Hanford, Cal.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

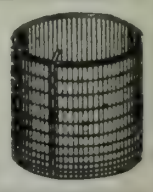
MISCELLANEOUS.

OWING TO THE MANY requests of our customers to give them information as to where they can buy or sell dairy stock, we have established a livestock bureau in connection with our office. For anything in this line write us. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

BERKSHIRES
Oak Grove
CHOLERA IMMUNE.
Our herd is Cholera Immune, the only Immune Berkshire herd in the State.
Five herd boars in use and they are second to none on the coast. Our sows are of equal merit.
We have at present some 300 Berkshires and we know that we can supply what you want.
WRITE US OR CALL.
OAK GROVE DAIRY FARM
H. G. ARMSTRONG, Prop.
Woodland, Cal.

RHOADES & RHOADES
Expert Live Stock Auctioneers
Sales conducted in all parts of California and adjoining States. Write for dates and terms.
Twenty-five years' experience.
1501-3-5 So. Main St., Los Angeles

REDWOOD TANKS
SILOS.
Water Troughs, Windmills, Frames, and Towers,
Steel and Wood.
Prices the lowest.
BROWN & DYSON,
640 So. Center St.,
STOCKTON, CAL.



MEXICAN DEER
One pair, one-year-old, domesticated MEXICAN DEER for sale.
Graceful Beauties.
L. BURBANK,
Santa Rosa, California.

With the Live Stock Men.

DAIRYING.

Dairymen of Fresno county were paid approximately $75,000 for May butterfat.

One hundred and forty thousand dollars was paid to Kings county dairymen for cream delivered during May.

The new Madera Co-operative Creamery paid dairymen $6,000 for cream delivered the first half of the month of May.

Tulare county dairymen received $80,863.88 for cream deliveries during May, an increase of $27,000 over the same month last year.

Twenty-five high-grade Holstein cows were recently sold by W. R. Belknap to D. B. Bronson of Los Angeles for George Hopkins of Tulare.

After July 15 the Los Angeles Creamery and the Lucerne Butter and Cream Company of Kings county will pay two cents a pound more for all butterfat cream testing 30 per cent or better than for cream of lower test.

CATTLE AND SHEEP.

Nevada was awarded a gold medal of honor at the Panama-Pacific Exposition for her general wool display.

Miller & Lux recently shipped 11,000 sheep from points in Oregon to the California markets.

One thousand head of cattle were recently purchased by Senator T. J. Bell from Jas. S. Woods of Nevada.

The Howard Cattle Company's herd of 254 Shorthorns of Newman were recently purchased by the Paicines Ranch Company of Hollister. The Howard Cattle Company are retiring from business.

Five cars of cattle were recently shipped from the San Joaquin valley to Los Angeles by E. F. Roberts, stock buyer for the Standard Packing Company of Los Angeles. Seven more cars have been purchased and will shortly be shipped.

The United States Government recently purchased 20 Hereford bulls from Frank Adams of Merrill, Ore., and 20 Durham bulls from Ed. Terwilliger of the same place. These are to be placed on the Klamath Indian Reservation in an effort to raise the standard of the stock on the reservation.

HORSES AND SWINE.

A swine breeder's organization has been established at Dixon, with the following officers in charge: Robert Currey, president; Jas Marshall, vice-president; and J. N. Garnett, secretary-treasurer.

One of the oldest stock ranches in the State, the 2000-acre Long Garden ranch of El Dorado county, has been sold by Aleck Forni of Porterville to John Johnston of Riego, Sutter county. The new owner will stock the ranch with cattle and sheep.

Receipts at the Portland Union Stock Yards for the week ending June 17 were as follows: Cattle, 1,600; hogs, 4,016; and sheep, 4,142. The bulk of the steers sold around $7.00 to $7.25, cows as high as $6.75. Hogs sold at $8.00, and considering the quality of the stock received prices held well. The sheep market is inactive and the prices lower. Choice lambs sold at $7.50; ewes, $5.00; and wethers at $5.50.

For Sale

800 Unrecorded Pure-Bred

SHROPSHIRE EWES

in lots to suit.

These sheep are large and in fine condition. Can be seen near Firebaugh. Price on application.

MILLER & LUX, Incorporated.
Merchants Exchange Bldg.
San Francisco.

Professional Directory

SYMMES & MEANS
AGRICULTURAL ENGINEERS
Agricultural Investigation. Drainage. Legal Engineering and Water Right Reports. Alkali and Marsh Land Reclamation. Appraisal of Irrigation Systems. Management and Development of Lands. Ranches and Irrigation Projects. Soil Surveys.
58 SUTTER ST., SAN FRANCISCO, CAL

BERRY & WINTERHALTER
CONSULTING ENGINEERS AND AGRICULTURISTS
Hearst Building, San Francisco.
Irrigation and Drainage. Land Examination. Agricultural Developments. Farm Improvements and Management and Soil Surveys.
Beet Seed, Sugar Beet Culture, and the location of Beet Sugar Factories a specialty.

BIGLER-PAUL-FURLONG
AGRICULTURAL ENGINEERS AND CHEMISTS.
Soil analyses for fertilizer requirements. Water analyses. Alkali determinations and corrections. Determination of crop adaptability. Management and development of agricultural lands. Subdivisions planned. Largest and best equipped soil laboratories in West.
SOIL SURVEYS. CERTIFICATION OF LAND.
California Fruit Building, Sacramento, California.

SOIL LABORATORY
Analysis of Soils for Plant Food Values and Alkalies. Agricultural and Industrial Products. Water. Insecticides, Etc.
CURTIS & TOMPKINS
Agricultural and Industrial Chemists.
108 FRONT STREET. SAN FRANCISCO

Eaton Laboratories.
444 Market St., San Francisco
CHEMICAL and BACTERIOLOGICAL ANALYSES, SOILS, WATERS, FEEDS, DAIRY PRODUCTS.

Practical Land Appraiser and Soil Expert
Many years' experience in Fruit, Alfalfa, and Stock Raising in California. Special attention given to prospective buyers and money lenders.
Management for non-resident owners.
PAUL GOODLOE,
79 POST STREET, SAN FRANCISCO, CAL.

Pioneer Roofing
"The roofing that covers California."
Pioneer Roofing is sun-proof, rain-proof, warp-proof, and heat-proof. It is specified by the leading architects and builders as being THE BEST. It covers the largest buildings at the Panama-Pacific Exposition, as well as thousands of buildings of all sizes and descriptions all over the West. Save money by insisting on "Pioneer."
WRITE US for samples and prices—or ask your dealer.
Pioneer Paper Co
Manufacturers,
247-251 SO. LOS ANGELES ST., Los Angeles.

BLACK LEG
LOSSES SURELY PREVENTED by Cutter's Blackleg Pills. Low priced, fresh, reliable; preferred by Western stockmen because they protect where other vaccines fail. Write for booklet and testimonials.
10-dose pkge. Blackleg Pills $1.00
50-dose pkge. Blackleg Pills 4.00
Use any injector, but Cutter's best.
The superiority of Cutter products is due to over 15 years of specializing in vaccines and serums only. Insist on Cutter's. If unobtainable, order direct.
THE CUTTER LABORATORY, Berkeley, California.

Bargains, First-Class Show Bulls
We are offering for sale purebred registered HOLSTEIN FREISIAN BULLS. Serviceable age. Bred in the lines of Pontiac, Korndyke, De Kol, Hengerveld, Inka and Spofford blood, the highest record strains. Dams—high record foundation cows, ranging up to 38 lbs. in 7 days. For further particulars and prices write or call:
PANAMA PACIFIC DAIRY
Laura J. Frakes, Sec'y. Sutter Creek, Cal.

Ask Your Dealer For
El Dorado Cocoanut Oil Cake
for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't cary it, address
EL DORADO OIL WORKS,
149 California Street, San Francisco.

When Grain is High **Feed DIGESTER TANKAGE**
Whether intended for show or market, the hog attains perfect condition and more quickly and economically if his ration includes some DIGESTER TANKAGE. The growing pig needs DIGESTER TANKAGE as a bone and muscle builder. Write for free pamphlet on hog-feeding.
WESTERN MEAT COMPANY,
Animal Food Dept., 704 Townsend St., San Francisco, Cal.

A BUILT-IN MAGNETO
A HOT SPARK
A QUICK START

ESPECIALLY DESIGNED
—For—
Pumping
Running Cream Separator
Washing Machine
Churn
Grindstone

And a hundred other odd jobs where easy starting and dependability are essential

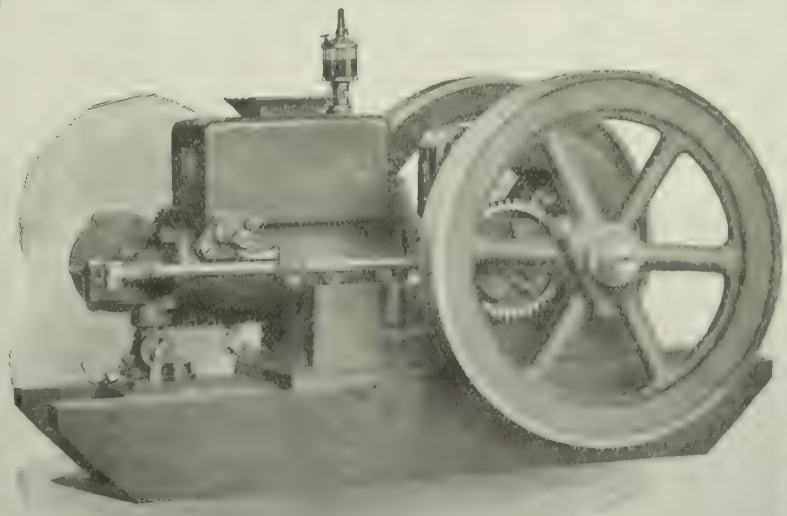
A High Grade Engine At a Medium Price

With unsurpassed manufacturing facilities, and building this engine in large quantities, we are able to make an extremely low price, considering the quality of the

"ALPHA JUNIOR"

No Batteries. No coil. Ignition Troubles Eliminated. Built-in, Gear-Driven Magneto as Regular Equipment

The Alpha Junior
The Latest Addition to
The Alpha Line of Gasoline, Kerosene and Distillate Engines



1½ HORSE-POWER—In a Class by Itself.
De Laval Dairy Supply Co.
San Francisco Everything for the Dairy Seattle

NO BATTERIES
NO COIL
NO CRANKING
NO TROUBLES

SPECIAL FEATURES

CYLINDER HEAD AND BASE cast separately; large, well-proportioned hopper, insuring perfect circulation of water full length of cylinder. Copper asbestos packing between head and cylinder.

CYLINDER AND PISTON ground to fit, insuring perfect compression.

IGNITER. Make and break. Standard National Gas Engine Association electrode used, which can be purchased in any hardware store. Igniter fits cylinder on copper asbestos gasket.

GOVERNOR is of two ball type, very accurate and substantial, equipped with speed changing device. The importance of a good substantial, reliable governor on an engine where long hours of pumping or cream separating are required cannot be overestimated.

GASOLINE CARBURETOR OR MIXER is of suction feed type, having a venturia nozzle in accordance with construction used on all Alpha engines, which have become famous for fuel economy and easy starting.

MAGNETO—Sumter built-in, gear-driven magneto. Especially built for the Alpha Junior. We have used Sumter magnetos as standard equipment on all Alpha engines for nearly five years and have never found its equal.

CRANK SHAFT extra heavy drop forged steel ground to size.

CONNECTING ROD—Drop forged Steel.

MAIN BEARING—Cut at an angle of forty-five degrees giving additional strength, lined with the highest grade babbit metal. Perfect in alignment. Adjustable to wear.

FLY WHEELS extra large, perfectly balanced, insuring a smooth running engine. It stays where you put it.

Shipping Weight, 300 pounds.

Compare Above Features With Any One and One-half Horse-power Engine on the Market, Then Write Us for Catalog 2B and Prices.

The Sheep Outlook.

Sheep are commanding an ever-increasing amount of interest on farms in the West and it is becoming quite common in some districts to find numerous small flocks being maintained as a side line.

Some remarks made by Dr. Arbuckle in the American Sheep Breeder recently are pertinent at this time, as they show the sentiment of Eastern farmers at this time, where the small flock has received consideration in the past.

He says: "I know that there are many who believe this is only a temporary condition; that it is a flood-tide due to war conditions in other sheep-raising countries; but as I see it we people of America hold a strategic place for many years to come, because, with the exception of South America, we are the only nation producing wool and mutton that will not be upset by the war. It is hard to see how ten years could bring these countries back to normal even if the war should stop this coming winter, which in my judgment cannot be expected.

"It will be for us to handle the manufacturing interests as we have never been able to do in the past, and the production of mutton will be developed with every passing month far beyond the expectations of the most sanguine. I do not expect to see lambs sell below six cents on the farms for many years.

"I am truly sorry that we have not been able to induce more of our small farmers to start small flocks. As the large flocks in the Western States are slowly giving way before the advancing tide of settlers who are to be tillers of the soil rather than stock raisers, I cannot see how we are going to meet the deficiency which must inevitably arise. For two years I have been preaching to the small farmers that the day of their opportunity is here. What is the matter with so many of them? There are two classes of people that opportunity never disturbs, viz.: dead men and men who flatter themselves that they are alive when they are dead. Is it possible that our small farmers are in this condition? It will take more money to stock up with sheep now than last fall, but it may take more next fall than this spring. Sheep raising will bring you large profits during the next ten years. Why not stock up before prices get higher?

"There will be an opening for small stud flocks, too. Who is going to supply the ever-growing demand for good rams? At no time in the history of our country will the breeding of purebred sheep experience such a boom. Coming as it does at a time when importations are greatly checked, it will exhaust our present breeding flocks to supply the trade this spring. At present it looks as if mutton lambs will bring almost as much as breeding lambs did at the same time last year. My hope is that the prices on breeding stock will not be pushed up too fast. I would rather see the surplus breeding stock used up without delay. It is a time that demands caution. It will be a test of integrity, for the demand will make it easier to dispose of inferior stock, and nothing could be more injurious to the future interests of the industry than the dissemination of inferior breeding stock.

"It is our opportunity in America to enlarge sheep breeding and multiply our resources in sheep husbandry, and we cannot hope to be permanently successful in extending the business unless we move along safe and honest lines."

CALVES FROM RECORD COWS

May Rilma 22761, A. R. 1726, who held the record previous to Murne Cowan 19597, A. R. 1906, and was sold for over $5000 at public auction, dropped a bull calf after making her world's record.

Notice has been received at the office of The American Guernsey Cattle Club that Murne Cowan, who recently gained the honor of holding the Guernsey record for milk and butter fat production and who for a time held the world's record over all breeds for fat production, dropped a large, nicely marked heifer calf May 18, and that both calf and mother were doing well. She was bred August 1. Thus, besides making her wonderful production of milk and butter fat she carried a calf during six months of her record. To carry a cow throughout a year on official test, milking her four times a day, having her bred successfully on the first service, gaining the honor of a world's champion record, and drying her off so as to give her a thorough rest—even though she were producing 50 pounds of milk per day at the end of her record—before producing a fine heifer calf, marks an advance step in the scientific care, management and breeding of live stock.

E. B. Macfarland of the Steije Brae Stock Farm of San Mateo recently purchased 21 Ayrshire cows from the Clise herd of Washington. At the National Dairy Show two years ago Mr. Clise captured the young herd prizes. Mr. Macfarland will exhibit his recent purchases, together with Ayrshires from his ranch, at the Panama-Pacific show this fall.

Poland China Pigs

LARGE AND MEDIUM TYPE

A Wonder and Giantess Stock.

Prize-Winners of either type. Several very fine young boars and a few bred sows for sale.

We guarantee to please or refund your money.

W. A. YOUNG, Lodi, Cal.

Hopland Shorthorns
Hopland Berkshires

All Stock Registered.
Bulls of Highest Quality.
YOUNG SOWS AND BOARS of finest Breeding and Type
Prices on Application.

HOPLAND STOCK FARM
HOPLAND, CAL.

Do It Electrically

PACIFIC GAS AND ELECTRIC COMPANY — PACIFIC COURTEOUS CONTINUOUS SERVICE

ELECTRIC APPLIANCES in the household not only add to the convenience of all members of the family, but they are economical and times-savers. ELECTRIC APPLIANCES include CHAFING DISHES, COFFEE PERCOLATORS, VACUUM CLEANERS, ELECTRIC IRONS and every other appliance that is needed in the modern home, not forgetting ELECTRIC FANS.

We carry these appliances in many of our branch offices, and will be glad to have you call and inspect them. Where we do not carry them we will be just as glad to give you our expert advice.

"PACIFIC SERVICE" is always "At Your Service."

Pacific Gas and Electric Company

HEAD OFFICE, 445 SUTTER ST., SAN FRANCISCO.

Branches in all principal cities and towns of North-Central California.

Don't Worry About Your Milking. Make Milking a Pleasure by Using the One Milker that Is a Success.

The Victory Milking Machine

THE Victory is a model of simplicity. No expensive pipe lines or Vacuum Pumps. A machine so simple that a child can operate it. Guaranteed to milk your cows clean, and cannot injure them in any way.

The price of a Victory Outfit is so low that it will pay for itself in a few months.

It is always ready for work. You can increase the size of your dairy without hiring extra milkers.

Tell us how many cows you milk. We'll tell you what an outfit will cost. We will gladly show you a machine in operation and you can see for yourself what the Victory will do. Write today.

Sanitary Dairy Supply Co.

242 Central Avenue Los Angeles, Cal.

AUCTION SALE, Tuesday, June 29, 1915 of 58 Dairy Cows and Heifers

at the farm of A. F. Scheidecker, 1 mile north of Bretona Station, on the "Old Hyatt Ranch" (16 mi. north of Woodland on the west side).

Having lost all my early hay and having under consideration the renting of my ranch, I will sell, without reserve to the highest bidder, all my cows and bred heifers as follows:

27 Cows—mostly Durham and Jersey, with a few Holstein.
27 Heifers—1st and 2nd calf.

These cows and heifers are good milkers and high testers: either in milk or due to freshen soon and nearly all bred to my high-grade Registered Holstein Sire.

4 Selected Heifers, one and one-half years old.

Most of these cows and heifers were raised by myself and are good stock.

1 Registered Holstein Bull.—"Tula Pietertje Ignaro"—grandson of Ignaro de Kol. A very fine young bull, born Nov., 1912. Has had the best of care and is perfectly gentle.

1 Mare. 2 Brood Sows—bred.

Train Arrives at Bretona at 11 a. m. Lunch served.

SALE COMMENCES AT 12 M. SHARP. TERMS CASH.

Train leaves Bretona for all points east, south and west at 6 p. m.

A. F. SCHEIDECKER, OWNER. Zumora, Yolo Co., Cal.
W. A. MACKINDER, Auctioneer.

Short Horn Bulls

7 Choice Registered Tuberculin-tested Short Horn Bulls, aged 14 to 20 months. If interested, write or call immediately.

H. L. MURPHY, PERKINS, CALIF.

Fattening Beef on a Dairy.

[Written for Pacific Rural Press.]

Taking advantage of one's surroundings usually pays; and with the coming of the silo, many dairymen in sections adjacent to cattle ranges will be provided with advantages which have not heretofore been furnished.

Such is the growing belief among many of our farmers; and that it is sound in practice as in theory is shown by the experience of F. A. Yates, of the Hawkeye ranch in Redwood Valley, Mendocino county. This ranch contains a small acreage of hill land and a good sized acreage of river bottom land, the former furnishing corral and building sites while the latter provides feed in the form of alfalfa and grain hay, and corn for the two silos.

Primarily it is a dairy ranch, a small herd of registered Holsteins having been started and a herd of Duroc Jersey hogs furnishing a profitable side line. Being in the stage of development both with stock and feed, the alfalfa is not irrigated, but two cuttings are secured, the rest of the year's growth being pastured off by the hogs.

The cured alfalfa hay is hauled to the barn and run through a feed cutter, thus allowing the storage of about three times as much hay as would be possible were it put into the mow direct from the field, and making it much more efficient as a feed.

Various crops have been siloed, corn being the principal one. Oats have been tried, but owing to the large amount of air carried in their stems Mr. Yates does not consider them of much value for that purpose.

Surplus Feed to Steers.—With small herds of both dairy cows and hogs, a surplus of feed has been the rule in past years and it was with the intention of turning this feed into money that Mr. Yates purchased a carload of beef steers in August last year.

The stock was purchased from cattlemen nearby, the price paid being six cents a pound. This was in excess of what they could have been secured for on a cash basis, it having been necessary to purchase them on security.

They were fed corn silage and chopped alfalfa with a small ration of rolled barley for four and a half months, at which time they were sold to the local butcher for seven cents, that being the top price in the San Francisco market at that time. By selling them locally there was no shrink and the butcher stated that he could use more of them, as they were the choicest animals he had ever handled.

The increase in weights was entirely satisfactory from a financial standpoint except with two steers which were of a Holstein cross. In those cases Mr. Yates says there was little if any gain during the entire feeding period. The steer which put on the most weight during the time was a Hereford.

Situated as he is in a district where steers can very often be picked up cheaply, and with a continual revenue from his dairy and hogs, Mr. Yates seems to have worked out a system of livestock farming which is bound to become more common as fast as the silo becomes recognized for its true worth

CARE OF MARES IN FOAL.

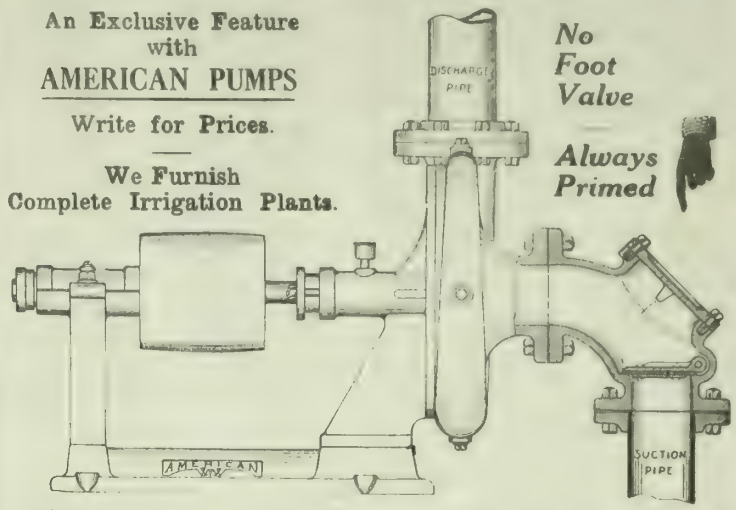
"There is a lot of nonsense about the care of a mare in foal," says the Animal Husbandry officers of the Oregon Agricultural College. "After she is bred she should be kept rather quiet for several hours, but after that the best thing she can have is steady work and three good meals a day. She should not be worked so hard as to become run down on good feed. If there is any slackening of work it should be about the fifth or sixth month. During the last three months she can do a lot of farm work, such as plowing and harrowing, without injury clear up to the time she drops her foal. She will then be in good condition to stand the physical strain and have her digestive system in good working order."

The Stanford Vina Ranch
Offers for Sale
50 Grade Shorthorn Bulls

These bulls are about 15 months old, California bred, thoroughly acclimated, vigorous and fast growing.

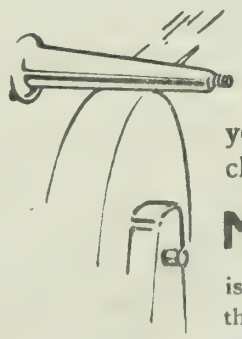
Address
W. G. Stimmel
Superintendent
Vina, Tehama County. Cal.

Swineland
TAMWORTHS, DUROC JERSEYS. We have for sale fine young stock, both sexes; also boars ready for service and bred sows. No better stock in this State. We have recently moved our big breeding establishment from Yuba City to Woodland.
Write or call and see us.
SWINELAND FARM.
W. B. PEARSON, Prop. WOODLAND, CAL.

New Type "AB" AMERICAN PUMP
and CHECK VALVE COMBINED
No Leak Through Stuffing Box.
An Exclusive Feature with AMERICAN PUMPS
Write for Prices.
We Furnish Complete Irrigation Plants.
No Foot Valve
Always Primed


California Hydraulic Engineering and Supply Co
68 Fremont St., S. F.; 129 No. L. A. St., L. A.; 31 Briar St., Lindsay.

Hillcrest Stock Farm
THORNTON S. GLIDE, Prop., Davis, Cal.
Breeders of
Short Horn Cattle
Shropshire and Merino Sheep
ATTENTION, SHEEPMEN
My pure-bred, range-raised yearling Shropshire and Merino rams are now out of the mountains and ready for inspection at my place.
Shropshires sired by rams imported by me from England in 1911.


The grindstone wouldn't wear your spindles much worse than cheap axle grease. But to use
MICA AXLE GREASE
is real economy and wisdom. It keeps the spindles coated with a slippery, wear-resisting, heat-resisting, lubricating film. And just a little does the work—about half that of other kinds. The ground mica does it. Dealers everywhere.
Standard Oil Company (California) San Francisco

Pomona Deep Well Pumps
For deep lifts, as well as shallow lifts, combined with high heads above surface, and through long pipe lines. No auxiliary pump needed for forcing water above the surface. No pit required.
Write for Catalogue 104.

Do not get oil into the water. Consume less power per unit volume of water pumped.
Write for Catalogue 104, with valuable information on Irrigation.
Pomona Mfg. Co., Pomona, Cal.

POULTRY keepers everywhere on the Pacific Coast are becoming interested in properly bred Utility Fowls. Many inquiries have been received from poultry keepers, both men and women as well as girls and boys, who never before thought of making an exhibit at a poultry show, asking how to proceed in entering fowls in the Utility class of the Universal Poultry Show at the Panama-Pacific Exposition, Nov. 18 to 28.

Hatch Chicks This Fall.

(Written for Pacific Rural Press by Geo. H. Croley.)

A correspondent asks if it is possible to successfully hatch and rear chicks in the fall in the foothills of Merced county. In a general way, we can state that it is not only possible, but the conditions are favorable in nearly all the foothills of the Sierra Nevada Mountains.

In the year 1885 the late C. L. Mast wrote to me in regard to his flock of Brown Leghorns which he kept near a mine not far from Coulterville, Mariposa county, at an elevation of something like 2,000 feet, stating that his chicks hatched in October and November were growing well and that he had decided to thereafter confine his hatching to the fall and winter months. It was quite a surprise to me at that time to learn that fall and winter hatching could be carried on in the interior of the State. Up to that time I had not heard of any one undertaking it except in the vicinity of San Francisco Bay. The previous year in Berkeley I had hatched 521 chicks with an incubator, placing them in the brooder house on Dec. 29, 1884. This hatch produced the strongest and best chicks of four lots incubated from December to about April first following. A neighbor in Berkeley from whom the eggs for incubation were bought, made a practice of hatching at least a few chicks every month in the year in order to have the pullets "coming in" at all seasons, and thus keep up a constant supply of eggs for a special family trade in Oakland, to whom they were carried twice a week and sold at a premium above store prices ranging from 10 cents per dozen in the spring to 25 cents per dozen in November. This neighbor stated that the best chicks were hatched from September to February and were most easily taken care of, while those hatched in June were the most difficult to raise. It does not seem to seriously affect the fall and winter hatched chicks to get wet, provided they have a reasonably good shelter to run into occasionally or in which at times they may be confined to protect them from severe rain storms. This applies to running chicks with hens as well as to those reared in brooders. There is ample proof that the practice of hatching fall chicks in nearly all parts of California will add to the profits of poultry raisers through increased production of the extra grade eggs at the time of highest prices, besides an indirect benefit from increased size and vigor of our fowls. We would be glad to have reports from any of our readers who have had experience with fall hatching

WIDESPREAD INTEREST IN UTILITY SHOW.

The complete rules and regulations for the Utility division of the Universal Poultry Show have not been completed, but will soon be ready for mailing. As many inquiries have been received from intending exhibitors who have never before exhibited at a poultry show, we state below a few of the items that have been decided upon: The entries close on October 15 so all breeders should decide on the number of cocks, hens, cockerels, pullets, and pens they wish to enter before that date. It is not necessary to decide on the exact individuals, but you should decide on the number and sex and select new leg bands to be put on them at the time of shipment. Each fowl entered either as an individual or in pens must be properly leg-banded. Send in your entry by or before October 15, 1915.

Birds will be received and cooped for exhibition on November 16 and 17. The exhibition period and time occupied in judging and reshipipng the birds will be from November 18 to 28.

There is no limit to the number of birds any exhibitor may enter in the Utility Class and the entry fee is fifty cents for each fowl, which pays for the cooping, care, feeding, and judging at the Show. Exhibitors may ship their fowls in any style of coop that is safe and comfortable for the fowls while traveling. The Exposition supplies the coops in which the fowls are exhibited.

The Exposition will give first, second, third, fourth, and fifth certificates or ribbons in the following classes:

1. Best egg types in every variety of the Mediterranean classes.

2. Best egg types in all other classes.

3. Best dual or general purpose types in all other classes.

4. Best meat types in all other classes.

In making an entry of fowls in the Utility class, it is not necessary to hold a certificate or any evidence of pedigree. If an exhibitor believes his fowls to be of a certain standard breed free from cross of another breed, all that is required is that he enter them under the proper name, to the best of his belief. Cross-breed fowls will also be provided for, but in this case the breeder must state exactly what the cross consists of.

Improved utility fowls are now sought for in all parts of the country. In Oregon and Washington poultry keepers are taking great interest in the coming show at the Exposition.

"There is no telling what may be accomplished by poultry breeding in the way of increased production of eggs," says Jas. Dryden, head of the Poultry Department of Oregon. "When it is known that the average of the state of Oregon and of the United States as a whole is about 80 eggs per hen in a year and that it is possible to secure an average of 200

Classified Advertisements.

Rates, 3c per word. No order for less than 25c per week. If you have anything to sell, or want anything, use these columns.

BEES AND HONEY

BEEKEEPING instruction book free for dime to pay printing, etc., which we will refund with your first order. Explains care bees, profits, size packages we ship, with prices, supplies, bees, etc. Spencer Apiaries, Gloss Ave., Nordhoff, Cal.

WANTED.

WANTED About seventy-five young men and women to enter the WESTERN NORMAL on August 30th, to prepare for teaching. Western Normal graduates secure and hold good positions. We assist graduates to secure good positions and promotion. We save you time and money. For information address, WESTERN NORMAL, J. R. Humphreys, Principal, Stockton, Cal., Box 704.

YOUNG MAN—21 years, with some experience, wants place on cattle ranch. Opportunity to learn of more consideration than compensation. Box 61, Pacific Rural Press.

WANTED—A party that understands dry farming in Mojave desert. Room 612, 110 Sutter St., San Francisco.

AGENTS WANTED to sell W. R. P. Legume Bacteria in every county. Western Rock Products Co., Balboa Bldg., San Francisco.

WANTED—Dried fruits, nuts, honey, beeswax, beans, etc. J. E. Lawrence, 326 Clay St., San Francisco.

MISCELLANEOUS.

SECOND HAND WATER PIPE and screw casing. New threads and couplings dipped in hot asphaltum. All guaranteed. Send us your inquiry. SHECTER PIPE WORKS, 306-8 Howard St., San Francisco.

LIVING EXPENSES REDUCED THROUGH CO-OPERATIVE BUYING.—Open to all. Write for catalog and particulars. Organizers wanted. Pacific Co-operative League, Dept. D, 236 Commercial St., San Francisco.

PROFICHI FIGS Five dollars per thousand. Best varieties. Limited amount only. Order now to insure acceptance. Palo Verde Vineyards, Box 21, R. R. 3, Fresno, Cal.

"SMITHS' PAYS THE FREIGHT."—To reduce the high cost of living send for our Wholesale to Consumer Catalog. SMITHS' CASH STORE, 106 Clay St., San Francisco.

FOR SALE—3-year-old "Best" tractor (gas), 80 h. p., newly overhauled and in good condition, with set of engine disc ploughs and for disc change. Address, Patterson Ranch Co., Patterson, Cal.

PROTECT YOUR IDEAS—Write for free patent books. Patents advertised for sale at our expense. Advice free. Pattison and Company, 971 G Street, Washington, D. C.

COMMERCE AUTO TRUCKS—Brand new. Regular price, $1075 f. o. b. San Francisco. $950 if you buy it now. Box 54, Pacific Rural Press.

TREES AND NURSERY STOCK

AVOCADO TREES—Investigate the wonderful Avocado industry. A ranch planted now will make you independent in a few years. Write for further information and literature. Vigorous field-grown budded trees of standard frost-resistant variety, from four to seven feet high, $1.50 to $2.00. W. A. Spinks, Duarte, Cal.

BURBANKS SPINELESS CACTUS—Hardiest varieties Melrose and Special. Strong, mature slabs, $8.50 per 100; $50 per 1000. Labranza Ranch, Athlone, Merced Co., Cal.

GRAFTED WALNUTS—CITRUS. All kinds of deciduous and ornamental trees. Rose bushes. Vines and Shrubbery. Get my prices before buying. Geo. M. Ketcher, Santa Ana, Cal.

LEMON TREES—Leading varieties. Extra fine large stock. Special prices. Fruit trees, berry plants, etc. Hannay Nursery, 167 E. Santa Clara St., San Jose, Cal.

LAND FOR SALE

50,000 ACRES LEVEL OREGON LAND now on sale, open for settlement in beautiful South Walker Basin, Klamath county, along right of way Natron Cutoff Southern Pac. Ry. Deep soil, every acre tillable, pure water, enough timber on every forty for farmer's use. 21 years' time, $2 per acre down, balance in 42 semi-annual payments. 5½ per cent interest. We operate demonstration farm. Want settlers and agents. Hunter Land Co., Title & Trust Bldg., Portland, Oregon.

INCOME POULTRY FARM—20 acres. Elegant home. Modern poultry equipment and fully stocked. Net profits around $400 per month. This statement can be verified. Owner has made sufficient to retire—hence the sale. These results obtained in 9 years, beginning with nothing. Absolutely a sound investment. If looking for a chicken ranch you cannot afford to pass this by. Price, $16,000. Half cash. E. F. Fisk, R. 1, Box 195, Santa Rosa, Cal.

FOR SALE—Beautiful mountain ranch one mile from Nevada City. Nine-roomed house and outbuildings. Land highly cultivated. Trees, vines, shrubs, poultry, cows, horse and buggy. Abundance water. Address Owner, Ben Tonella, Nevada City, Cal.

CALIFORNIA LAND – Money-making little farms. High-class, low-priced in all counties. First mortgage loan on farms bearing 7 to 9 per cent. Call or write the oldest land office in California. C. M. Wooster Co., 303 Phelan Bldg., S. F. Catalog free.

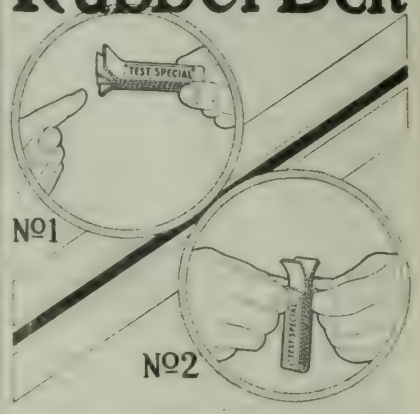
FARMS WANTED We have direct buyers. Don't pay commission. Write, describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

CITRUS LANDS FOR SALE at one-half its value, near Lemon Cove and the famous Merryman ranch, on electric line. For description and price, write or call on A. G. Griswold, Exeter, Cal.

FOR SALE—Quarter section stock or fruit ranch, five miles from county seat. Plenty water. For particulars call or write owner. O. Switzer, Merced, Cal.

STOCK RANCHES for sale in Eastern Oregon. Principal only need apply. 2509 Prince St., Berkeely, Cal.

The Standard Test for Rubber Belt



Ask your dealer to cut off two strips of belt one inch wide, one from Test Special and one from any other brand. Separate the plies with a knife as shown in Photo 1. Then endeavor to pull the plies apart as shown in Photo Number 2. If your dealer does not carry Test Special, secure a sample of what he has and send to us for Test Special sample.

If the plies of the belt are difficult to pull apart, and the duck is heavy and flexible, the belt is good. If they pull apart easily the belt is inferior. In a good belt, the rubber which cements the plies together is forced into every thread and fibre of the cotton duck.

We guarantee that twenty-five pounds pull on a strip one inch wide is required to pull the plies of Test Special Rubber Belt apart a distance of one inch per minute. This is our factory test, which every foot of Test Special Belt must meet. Test Special Belt will last twice as long as that which can be pulled apart by an eight or ten pound pull.

If your dealer does not carry Test Special Belt, write direct to us. We will send you a small piece of Test Special by mail with which you can make the comparison. Try the test yourself. Make sure the belt you buy is good belt.

New York Belting and Packing Co.

Established 1846.

519 Mission Street., San Francisco

Let us send you newest Booklet on Rubber Belt. It's Free—Write for it!

DEWEY, STRONG & CO.
SCIENTIFIC PRESS PATENT AGENCY
PATENTS
911 Crocker Bldg., S. F.
Circular containing 100 mechanical movements mailed free.

eggs a year, the great possibilities will be at once recognized. As it is, the production of eggs alone in the state of Oregon amounts to over $5,000,000 a year and of eggs and poultry over $8,000,000. An increase of only one dozen eggs a year per hen in this state would mean about $1,000,000 added revenue in the year."

Farm Poultry for Profit.

[Written for Pacific Rural Press by Susan Swaysgood, Pomona.]

PRESERVING EGGS IN WATER GLASS.

June is really the best time to lay by your winter eggs; seems to me they always give better satisfaction than if put down later. Every farmer ought to provide his winter eggs from the summer's crop while prices are low. This leaves him more to sell without restricting his own family the use of eggs for cooking when prices are high. There are several ways of keeping eggs for winter use, but the water glass method is the easiest and the most popular. Sodium silicate, commonly called "water glass," is the active principle used in preserving eggs by this method. Different grades of this are sold; and one kind I was unfortunate enough to get one year was the dark kind, made in Germany. Now what you want to get is a thick white kind, "made in America"; then if you do the work right, your eggs will keep.

A man came to buy forty dozen of eggs from me a week or two ago, and I asked him if he knew how to put the eggs down for keeping. He said yes, he understood that he must stir the water glass well into the water so that it would be mixed, and have the eggs fresh. I told him his eggs would not be worth five cents a dozen in a month from the time they were put down if that was all he was going to do. So I told him that he must first boil his water, after which came the mixing. Now that looks a simple thing, but it is a very necessary part of the egg-preserving job.

The strength of water glass sometimes varies, so it is better to be on the safe side and make it strong enough. I use eight quarts of boiled water to one quart of water glass; it may be mixed at once after the water comes to a boil, but it must be cooled off before the eggs are put in.

If the eggs are packed first in whatever they are to be kept in, large end down and the liquid poured over them, one can make a little better job of it than by putting the liquid in first and then adding the eggs last. When set large end down the yolk keeps in position better than if the eggs are put in at random.

Earthware crocks, candy pails, kegs, and even five-gallon coal-oil cans are all good containers for water glass eggs. The sodium silicate comes in tin cans, so it does not stand to reason that tin will injure the eggs, yet many people are afraid to use tin. See that all the eggs are well covered with the solution; then weight them down with a board. Watch the cans. The liquid evaporates a little in hot weather. When it does, add enough water that has been boiled and cooled off to replace what is gone, just so that the eggs are under the liquid.

Eggs that are taken from yards without males are the best for this purpose. They must be gathered fresh at least once a day; they must be packed without washing. If a little dirt should get on them it is better to scrape it off than to wash. If all is done right I would just as soon eat eggs that have been stored six months in water glass as the fresh laid article. But I want to do the preserving, from feeding the hens right through to eating the eggs myself.

Using Water Glass Eggs.—If the eggs are to be boiled it is better to let them stand a few minutes after taking from the water glass, wash off the shells and pierce one end with a fine needle. This lets out a little gas that seems to accumulate. If this is not done I find that the egg generally splits the shell in boiling. For frying, the eggs should be broken on a plate or some other dish and allowed to stand a minute or so before cooking. There is a slight tang of the water glass if the eggs are cooked immediately, while if allowed to stand a minute this disappears.

Storing in Salt and Bran. If a person cannot get water glass, he can put by a few eggs just the same with some home remedies. Take dry salt and bran, equal parts, and mix well. Have a clean grocery box on hand with a good thick layer of the mixture spread over a double thickness of clean paper; newspaper will do. Paper the sides and ends of box in the same way, gather your eggs as fresh as possible and place on the large end, but don't push them clear through the salt and bran to the bottom of the box. There must be some of the mixture all around each egg, so that in packing leave about a quarter inch between the eggs as they will stand in the box. If packed right and kept in a dry place these eggs will be found as near fresh when you use them as any store eggs you can buy after passing through several hands from producer to consumer.

I do not doubt that in time we shall get egg preservatives that will take less time to use and the eggs can be kept longer, than with the methods we have now, for in spite of everything, we are progressing; this is a pretty good old world yet, but some day it's going to be a whole lot better. I think the Governor's signature on the Chinese egg bills will help make it a little better world for the poultrymen of the State to live in. Now if he signs the Poultry Commission Bill, we will certainly hope for better things next year. The rest will be up to us; and it means better poultry, better care, and an all round better interest in the business.

Turk Legs Paralyzed.—What ails my turkeys? They have lost all use of their legs and toes. They eat well and seem all right otherwise, but instead of walking they just flop around. Is there any cure for it?

Frankly, I don't believe there is and you might almost as well cut their heads off. I think you must have brooded them wrong, but it is not a disease, just simply a condition. If it were cold, wet weather you might think they had rheumatism, but I believe they have been kept too warm in a brooder. As you do not give any particulars, I can't very well advise you

---

A carload of horses recently left Riverside for France.

DIVIDEND NOTICE.

THE GERMAN SAVINGS AND LOAN SOCIETY.

(The German Bank)

526 California St., San Francisco.

For the half-year ending June 30, 1915, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, payable on and after Thursday, July 1, 1915. Dividends not called for are added to the deposit account and earn dividends from July 1, 1915.

NOW is the Time to Feed

Coulson's Egg Food

to your pullets as well as your hens, commencing at the age of three months.

Write for free book "Chickens" from shell to market.

COULSON CO.

Petaluma, Cal.

Poultry Breeder's Directory

I HAVE ENLARGED my capacity to 65,000 egg room and can accommodate my customers better than ever with white and brown Leghorn chicks; also Barred Rocks and Rhode Island Reds. Indian Runner Ducks. Santa Clara Valley Hatchery, San Jose, Cal., R. R. 6, Box 336C. Phone S. J. 1889.

BABY CHICKS!! Barred Rocks, Rhode Island Reds, Black Minorcas 11 cents; White and Brown Leghorns, 8 and 9 cents. First class stock. Prompt delivery. Roodden Poultry Ranch, Campbell, Cal.

WHITE PLUMAGE Poultry Farm and Hatchery. Sells White Leghorns, Barred Rocks, Rhode Island Reds, Baby Chicks. Circular free. H. A. Schlotthauer, Exeter, Cal.

BARRED PLYMOUTH ROCKS—"The kind that Win and Lay." Choice stock for sale. Catalog free. Chas. H. Vodden, Box 396, Los Gatos, Cal.

CROLEY'S EVERLAY EGG MASH and CROLEY'S SCRATCH FEED form a perfect balanced ration. Ask your dealer for them.

TRAPNESTED LEGHORNS—White and Buff Stock. Eggs, chickens. Arthur R. Schroeder, Box 179E, Mountain View, Cal.

ORPINGTONS, BUFF AND WHITE, Black Minorcas and Carneux pigeons. Mrs. Susan Swaysgood, Pomona, Cal.

TURKEYS, DUCKS AND GEESE.

HART'S STRAIN OF BRONZE TURKEYS—Young stock of both sexes for sale. Eggs by the setting or hundred. Also eggs from special matings. Albert M. Hart, Clements, Cal. (Successor to Ed. Hart.)

CHICKENS, DUCKS, GEESE, GUINEAS, PEA FOWL. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

BELGIAN HARES.

IMPERIAL RED New Zealand Hares. Young stock and breeders for sale. Geo. M. Bosworth, Geyserville, Cal.

BELGIAN HARES—Young stock for sale. Hurd Bros., St. Helena, Cal.

California Poultry Practice. $1 postpaid. Pacific Rural Press.

Doing Business with a Business Concern

The business man is an important factor in your daily life and happiness.

He may raise wheat or cattle; he may manufacture flour or shoes; he may run a grocery or a drygoods store; he may operate a copper mine or a telephone company. He creates or distributes some commodity to be used by other people.

He is always hard at work to supply the needs of others, and in return he has his own needs supplied.

All of us are doing business with business men so constantly that we accept the benefits of this intercourse without question, as we accept the air we breathe. Most of us have little to do with government, yet we recognize the difference between business methods and government methods.

We know that it is to the interest of the business man to do something for us, while the function of the government man is to see that we do something for ourselves—that is, to control and regulate.

We pay them both, but of the two we naturally find the business man more get-at-able, more human, more democratic.

Because the telephone business has become large and extensive, it requires a high type of organization and must employ the best business methods.

The Bell System is in the business of selling its commodity—telephone service. It must meet the needs of many millions of customers, and teach them to use and appreciate the service which it has provided.

The democratic relation between the customer and the business concern has been indispensable, providing for the United States the best and most universal telephone service of any country in the world.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*

The Home Circle.

WANTED.

God give us men! A time like this demands
Strong minds, great hearts, true faith and ready hands;
Men whom the lust of office does not kill;
Men whom the spoils of office cannot buy;
Men who possess opinions and a will;
Men who have honor, men who will not lie;
Men who can stand before a demagogue
And damn his treacherous flatteries without winking!
Tall men, sun-crowned, who live above the fog
In public duty and in private thinking;
For while the rabble, with their thumb-worn creeds,
Their large professions and their little deeds,
Mingle in selfish strife—lo! Freedom weeps,
Wrong rules the land, and waiting Justice sleeps.

—J. G. Holland.

FUZZY'S FLYING MACHINE.

Once upon a time in Wormland lived little Fuzzy Caterpillar. He was a queer fuzzy-wuzzy sort of a chap, who crawled along the ground with his nose down, and his little feet keeping right straight ahead. Once in a while, when he grew very tired crawling, he took a swing in the willow tree just for a change.

None of the other little worms of Wormland understood Fuzzy. He never seemed to want to play games with them or stand and talk about the neighbor worms. He never was busy doing anything — he just crawled and swung, and swung and crawled.

"What a queer fellow!" said Sister Angleworm. "Why doesn't he get at something? He'll never become famous crawling over the ground all his life with his nose down."

"I've never seen such a fellow," said Borey Worm, as he peeped from an apple which had fallen from its beautiful tree home, because Borey had been making his home in it when he had no business there.

"I couldn't stand being such a lazy, fat, woolly creature," said Hookey Fish Worm. "He doesn't even wiggle."

"He hasn't enough energy to wiggle," answered Slimy Snail,—as they gossiped together. "Why on earth doesn't he shed that heavy coat in the summer?"

"He has been shedding coats right along," said Hookey. "Haven't you noticed the different colors of his coats? But each one seems to get heavier. Just watch him. He has a new one every few days."

"Well, all that worries me is his laziness," said Sister Angleworm. "I just wish he'd get at something."

Fuzzy only crawled along, smiling at all that the little worms had to say about him.

"I wonder whether I am lazy?" said he. "I can't work at silly things like eating holes in leaves or hiding away in apples, so that I can bore my way into the sunlight. I want to do something worth while. Some day I'll surprise them, and then they won't think I am sleepy and lazy. Folks who want to become great have to spend some time thinking."

So he spent his days crawling along, and his nights resting. One day he had a wonderful thought.

"I have a funny feeling under this thick coat of mine," said he. "Something tells me that, if I tried, I could fly some day. Why can't I invent a flying machine? If only I can do that, they won't make fun of me."

And he kept on crawling, never minding what the other little worms had to say, shedding coat after coat, and eating everything he could find to make him strong. One day he climbed into the willow tree for a swing.

"Guess I might as well begin my work," said he. "This is a good place. The little bugs and worms can't bother me up here with their silly talk."

Little by little he let himself down from the tip of a leaf, spinning a long silk thread. Little by little the thread grew thicker as Fuzzy went down. Little by little he spun around and around until he had woven a beautiful silk bag. Then he got in the center of it, and spun himself close into a little silk bed.

"I like this work," said Fuzzy. "My, but it is interesting! I wish I could do more, but I am so sleepy. Guess I'll try my cocoon bed, and take a nap. Perhaps if I do, my dream may come true. If it does, won't I surprise Borey and Hookey and Slimy! I do hope I will. I've been working very h-a-r-d.

And Fuzzy slept in his cocoon bed,
His queer silk covers drawn over his head.

There he stayed for many weeks. Uncle Sun watched over his bed by day, and Aunty Moon and the star babies twinkled at him all night. As for the little worms of Wormland they gazed up at his funny bed, which looked so much like a silk ball, and thought he was done for,—for how could he breathe in such a place?

"We always knew he never would amount to anything," they said one

LEARN WIRELESS
Railroad or Commercial Telegraphy
Telegraph operators see the world and get paid for doing it. The Marconi Company gives our graduates preference for positions. The only Telegraph School on the Pacific Coast having a direct main line wire. Individual instructions.
Send for Catalogue
MARCONI SCHOOL OF INSTRUCTION
18th and Madison Sts., Oakland, Cal.

BLAKE, MOFFITT & TOWNE
Dealers in PAPER
37 FIRST STREET, SAN FRANCISCO
Blake, Moffit & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

READY BUILT HOUSES

No Waste Lumber When Buying From Us.
The average waste of lumber in building a house is 18%. Out of every $100 you spend, $18 goes to the waste pile. The "Ready Built" plan saves this $18, and puts it into the house.
Complete 'knock down' houses as low as $205, plans so simple anyone can fit the numbered pieces of machine-sawed material together, and an attractive, substantial home is the result—and a saving in money, time and labor has been accomplished. Satisfaction guaranteed—but send for your catalogue today.
READY BUILT HOUSE COMPANY,
973 Broadway, Portland, Ore.

"I always find just what I need at the lowest price in WHITING-MEAD'S BUILDING MATERIAL Catalog" You can do the same!
Don't Delay Send Coupon Today and receive this Valuable Book FREE

Buy direct - - at rock-bottom pricee - - and save 25% to 40% on every order of building material you place. Clip the coupon, fill it out and send it in TODAY. You will receive the big, comprehensive Whiting-Mead complete Building Material catalog by return mail. It is saving money for thousands of ranchers. Why not for you?

26 Guage Corrugated Iron $2.60
Per 100 sq. ft.

A big special purchase that's another proof of our great buying power, as this price is really less than ordinary wholesale cost.

26 guage, 95 lbs. to 100 sq. ft., best annealed sheet steel thoroughly coated with a specially prepared paint and for many uses, even more satisfactory than galvanized.

Place your orders for this early, as even the great quantity that we have secured will not last us for very long, and it will not be possible to get more to sell at this price until after the war.

Regular widths in 7 ft., 8 ft. and 8½ ft. lengths.

Galvanized Screen Wire—14 mesh, per square foot in full roll [illegible]

Galvanized Conductor Pipe [illegible]

Irrigation Pipe—[illegible]

These prices will [illegible] building, fencing, tools, piping, etc., at "lower prices."

TOOLS for All Uses

10 in., Victor Brace, 75c.
10 in., Stanley N. P. ball-bearing brace, $1.80.
Stanley Levels, 12 to 18 in., 50c.
26 in., Disston saws, $1.50 and $2
Buck saws, blade 30x1¾ in., 75c.
Pruning shears, 50c; saws, 45c.
Fence pliers, 75c; will drive and draw staples, cut, splice, straighten and stretch wire, 10 in. size.
6 or 8 in., Stilson wrenches, 75c.
Spading forks, 75c.
Manure forks, $1.10; with 6, 13 inch oval tines.
Hay forks with 4, 15 inch oval steel tines, $1.
Square point, long handle shovels, 75c.
Garden hoes, 6 in. blade, 60c.
Gem heavy handle monkey wrenches, 6 in. size, 50c.
Agricultural monkey wrenches, 6 in. size, 25c.
Expansion bits, ½ to 1½ inches, 75c.
Large steel measure squares both sides, 50c.
1½ in., try squares, 20c.
Gem soldering sets, complete, 40c.
12 oz. claw hammers, 25c

Builders Hardware

Inside door locks, nickel finish, 50c each; dull brass, antique copper, or sand blast, 45c.
Sliding door locks, with one bronze key, finished in dull brass, antique copper or sand blast, single $1.40, double, $2.10.
Cupboard turns, cast brass T handle, antique copper, dull brass, sand blast or nickel plated, each 4c.
Drop handle drawer pulls, same finishes as above, 20c each.
Flush sash lift, antique copper or dull brass, 7c, sand blast, 8c each.
Bungalow front door handles with [illegible] sand blast, $[illegible] or complete with lock, $7.
Store door lock, very serviceable, cylinder bolt, bolts and latch with [illegible] finishes $[illegible] complete with brass escutcheon.
French window locks, pair of above finishes, $1.[illegible] per pair, at $2.50 value.
Genuine Yale night latches with three [illegible] key, $1.[illegible]
Pressed steel butterfly hinges, [illegible] per pair, all finishes.
Pressed steel screen door hinges, japanned, 12c pair; antique copper or dull brass, 20c pair.
Standard House and Floor Paints, $1.50 per gal.
Standard [illegible] at 25% off regular prices.
Black Graphite Roof [illegible] per gal. 50c.
Standard Roof Paints— red, green, [illegible]
Shingle stain [illegible]
Everything in Paints, Wall Tints, [illegible] at bar average [illegible]

WHITING-MEAD COMPANY
9th and Maple Avenue LOS ANGELES

WHITING-MEAD COMPANY
9th and Maple, Los Angeles, Calif. P.R.P.
Please send me Your 1915 Catalog of Building Material.
Name
City
State

The End of the Ant Nuisance

No Need To Suffer Longer From This Pest.

An old philosopher once said, "All these things shall pass away." It was a long, long time after this truth was given to the world, however, before a means was discovered to make ants pass away and stay away.

In the meantime thousands of women in all parts of the world have been driven almost to distraction by this intolerable household pest.

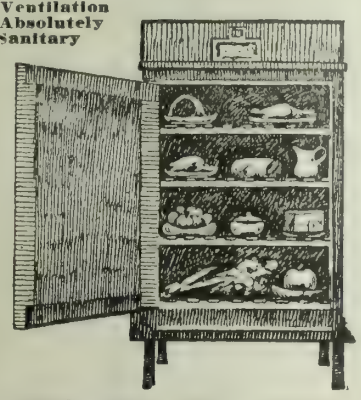
It remained for a mere man to find the remedy. A baker and candy-maker in Los Angeles, whose place was over-run with ants, had reached a point where he must either get rid of the ants or go out of business. After much experimenting he prepared a paste which drove every ant out of his shop in one day.

This wonderful remedy can now be had at all druggists under the name of Kellogg's Ant Paste. Try a package today, and you will never be annoyed with ants hereafter.

The STEPHENSON PATENT COOLER

No Ice Required

Perfect Ventilation
Absolutely Sanitary



Award first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

SWIFT
SAFE
SATISFACTORY
SERVICE

Excellent Freight Facilities

Oakland, Antioch & Eastern Ry.

Direct Service Between
SAN FRANCISCO — OAKLAND
and
SACRAMENTO

Through Electric Trains to Chico, Marysville, Oroville, Colusa, Woodland and other Sacramento Valley Points in connection with Northern Electric Railway.

Low Round-Trip Rates Each Week End and on Holidays.

Key Route Ferry, in San Francisco, Phone Sutter 2339.

Third and I Sts., in Sacramento, Phone Main 261.

Fortieth and Shafter Avenue, in Oakland, Phone Piedmont 870.

"The Farmer's Friend"

In Handy Buckets

Also Small Cans

Ask your Dealer

day as they talked together.

But up in the willow tree Fuzzy was awakening. My! but he felt funny. Not a bit like crawling down to his worm friends. He stretched himself—then

Off flew the covers from over his head,
And down fell the sides of his queer cocoon bed,

and out into the world, right through the air, flew Fuzzy, seated in the most wonderful, brightest-colored aeroplane in the world. So quickly, so easily he flew, that he almost forgot his name had even been Fuzzy Caterpillar, for the birds of the air were shouting, "Look at Swifty Butterfly and his flying machine!"

And the little worms of Wormland! Well, you never saw such a lot of excited, wiggling creatures as they were! Hookey Fish Worm came crawling up to Slimy Snail's cottage door.

"Look overhead, will you?" said he. "Isn't that Fuzzy Caterpillar we used to make fun of here in the village? That lazy fellow?"

"That's who it is," shouted Slimy. "Say, Fuzzy, where'd you get that flying machine?"

"Made it — made it! Thought it out while I was crawling around, while you fellows gossiped," answered Fuzzy, as he sat drinking a honey soda in the Rose Bush Restaurant.

Then away he flew from one flower town to another, drinking honey cups everywhere, and the little worms watched how the birds played with him.

"Who ever would have dreamed that Fuzzy would be so famous?" said Hookey Fish Worm.

"Who indeed?" echoed the other little worms of Wormland. — Edna Groff Deihl, in the Sunday School Times.

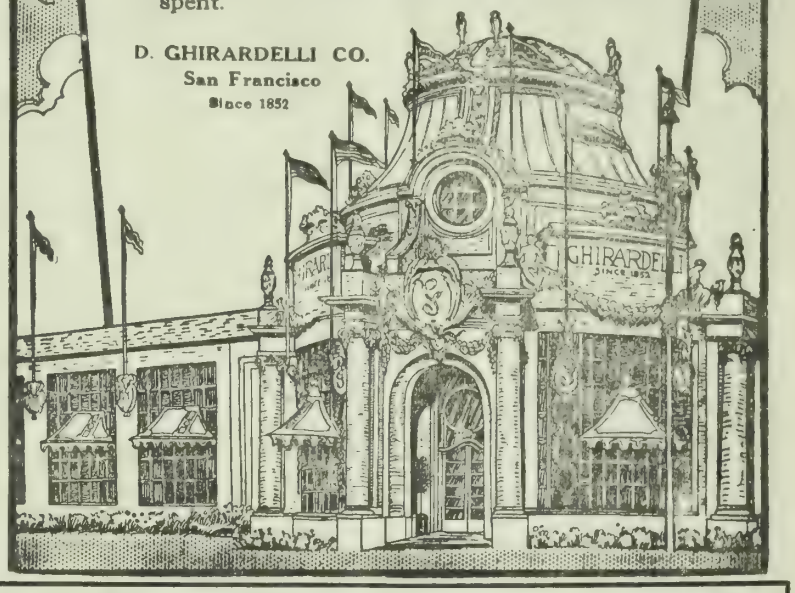
On the Zone

in the great Exposition now displaying the wonders of the world, is a model factory showing the complete process used in the making of

Ghirardelli's Chocolate

This factory is open to the public without charge and a cordial invitation is extended to our visiting friends to see this exhibit wherein a pleasant hour can be profitably spent.

D. GHIRARDELLI CO.
San Francisco
Since 1852



CALIFORNIA POULTRY PRACTICE

By Mrs. Susan Swaysgood.

PACIFIC RURAL PRESS, Publishers.

525 Market Street, San Francisco, Cal.

At EILERS, Now Only $96.60

A beautiful Standard Talking Machine, equal in tone, quality and finish to any $200 instrument, and 36 vocal and instrumental selections included at the price.

For the FIRST time we are offering this superb talking machine at this low price. Big, beautifully finished, equipped with all accessories, and supplied in mahogany or golden, fumed or weathered oak.

Try it in Your Own Home Free

Sent anywhere in California. May be returned at our expense if it is not all we claim it to be—and: It's not necessary to pay all cash!

Take Ten Months to Pay for It

Pay only a small amount down and we will deliver at once. Pay the balance in convenient monthly payments. But DON'T overlook this unheard-of opportunity. Write for Free Catalogues and actual illustrations today.

Eilers Music House

975 MARKET ST.
San Francisco

Talking Machine Headquarters

Autopianos, Player Pianos, Chickering, Kimball and other world-renowned Pianos.

The Markets.

San Francisco, June 23, 1915.

WHEAT.

The eastern and foreign markets are lower again this week, and the general feeling is toward further recessions; but locally the prices are being held at the old level by the fact that there are practically no offerings here.

Cal. Club, ctl.	$1.80	@1.85
Forty-fold	1.85	@1.90
Northern Bluestem	1.87½	@1.92½
Northern Club	1.80	@1.82½
Northern Red	1.77½	@1.85

BARLEY.

The situation here is stationary with no further fall in prices. In fact, choice feed is said to be a trifle firmer now than it was a few days ago. New crop barley is quoted at $1.02½, though hardly enough has come in to establish a market.

Choice Feel, ctl.	$1.02½	@1.07½

OATS.

Oats are down again this week, with supplies running a little too heavy for the demand.

Red Feed	$1.40	@1.45
White	1.50	@1.55

CORN.

California Yellow	$1.75	@1.80
Eastern Yellow	1.80	@1.85
Milo Maize	1.75	@1.80
Manchurian	1.40	@1.60

BEANS.

Considerable drops are reported in most varieties of beans; and the market is considered weak even at the declines. The heaviest cut is in bayos, which are down fifty cents per cental. Other varieties are down from fifteen to thirty cents. Blackeyes, Cranberries, horse and red kidney beans are still quoted at the old figures. Garbanzas are no longer quoted.

(On Wharf.)

Bayos, Cal., per ctl	3.75	@4.00
Blackeyes	5.50	@5.65
Cranberry Beans	4.00	@4.25
Horse Beans	3.50	@4.00
Small Whites	4.00	@4.15
Large Whites	3.90	@4.10
Pink	3.40	@3.50
Limas	4.00	@4.15
Red Kidney	4.90	@5.00
Mexican Reds	4.90	@5.00

SEEDS.

(Wholesale prices, San Francisco.)

Alfalfa	17½	@18½c
Brown Mustard, per lb	Nominal	
Canary	10	@12½c
Hemp	3	@ 3½
Millet	2½	@ 3 c
Timothy	7½	@ 8 c

HAY.

Hay arrivals have been very heavy this week for this time of the year, the total receipts being over 4500 tons, or nearly three times as large as for the same week of last year. A good deal of the arrivals had, however, been placed before it came in, so that there is no glut so far. Dealers report that the local demand continues rather light, even for this season. Prices are unchanged; and unless the heavy arrivals continue, are expected to remain about stationary for a time. So far arrivals of new alfalfa are confined to first cuttings; but it is expected that some good second cutting hay will be in before the end of the present week. One car of red oat hay has been received.

(Prices per ton, carload lots, on track, San Francisco.)

No. 1 Wheat, per ton	$11.00	@12.00
do. No. 2	8.00	@ 9.00
Barley	5.00	@ 8.00
Tame Oats	7.50	@12.50
Wild Oats	6.00	@ 8.00
Alfalfa	6.00	@ 9.00
Stock Hay	4.50	@ 5.00
Straw, per bale	40	@ 45

FEEDSTUFFS

The stationary and more or less lifeless condition of the markets in the whole grains is reflected in the feedstuffs market, where no changes are reported and where very little business has been done for some days.

(Wholesale prices per ton, carload lots, San Francisco.)

Alfalfa Meal, ton	$14.00	@15.00
Alfalfa Molasses Meal per ton	18.00	@19.00
Bran, per ton	29.00	@30.00
Oilcake Meal	None here	
Cocoanut Cake or Meal	25.00	@26.00
Cracked Corn	40.00	@41.00
Middlings	34.00	@36.00
Rolled Barley	23.00	@24.00
Rolled Oats	33.00	@34.00

VEGETABLES.

The vegetable market is in fairly good condition considering the steadily increasing receipts in a number of lines. Asparagus, tomatoes and summer squash have been in oversupply all week, with dropping prices in all these lines. A good deal of asparagus has been taken by the canners, generally at $1 per box, though there are said to have been sales at 75 cents. River tomatoes are now due and should soon be arriving in quantity. Cucumbers are now coming in from various sections, and are quoted lower. String beans, after a drop, are scarce again, and are quite firm. Corn is more plentiful and is generally quoted by the sack.

(Wholesale prices, San Francisco.)

String Beans, lb	2½	@ 5 c
Celery, crate	50	@1.25
Lettuce, crate	.75	@1.00
Asparagus, box	$1.00	@1.50
Peas, sack	1.00	@2.00
Peppers, bell, lb	8	@15 c
Tomatoes, crate	50	@75 c
Rhubarb, box	40	@60 c
Cucumbers, S'thrn, lugs	50	@60 c
Eggplant, lb	6	@ 8 c
Summer Squash, lug	50	@65 c
Green Corn, sack	1.00	@3.00
Okra, crate	.75	@1.25

POTATOES AND ONIONS.

Potatoes, Oregon, ctl	$2.00	@2.25
New River Potatoes, ctl.	1.00	@1.25
Onions, yellow, sk	65	@85c
Red, sk	50	@ 75c
Australian, ctl	$175	@2.00
Bermudas, crate	75c	@1.10
Garlic, per lb., new	5	@8c

POULTRY.

Heavy arrivals have been the rule for several days, both eastern and California stock coming in more freely than earlier in the month. This state of affairs has had its effect on prices, which are generally weaker, and several cents lower in the case of fryers. Small hens are down one cent; and Belgian hares are also a cent off.

(Wholesale prices, San Francisco.)

Live Turkeys, lb	15	@17 c
Broilers	19	@21 c
Fryers	22	@23 c
Hens, extra, per lb	16	@17 c
Small Hens, per lb.	13	@14 c
Smooth Young Roosters, per lb	24	@27 c
Squabs, per doz	$2.00	@3.50
Geese, per pair	2.00	@2.50
Ducks, young, lb	14	@15 c
Old	13	@14 c
Belgian Hares	6	@ 7 c

BUTTER.

The local market has held absolutely steady this week, without a single change in prices being recorded on the exchange. Arrivals have been rather large, and but for some heavy shipping orders for export there would certainly have been an easing off in the price. Nearly a quarter of a million pounds left for Australia early this week.

Extras	25	25	25	25	25	25½
Prime Firsts	24½	24½	24½	24½	24½	24½

EGGS.

The egg market has moved up gradually all week, sometimes one grade advancing half a cent and sometimes another, until now all lines are up from a cent to a cent and a half.

Extra	22	22½	22½	22½	23	23½
Firsts	19	19	19	19	20	20½
Sel Pul.	19½	19½	19½	19½	20	20½

CHEESE.

The market shows no great amount of activity, with supplies about equalling the demand and no changes in prices.

S. F. Dairy Exchange prices on flats and Y. A.'s.)

Y. A.'s fancy	12½c	
Fancy Calif, flats, per lb	11	c
Monterey Cheese	10	@12 c

LOS ANGELES DAIRY PRICES.

Butter	26	26	26	26	26	26
Eggs	20	20	19½	19½	21	22
Cal Cheese	12	12	12	12	12	12

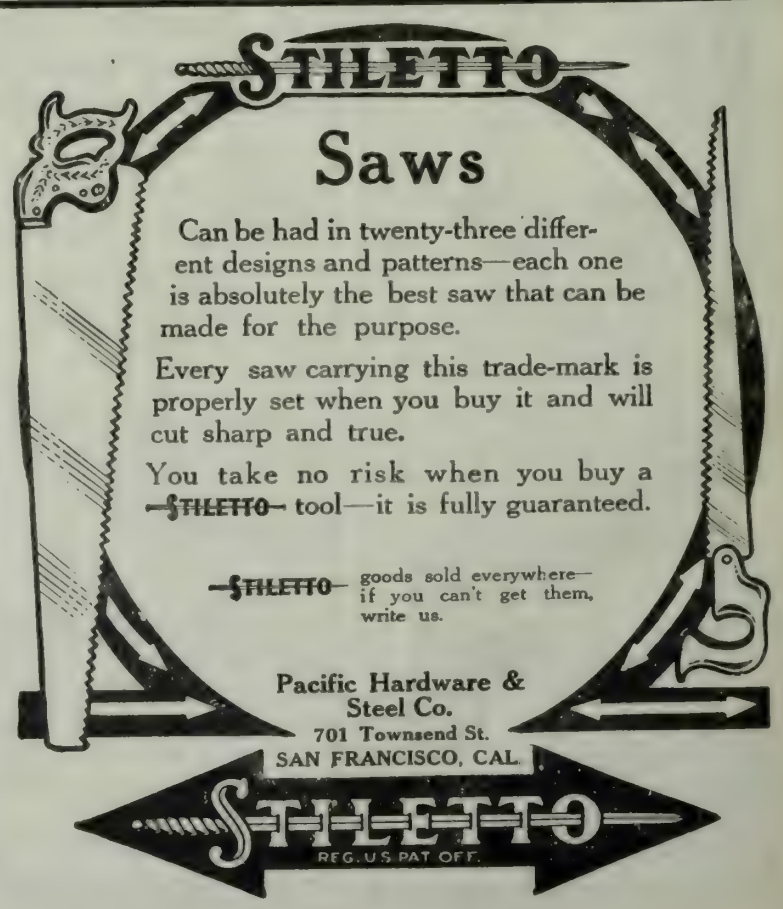
DECIDUOUS FRUITS.

As is to be expected with the advance of the season, declines are the rule in almost all lines. All lines of berries, with the exception of strawberries and gooseberries, show considerable drops. Strawberries are a little easier, but have held their own as to prices, though some of these have only a small amount of business to their credit, and are expected to weaken with further increases in supplies. Fancy black cherries are quoted at the old figures, but Royal Annes have dropped off. Peaches are beginning to ease off with the increased supplies.

Loganberries, blk, chest	$2.00	@2.50
Loganberries, red	2.00	@2.50
Strawberries, chest	4.00	@6.00
Raspberries, chest	4.00	@7.00
Gooseberries, chest	40	@60 c
Blackberries, chest	4.00	@5.00
Currants, chest	4.00	@6.00
Plums, crate	50	@85 c
Figs, box, single layer	75	@85 c
Cherries, lb., fancy blk	4	@ 7 c
Royal Anne	5	@ 7 c
Apricots, crate	50	@75 c
Lug	75	@90 c
Peaches, crate	50	@85 c
Small box	40	@55 c
Apples, new Red Astrachan, box	$1.00	@1.25
Apples, Newtown, fancy	1.50	@1.75
Cantaloupes, pony crate	.75	@1.25
Watermelons, lb	½	@ 1½c

DRIED FRUITS.

Since the naming of prices for the 1914 holdover crop of raisins by the association, a lively inquiry is re-



ported, and it is claimed that eastern and foreign inquiries are at hand, with a prospect of considerable business later on. Interest in the dried fruit market is largely centered in the advent of the first dried apricots of the 1915 crop which are expected in a few days. These are expected to bring from 6 to 8½ cents. Except in the case of peaches, there is hardly enough business being done to establish a market. The demand for peaches is poor except in the case of strictly fancy stock. Several small lots of the latter are reported to have been sold recently at 3½ cents. The feeling in prunes is said to be firmer, though there are not supposed to be any prunes left in the hands of the growers. Regarding the eastern situation, the New York Journal of Commerce says:

The sentiment for buying prunes both California and Oregons of all sizes still continues, and the market is firm, with a fair demand being reported from practically all the factors in this trade. The buying is being done by both local jobbers and out-of-town houses who are finding it necessary to renew their supplies in order to satisfy their immediate demands.

Reports from the Pacific Coast say that the packers there appear to be indifferent about selling. It is said that they are unable to buy supplies from the growers at prices which they consider advantageous to cover their sales, although they are bidding on a 3½c basis. Telegrams say that there appears to be a marked reaction on prunes for September or October shipments.

In peaches and apricots the market holds its dull and quiet aspect which has been marked for a considerable time. Little or no trading is being done in these lines and the prices remain unchanged from the quotations which have existed for the past week or so. The interest appears very lax for these fruits.

A good demand is reported in raisins and trading has begun on the basis of the new quotations for old stock raisins.

(Prices to Growers.)

1915 crop.	
Apricots, per lb	5½ @ 7 c
Figs, white	3¾ lb 4¼ c
Black	2¼ @ 3 c
Calimyrna	4½ @ 5 c
Prunes	2¾ @ 3¼ c
Peaches	3 @ 3½ c
Pears	5 @ 8 c
Raisins (in sweatbox):	
Loose Muscatels	4 @ 4½ c
Seedless Sultanas	4½ c

CITRUS FRUITS.

The eastern auctions are paying good prices for California valencia oranges. At New York on Monday, June 21st, valencias averaged from $2.75 to $4.60 per box. A few cars of navels were sold at prices averaging from $2.35 to $4.20. Sweets brought $3.25. Lemons are very low, some poor fruit selling for less than $1 per box and the best at $2.60. As there are a lot of lemons on hand in California as well as the east, growers are all waiting for the usual hot summer weather to cause a demand for their fruit.

Shipments of oranges are going forward from southern California at the rate of over 100 cars per day.

Just at this season when deciduous fruits are beginning to come in freely, the trade in San Francisco is taking less interest in citrus fruits, and the demand is easing off more or less. No changes in prices are reported this week.

(Wholesale prices, San Francisco.)

Oranges, navel, box	$1.75 @ 2.75
Valencia, box	1.75 @ 2.75
Grapefruit, seedless, box	1.75 @ 2.25
Fancy	2.25 @ 2.75
Lemons, box	1.50 @ 3.50

NUTS.

(Prices f. o. b. San Francisco.)

Almonds, 1915 crop:	
Nonpareil	17 c
IXL	14½ c
Ne Plus Uutra	14 c
Drakes	12½ @ 13 c
Languedocs	11 @ 11½ c
Walnuts:	
Jumbo, lb	19 c
No. 1 Softshell	16½ c
Budded	18 c
Ungraded	8 @ 10 c
Manchurian	6 @ 11 c

HONEY.

The trade here is still waiting for the new extracted honey, which is expected almost daily but has not yet appeared. Some small lots of new comb honey are arriving and these are freely taken at the former prices. The old stock is pretty well cleared off the market.

Water White, comb	10 @ 18 c
Light Amber	8 @ 10 c
Water White, extracted	5 @ 6 c
Light Amber	3½ @ 4 c
Dark	2 @ 3 c

LIVE STOCK.

The situation has not changed materially during the week, though there has been a weakening in dressed meats as far as prime wethers and dressed lambs are concerned. The market is, on the whole, firm with stockmen in the country a little more disposed to ask full prices for their stock.

(Prices at San Francisco.)

Steers, No. 1	6¼ @ 6½ c
No. 2	6 @ 6¼ c
Cows and Heifers, No. 1	5¾ @ 6 c
No. 2	5½ @ 5¾ c
Bulls and stags	4 @ 5 c
Calves: Light	9 c
Medium	8 @ 8½ c
Heavy	6 @ 7 c
Hogs: Grain-fed:	
200 to 300 lbs	7½ c
100 ot 200 lbs	8 c
Prime Wethers	6½ @ 7 c
Ewes	6 @ 6½ c
Suckling lambs	8 @ 8½ c

DRESSED MEATS.

Steers	10½ @ 11 c
Veals, large	12½ @ 13 c
Small	14 @ 15 c
Prime Wethers	12½ @ 13 c
Ewes	11½ @ 12 c
Suckling lambs	14½ @ 15 c
Hogs	12 @ 12½ c

WOOL.

California and other Pacific Coast wools are gradually moving out, a good deal having been shipped east in the last few weeks. Advices from Nevada state that a firmer feeling prevails there. There have been no changes in the prices quoted locally.

Wool, Sacramento Valley, lb	18 @ 22c
Southern, year's staple	16 @ 20c
Six months	15 @ 17c

HORSES.

The market here shows no change; and from reports of the situation in other parts of the country it seems that the dullness here is but a part of a larger dullness that affects the horse market all over the country in spite of the war demand that was expected to cause something of a boom in horseflesh everywhere. (Approximate values at San Francisco, based on auction sales.)

Heavy drafters, 1700 lbs. and up	$275 @ 300
Light drafters, 1550 to 1650 lbs.	175 @ 200
Chunks 1350 to 1500 lbs	150 @ 175
Wagon horses, 1050 to 1350 lbs.	100 @ 140
Green Mountain range horses, 950 to 1200 lbs	50 @ 90
Farm workers	60 @ 75

MULES.

1200 lbs. and up	$225 @ 250
1100 lbs.	200 @ 225
1000 lbs.	150 @ 175
900 lbs.	125 @ 150

HIDES.

There has been no further advance in hides this week, though the demand continues very active, and supplies are well cleaned up. Tanners are reported to be busy on leather for export to the warring nations, and a further advance in hides is a probability.

Heavy Steers, over 56 lbs.	15½ @ 16 c
Medium	15½ @ 16 c
Light Steers, under 48 lbs	15½ c
H'vy Cows, over 50 lbs.	15½ @ 16 c
Light Cows, 30 to 50 lbs.	15 15½ c
Kip	16 @ 16½ c
Veal	16½ c
Calf	16½ c
Dry Hides	26½ @ 27½ c
Dry Kip, 10 to 15	25½ @ 26½ c
Dry Veal, 5 to 10	30 c
Dry Calf, 7 down	30 c
Horse Hides—	
Salt: Large	$3.00
Medium	2.50
Small	1.00

HOPS.

1915 crop, lb	7 @ 8½ c

Almond Growers

Membership books will soon close. Those who desire to become members should make application at once.

CALIFORNIA ALMOND GROWERS' EXCHANGE,

311 California St., San Francisco, Cal.

SPECIAL DECIDUOUS MARKET REPORT.

By J. L. Nagle.

Sacramento, June 21, 1915.

During the past week there has been an active demand for practically all varieties, due to a large extent on account of the Fourth of July trade. Shipments have been liberal, with the exception of Cots and Cherries, which will be light from now on.

Alexander peaches, though running in small sizes, sold at satisfactory prices. Triumphs are now en route and the picking will be at its height this week.

As eastern fruits are arriving in car lots and as the movement in cantaloupes is averaging about one hundred cars a day, we look for a decrease in the demand and a slump in the markets after the first of July.

We cannot offer any encouragement to peach shippers during the months of July and August, but indications are that the demand for late pears will be exceptionally good, due to the shortage in Michigan and New York State, and we also feel that the prospects for good prices on Tokay grapes and Malagas are exceedingly encouraging.

The following prices have ruled for the week:

New York: Royal Anne Cherries, 70c to $1.05; Republican Cherries, 95c to $1.10; Bings, $1.30 to $1.67; Oregons, 90c to $1.35; Royal Cots (averaged) $1.07; Moorpark Cots,, $1.36; Newcastle Cots, $1.17; Seedling Cots, $1.60; Abundance Plums, $1.50; Clyman Plums, $1.20; Tragedy Plums, $1.75; Formosa Plums, $1.55.

Chicago.—R. Anne Cherries (averaged) 85c; Republican, 84c to $1.10; Bing, $1.10 to $1.60; Oregon, 85c; Royal Cots, 90c to $1.50; Moorparks, $1.09 to $1.60; Winters, $1.55; Seedling, $1.34; Abundance Plums, $1.13; Clyman, $1.10; Beauty $1.24; Tragedy, $2.05; Formosa, $1.40.

Boston.—Tartarian Cherries averaged $1.15; Oregon, $1.35; Bing, 90c to $2.50; Republican, $1.10 to $1.50; Bigarreau, 80c to $1.70; Alex. Peaches, $1.20 to $1.60; Royal Cots, 75c to $1.90; Clyman Plums, 80c to $1.85. Shipments of deciduous fruits to date 739 cars as against 1333 same date last year.

Publisher's Dept.

Last week owing to the fact that part of our subscription force was not working we did not secure the usual number of new subscribers—only 144 being added to our list. We anticipate a return to the normal increase of 200 copies next week.

The new book, "Productive Feeding of Farm Animals," by F. W. Woll, Ph.D., of the State Farm, Davis, seems to be popular with California stock men. In order that we may supply copies promptly we have ordered a shipment direct from the publishers and trust we can fill orders at our office in two weeks. Price $1.50 per copy.

The 5,000 edition of our book, "One Thousand Questions in California Agriculture Answered," by Prof. E. J. Wickson, is nearly out of print. All special offers on this work will be withdrawn after July 1st.

HOLT WINS NINE BIG AWARDS.

The Panama-Pacific Exposition announces the award of two grand prizes, five medals of honor and two gold medals on farm machinery to The Holt Manufacturing Company, of Stockton, Calif. All these awards indicate scorings of 95 per cent or better.

Grand prizes are given on the Caterpillar tractor and the Holt Combined Harvester. Medals of honor, next in rank, are awarded for the Caterpillar Disc Engine Plow, Caterpillar Moldboard Engine Plow, Caterpillar Disc Harrow, Caterpillar Wagon and Holt Wood Bar Engine Harrow. The Caterpillar Land Leveler and Caterpillar Sage Brush Plow receive gold medals. Every type of machine or implement entered by the company thus received conspicuous recognition.

The Holt exhibit is one of the largest in the Palace of Agriculture, and with the out-door display it occupies a larger area than any other single agricultural exhibit. Intelligent care in planning the display and a liberal expenditure in carrying out the details have made it a distinct feature of the Exposition.

INDEX TO VOLUME LXXXIX

Pacific Rural Press

(Continued from page 744.)

grinds teeth ... 184
hard milker ... 591
herpes ... 309
heavy breathing ... 662
holds milk ... 279, 509
impaction ... 184
indigestion ... 433, 710
injured bag ... 481
lice ... 85
masturbation ... 662
milk fever ... 309
loses eyesight ... 591
mouth bad ... 686
non-conception ... 25, 309, 457, 481, 662
pneumonia ... 378
poisonous bite ... 616
red water ... 508
swelling on milk vein ... 184
swelling on jaw ... 309, 373, 481
teats ... 149, 341, 408, 508, 616
ticks ... 346
tuberculosis ... 53, 432, 589, 686, 710
tumor ... 53
udder, caked ... 408, 432
udder, swollen ... 341, 432, 561, 686
vaginitis ... 309
warbles ... 373
dogs, distemper ... 53
insect in ear ... 686
skin diseases ... 213
horses, bad leg ... 341, 357
colic ... 457
distemper ... 662
eczema ... 429
growth on foot ... 432
growth on rectum ... 591
head troubles ... 245
heaves ... 686
hoof cracked ... 341
impaction ... 118
itch ... 245, 432
joint injured ... 616
lame ... 616, 686
leg crooked ... 561
mange ... 408
mule, lame ... 509
moon blindness ... 686
ring bone ... 662
scours ... 513
shoulder sore ... 561
skin eruption ... 591
swelling on thigh ... 508
teeth bad ... 279
udder drawn up ... 591
swine, cholera ... 21, 641
cold ... 85, 408, 616
constipation ... 537
cough ... 457, 509
cracked feet ... 408
growth ... 85
hard breathing ... 149
indigestion ... 245, 616
infection ... 408, 432, 561
lack of nourishment ... 685
lice ... 309
paralysis ... 119
rheumatism ... 119, 561
scours ... 149
swine plague ... 640
ulcers ... 149
worms ... 408
sheep, bronchitis ... 119
lameness ... 408
poisoning ... 405

W.

Walnuts ... 111, 298
English Black ... 8, 227
grafting ... 134, 227, 268, 443
growing ... 68, 298, 469, 605
interplanted ... 389, 548
prices ... 497
pruning ... 355, 574
stocks for ... 549
troubles ... 196, 651, 675
Water, developing range ... 375
farm supply ... 47, 207, 533
for electricity ... 17
rights ... 12, 42
Weeds ... 227
Wells ... 175, 368, 369, 427, 450, 661
Wheat, acreage ... 660
with peas ... 47
Whitewash ... 63, 264, 547
Wool-fat ... 372
Wood, fuel value of ... 45
Wood-saw ... 528
Wound wash ... 55

INDEX TO VOLUME LXXXIX
OF THE
Pacific Rural Press

From January to June, 1915.

[Articles not found under one heading are under another.]

A.

Acids for Stumps ... 163
Acorns as Stock Food ... 67
Agriculture, Bill No. 164..142, 147, 204
efficiency in ... 335, 398
Federation ... 287, 403
marketing ... 697, 721
Alfalfa, chopped ... 148, 589
cover crop ... 420, 526, 549, 580, 661
culture ... 67, 174, 699
ground ... 589
hay ... 512, 590
meal mill ... 704
silage ... 53, 87, 149, 512, 660, 712
troubles ... 603
through Canal ... 612
varieties ... 299
Alkali ... 41, 174
Almonds and alfalfa ... 526
budding ... 3, 443, 654
growing ..138, 259, 300, 419, 523, 549
grafting ... 269, 443
harvesting ... 580, 701
honey ... 297, 606
pollination ... 163
shelled ... 601
troubles ... 259, 265, 548, 675
Apples, ashes for ... 67
cold storage ... 8
clubs ... 75
growing ... 385, 445, 496
marketing ... 40, 170
planting ... 425
pruning ... 233, 387, 385, 628
run-down orchard ... 237
troubles ... 294, 358
Apricots ... 5, 45, 292, 389
culture ... 285, 387, 389, 425, 475
drying ... 605, 649
grafting ... 137, 269
troubles ... 523
Asparagus ... 131
Artichokes ... 52, 193
Automobiles ... 16, 112, 113, 369
cost of operation ... 80, 241
farm uses ... 113, 473, 563, 633
for pleasure ... 144, 336, 504
operation ... 337, 427, 729
speed ... 608, 632
Avocadoes ... 11, 108, 119, 173, 651

B.

Barley, feed and hay ... 511, 660
troubles ... 195, 603
Beans ... 355
growing ... 15, 36, 131, 467, 476, 501
market for ... 77, 476
tepary ... 3, 141, 208, 302, 367, 399, 526, 588
Bees ... 347, 391, 575, 579, 606
Beets ... 543
stock ... 491
pulp for cows ... 25, 339
sugar ... 576, 676
for feed ... 512, 560
Belt transmission ... 49
Berries, careful handling ... 574
growing ... 262, 330, 358, 362, 385
picking ... 493
pruning ... 36, 491, 571 604
troubles ... 99, 496
Bermuda grass ... 45, 141, 329, 571
Brome grass ... 457
Buckwheat ... 496, 547
Budding ... 443, 676, 724
Bur clover growing ... 445
Butter ... 310, 507, 685

C

Cactus ... 140, 302, 640
Carpet cleaner on auto ... 177
Cats ... 429
Cattle, beef, feeding ... 89, 280, 507
finishing ... 665
grazing ... 417, 737
on alfalfa ... 148, 308, 507
prospects ... 712
raising purebred ... 557
raising steers for profit ... 569, 664
Charcoal ... 236
Cherries, canning ... 263
growing ... 132, 394, 627
harvesting ... 524, 653
stock for ... 469
troubles ... 136, 323, 419
Chestnuts ... 443
Chick-peas ... 355
Citrus ... 133, 260, 325, 391, 495
budding ... 233, 700
culture ... 3, 102, 197, 627
experiment Station ... 42, 441
fertilization ... 302, 468, 493, 653
planting ... 233, 294, 333
troubles ... 13, 165, 233, 261, 324, 356, 468, 604
Clover ... 10, 67, 343
Cobwebs on roses ... 387
Concrete uses ... 372, 513
Co-operation, fruit ... 104, 113, 144, 444, 573, 604, 630, 653
general ... 46, 79, 110, 145, 532
livestock ... 708
Corn ... 110, 419, 506
growing ... 140, 343, 532, 605, 699
varieties ... 494, 641
worms ... 139
Cottony cushion scale ... 371
Cover crops ... 421, 445, 496, 498, 531, 547, 548
Coyotes ... 479
Crop prospects ... 421, 423, 492, 542, 579, 607, 631, 647, 655, 694, 703
Crude oil shingle paint ... 529
Cream separator ... 632
Cultivators ... 87, 113, 337, 681
Cured Fruit Exchange packing house ... 631
Cut worms ... 264, 528

D.

Dairy cows, A. R. O. requirements 641, 664
associations, cow testing ... 87, 685
care before freshening ... 248, 341
calves ... 52, 215, 639
dehorning ... 344, 661
feeding ... 25, 120, 288, 289, 292, 339, 345, 480, 508
fair entries ... 31
purebred ... 84, 433, 453, 664
sales ... 342, 430, 590, 617
tests ... 181, 216, 247, 277, 511
with alfalfa and almonds ... 549
world's record ... 342, 736
Dairying ... 121, 311, 465, 625, 732
cleanliness ... 181
certified ... 709
costs ... 152
Exposition barn ... 153, 588
feeding costs ... 311
laws ... 78, 117
principles ... 313
small scale ... 20
with hogs ... 65
Dates ... 725
Delta lands ... 302
Ditch cleaning ... 581, 677
Dodder killing ... 577
Drainage ... 11, 265, 580
Dried fruit prospects ... 470, 566, 598, 622, 631, 694, 707
exports ... 701
Dynamite ... 102, 109, 112, 207, 681

E.

Eggs, storage ... 59, 154, 186, 218, 739
bad taste and odor ... 619
color ... 619
feeding for ... 91, 122, 483
for calf indigestion ... 433
heated infertile ... 186
moldy ... 218
Electricity ... 17, 81, 305, 400, 728
costs of ... 145, 426
special uses ... 528, 552, 657
Emmer ... 576
Eucalyptus ... 141, 323, 476

F.

Faun lily ... 495
Fairs, local ... 19
Farming principles ... 232
Farming, diversified ... 276, 330
Feathers ... 59, 619
Feed grinding machine ... 632
Fertilizers ... 38, 99, 323, 334, 339, 365, 467, 676
Feterita ... 195, 302, 367, 501, 588
Figs ... 141, 327, 526, 575
grafting ... 200
growing ... 139, 140, 200
splitting ... 684
Flies and gypsum ... 209
spray for ... 710
Flower pests ... 651
Forest trees ... 69, 301, 361, 571
Frog raising ... 319
Frost fighting ... 204, 296, 425
Fruit ... 171, 237, 328
acreage by counties ... 492, 607, 703
digging trees ... 137
drying yard ... 604
dwarf pruning ... 37
in Napa county ... 257
marketing ... 628, 630, 701
market conditions ... 566, 598, 622, 631, 655, 671, 694, 719
planting ... 233, 261
soils for ... 101, 445
thinning ... 489, 605
troubles ... 7, 40, 72, 165, 166, 169, 170, 264, 326, 419, 424, 425, 448, 547

G.

Gas Engines ... 176, 473, 529
troubles ... 49, 305
uses on the farm ... 450, 580, 680
Goats ... 85, 184, 248, 665
Gooseberries ... 228, 358
Gophers ... 500, 684
Grafting ... 35, 97, 292, 524, 547
Grain ... 35, 37, 129, 177, 195, 511, 532
Grangers' work ... 15, 141
Grapes, grafting ... 99, 228, 292
in sawdust ... 136, 203, 545
mildew ... 291, 293, 357, 494, 647
on dredger wastes ... 106
packing ... 653
propagation ... 43, 269, 301, 328
pruning ... 293, 296, 325, 388, 494
tax ... 647
troubles ... 163, 355, 359, 368, 392, 421, 445, 469
varieties ... 7, 161
Gypsum ... 208, 209
on alfalfa ... 67, 174, 699
on alkali ... 41, 174

H.

Home canning ... 444, 541, 556, 605, 629, 652, 677, 700
Hollyhock rust ... 491
Horses, artificial breeding ... 345
breeders' association ... 212
breeding young mares ... 713
colts ... 409, 428
consignment sale of ... 308
draft ... 243, 511
exportation of ... 377, 477
feeding ... 55, 183, 292
from racing stock ... 121, 511
general purpose ... 242
good mares ... 56, 88
home demand for ... 117
opportunities for ... 225, 525
overcoming money loss ... 477
raising ... 557, 664
stallion license fees ... 639
teeth ... 151
types ... 244
tried stallions ... 21
water after supper ... 121, 377
Hotbed ... 301
Hoisting barrels ... 177

I

Importing plants ... 227
Inspection nursery stock ... 357
Irrigation, congresses ... 200
effect on fruit ... 74
forestry helps ... 363
pipes ... 48, 209, 263
practices ... 176, 199, 357, 524, 580, 699, 701
preparation for ... 145, 305, 581
power for ... 112, 450
winter ... 263

J.

Japanese Kuzu Vine ... 201
Jerkie ... 645, 689
Johnson grass ... 89, 307, 677

K.

Kale ... 560
Kangaroo mice ... 605
Katydid eggs ... 67

L.

Labor ... 452
Land settlement act ... 235
Landscape gardening ... 232
Larkspur poisoning ... 689
Lathe and drill shop ... 657
Lawns ... 443
Land, see before buying ... 13
Legal ... 137, 265, 302
Lemons ... 38, 102, 197, 230, 525, 549, 627, 629, 678, 699, 724
Lime ... 208
on alkali and alfalfa ... 174
Lime-sulphur ... 11, 293
Linnets ... 163, 232, 362
Livestock, advertising ... 506
at Exposition ... 584
breeding ... 281, 376
California breeders ... 614
cool water for ... 533
feeds ... 185, 372, 640
foot and mouth disease ... 344
meetings ... 184, 248, 383, 406, 415, 455, 479, 536, 584
principles ... 183
prospects ... 613
purebred ... 23, 639
trespassing ... 151, 279
Lizards ... 476

M.

Machinery at Exposition ... 305
Mangels ... 375
Manure ... 330, 389, 451, 494
Marl ... 99
Melons ... 76, 259, 269, 364, 476, 627
Mice ... 40
Mildewed hams ... 684
Milk, cost of production ... 121
equipment for handling ... 533
milkers' school ... 559
show at Exposition ... 687
wont' churn ... 409
Morning glory ... 268
Motor trucks ... 304, 450, 705
Motorcycle, uses ... 529, 680
Mushrooms ... 297

N.

Nectarine growing ... 230

O.

Oil sprays ... 360
Olives, budding ... 397
curing ... 9, 199, 497, 605
growing ... 71, 167, 291
pruning ... 227
varieties ... 35, 99, 298
Onions ... 339, 491
Oranges, culture ... 70, 390, 548, 573
irrigation ... 197, 351
marketing ... 166, 230, 473, 573
pruning ... 70, 106, 197, 321, 355
jelly making ... 526
troubles ... 141, 166, 391, 424, 627

P.

Paint on young trees ... 99, 295
Panama Canal ... 524
Panama Pacific Exposition, aeroscope ... 473
attendance ... 351
buildings ... 583, 584, 636
comforts and conveniences ... 584
cannery ... 394
dairy barn ... 153, 588
exhibits ... 499
facts about ... 584
farm power at ... 472
horticultural ... 403
horse show ... 711
interest to stockmen ... 584, 587, 588
interest to women ... 596
irrigation machinery ... 582
meetings ... 475, 479, 584, 687
Parcels Post ... 51
Peas ... 47, 476, 688
Peaches ... 69, 269, 420, 630
culture ... 361, 389, 525, 548, 697
diseases ... 163, 168, 234, 293, 467, 603, 605, 725
drying ... 676, 697, 719
pruning ... 3, 389, 572
propagation ... 35, 392, 443
Peanuts ... 467
Pears, growing ... 606
picking ... 677
pruning ... 136, 269, 469
spraying ... 297, 494
stocks ... 36, 101, 131, 201, 301, 627
troubles ... 297, 389, 424, 548, 651
varieties ... 333
Peppers ... 523
Photographing interiors ... 669
Plant disease principles ... 333
Plowing ... 17, 305, 581, 633, 680
depth of ... 15, 111, 651
disk before ... 337
Plums, grafting ... 443, 469
growing ... 75, 263, 391, 647
thinning ... 41, 493
troubles ... 163, 548
Polo ponies ... 376
Pomelo market ... 361
Post-mortem, thorough ... 53
Potatoes ... 159, 271, 291, 699
troubles ... 175, 367, 675
Poultry Associations ... 155, 187, 482, 538
Federated ... 59, 91, 127, 378
breeding ... 515, 562, 643
brooding ... 411, 514, 595
capons ... 690
cleanliness ... 667
coal oil ... 187
corn for ... 346
duck eggs ... 410, 619
duck raising ... 219, 315, 435, 563, 595, 715
feeding chicks ... 459
fruit for ... 219
geese ... 23, 58, 219
green feed for ... 667, 715
hatching ... 251, 283, 642, 667, 714, 738
houses ... 379, 595
Hogan system ... 346
loss of profit ... 27, 250, 282, 314, 346
mating ... 90
milk for ... 251, 347, 483
molting ... 187
Orpingtons ... 123, 155, 347
outlook ... 346
poultry commissioner bill ... 410, 434, 458, 482, 594, 618
Rhode Island Reds ... 347
rolled barley for ... 315, 619
shade for ... 595
standard weights ... 483
size pen ... 219
utility ... 642, 666
ventilation ... 434
water for ... 595
shows ... 87, 434, 515, 562, 594, 690, 714
troubles, broken egg ... 483
canker ... 251
catarrh ... 483
coccidium ... 642
combs, sore ... 563
diarrhoea ... 91
egg-eating ... 715
eyes, sore ... 563
insects ... 539, 595, 619
limberneck ... 379
lumpy combs ... 411
mites ... 667
rheumatism ... 483
runts ... 691
swell head ... 251
toe picking ... 459, 618
weakness ... 539
worms ... 563
turkeys:
feeds ... 187, 346, 379, 514, 715
raising ... 26, 58, 283, 346, 619
troubles, 315, 539, 619, 643, 691, 715
Prunes, dipping ... 632, 652
fertilizing ... 445
filling crotch basins ... 575
growing ... 33, 164, 195, 200, 389, 429, 524
prices ... 103
moisture requirements ... 227
pruning ... 4, 726
troubles ... 269, 355, 498, 547, 548
Pruning, general ... 101, 491
Pumps ... 47, 48, 112, 145, 177, 240, 241, 337, 427, 528, 529, 633, 656, 728
Pumping ... 17, 113, 369, 505

R.

Rabbits, as pests ... 63
for meat ... 14, 44, 115, 118, 181, 185, 215, 249, 315, 343, 399, 405, 595, 619, 636, 666, 688
Raisins ... 42
Rape ... 675
Reclamation ... 419
Red Spider ... 545
Redwood ... 47, 363
Rhubarb ... 42, 237, 576
Rice ... 11, 77, 81, 303
Roads ... 673
Roses ... 387, 499, 627, 651
Rural Credits ... 198, 202, 303, 366, 374, 396, 397, 423, 425, 457, 471, 509, 539, 550, 633, 660

S.

San Joaquin, West Side ... 332
Schools ... 379
Sheep, breeding ... 116, 121, 429, 589
feeding ... 185, 313, 383, 560, 677
growing ... 240, 588, 736
Shingle paint and nails ... 172
Silage and silos ... 733
alfalfa for ... 53, 87, 512, 712
construction ... 249, 404, 665
crops for ... 23, 353, 531, 636, 688
cutting costs ... 207, 657
in Stanislaus ... 639
moldy ... 181, 713
size of ... 21, 185
uses ... 183
Soils ... 78, 119, 367
bacteria ... 111, 173, 365, 395
tight ... 131, 265, 420
Sorghums ... 195, 227, 419, 636
Spraying ... 139, 240, 272, 390, 497, 549
Spray pumps ... 144
Squash bugs ... 110, 292, 339, 500
Squirrels ... 527, 587
Strawberries ... 100, 493, 549
Steam boiler uses ... 528
Stump pullers ... 681
Sudan grass ... 204, 445, 575
Sunflowers ... 467
Sweet potatoes ... 500
Swine ... 151, 665
artichokes for ... 52
beet syrup for ... 213
breeding ... 53, 121, 281, 521, 665, 735
clubs ... 88
cholera immune ... 376
coal screenings for ... 537
cocoanut meal for ... 372
dairy and ... 65
dressing ... 249
farrowing pens ... 117
fattening ... 560
feed for ... 24, 185, 521, 661, 665
feed for sow with pigs ... 117, 641
feterita for ... 152
milk for ... 433
orange culls for ... 21
purebred ... 180, 215, 276, 428, 456, 557
root crops for ... 372
shade for ... 685

T.

Tamale shucks ... 40
Tank, height of ... 79
Tankage ... 213
Testing Oil Flashpoint ... 496
Tomatoes ... 523, 629
Tractors ... 273, 505, 581, 609, 657
cost of operation ... 16, 80
farm uses of ... 112, 240, 241, 272, 273, 336, 337, 368, 369, 401, 450, 504, 528, 552, 581, 656, 681
fuel for ... 17
school ... 145, 206
size ... 49, 608, 656, 705
troubles ... 272, 273, 427
Truckee-Carson project ... 270

U.

Unemployed ... 452
University courses ... 19, 608
Valves, poppet ... 81
Vegetables ... 71, 355, 467, 523, 627
Veterinary queries, Cattle:
abortion ... 57, 213, 408, 432, 561
anthrax ... 373, 429, 508
blackleg ... 591
bloat ... 509
bloody discharge ... 537
bloody milk ... 279, 537
calf overfed ... 481
cold ... 429
cough ... 184
constipation ... 309
cow-pox ... 375
cystic ovaries ... 119
dehorning troubles ... 119, 245
diarrhoea ... 372
drying up ... 184, 508, 640
ear ticks ... 481
eye troubles ... 710
garget or mammitis ... 53, 213, 379
growth on forehead ... 591
growth on joint ... 149
growth on neck ... 537
growth on teat ... 85

(Continued on page 743.)